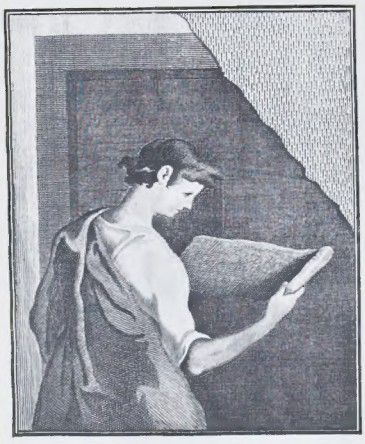


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The Builder.

VOLUME III.

SATURDAY, JANUARY 4, 1845.

ADDRESS.

WE issue to-day the hundredth Number of THE BUILDER, and commence with it a new year. Our progress up to this time has been in the highest degree satisfactory; friends have grown up around us on all sides; the goodness of our purpose has been universally recognized; and we consequently now find ourselves in a position to effect much more than we have yet attempted. From this position we shall vigorously avail ourselves, and will spare no pains or outlay to render this journal *the* organ, *par excellence*, of the numerous and influential classes interested in architecture, building, engineering, archæology, practical science, and the decorative arts.

We are making such arrangements as will insure for our readers the earliest and most authentic information on all subjects whereof THE BUILDER treats, both foreign and domestic, with sound and impartial opinions on the various matters which may come before them. New buildings, new materials, new processes, and new books, will be described and illustrated. As regards the latter, it is a constant complaint amongst provincial architects and builders, that having nothing to guide them in their purchases, they are led to order from London works which are of no use to them, and more often to refrain from buying those which, if they had a general notion of their contents and worth, they would gladly possess. We shall endeavour to supply this deficiency: and being untrammelled by any connection with publishers, shall do so fearlessly and honestly; with a disposition at all times to lend out a friendly hand to rising merit, and to give praise rather than censure, but with a resolute determination to shew no mercy to the shallow empiric or the egotistical pretender.

The properties of materials, and all new modes of construction, we shall be anxious to investigate; and we invite the earliest intelligence on these points, so that we may place the result of inquiry before our readers.

The new Metropolitan Buildings Act, which came into operation on the 1st instant, will necessarily be liable for a time to various readings, and will offer some disputed points. Our pages will be open for the discussion of them, and consideration will be given to such questions as may arise. The health of towns, which this Act materially refers, has always received from us the attention that the importance of the subject demands: it will continue to form a prominent feature in our journal, and we shall aid resolutely every endeavour that may be made with that end in view. Against faulty modes of construction, unfortunately numerous and general, we shall continue to wage war,—one great object of THE BUILDER being the introduction of sound principles in building, and the dissemination of practical knowledge. The improvement of dwelling-places is an object of national importance.

Close pursuit of the useful will not, however, prevent attention to the beautiful, indeed the connection is too intimate to admit legitimately of separation.

"Taste never idly working, saves expense."

It must be constantly remarked that architecture as a fine art is much less understood by the public than as a useful art, whence it follows that our advance in matters of taste is much slower than in matters of utility. It will be our aim from time to time to diffuse a knowledge of the principles of architectural criticism and to cultivate the taste of our readers so far as it may be in our power to do so. The preservation of ancient remains, the proper conduct of societies devoted to architecture and archæology, and the due administration of *competitions*, will be specially regarded by us, and strenuously advocated. On all these points public opinion is now very different from what it was even ten years ago, and we believe we shall materially aid in obtaining a satisfactory result by concentrating information relating to them, and exposing unflinchingly, every instance of tergiversation which may become known.

We have a wide field, and strong determination: with that co-operation on the part of those interested in these matters that we have a right to expect, and which the present editor, commencing a new task, earnestly solicits, we cannot fail to effect much good.

WE ASK THIS CO-OPERATION, KIND READER, FROM YOU YOURSELF.

MODEL (?) HOUSES FOR THE LABOURING CLASSES.

IN THE BUILDER for December 21st, we drew attention to a statement and engraved plan of fifteen houses for the labouring classes, recently issued by the society for improving the condition of that part of the population. From this we learn that:—

"The committee, feeling that no description or reasoning, however accurate, is likely to make such an impression on the public as an actual experiment, had resolved to build a certain number of houses as models of the different kinds of dwellings which they would recommend for the labouring classes in populous towns; and for that purpose had taken, on reasonable terms, an eligible plot of land between Gray's-inn-road and the Lower-road, Pentonville, on the estate of Lord Calthorpe, and had commenced, under contract, the erection of the buildings shewn on the plan.

"In the arrangement of these buildings, the object had been to combine every point essential to the health, comfort, and moral habits of the industrious classes and their families, reference being had to the recommendations of the Health of Towns' Commission, particularly with respect to ventilation, drainage, and an ample supply of water."

Anxious to examine the society's first work, constructed with such an end in view, we hastened to the site of the new houses—the *model* houses near the Bagnigge Wells Tavern. We regret to say, unaffectedly and seriously, that our worst anticipations are confirmed. The arrangement is a disgrace to the society, and cannot surely have been seen by Lord Ashley, the chairman of the committee.

In the Buildings Regulation Bill, brought in by that excellent nobleman in conjunction with Mr. Fox Maule and Mr. Tufnell, Feb. 1842, it is set forth most justly "that it shall not be lawful to build any new court or alley (except mews and stable-yards) narrower than 30 feet, through which there shall not be an open passage at each end thereof at least 20 feet wide, and entirely open from the ground upwards." And in the new Metropolitan Buildings Act, it is actually provided that no court or alley shall be built without "two entrances thereto, each being at the least the full width of the alley." Will it be believed then, by our readers, it certainly was not by ourselves when we first saw it even with our own eyes, that these houses now in course of erection, *model* houses remember, to which the society are to appeal when endeavouring to persuade some money-loving landlord to build in a manner more conducive to the health of the future occupiers than to the increase of his revenue, are actually arranged to form *a court open at one end only*, AND LESS THAN 23 FEET IN WIDTH AT THE WIDEST PART!! The plot of ground on which the fifteen buildings are crammed is so small, that, notwithstanding this proximity, the yard attached to each house is literally what its name imports in feet, or very little more.

We call most urgently on the committee and the shareholders to prevent the consummation of this most dangerous mistake, or they will rear a hot-bed for infection, and throw a great impediment in the way of that improvement which they profess to seek. The houses on one side are nearly roofed in; those on the other side have merely the footings laid; and we trust our contemporaries of the press will aid us with their powerful voices in our endeavour to prevent the completion of the plan as at present contemplated. If we were not assured that the income derived from these buildings would be devoted to the general objects of the society, we should say, that mammon had fought against facts, judgment, and common sense, and, to the discredit of all concerned, had gained the day. We hope there may yet be time to modify the evil.

CURIOUS ARCHITECTURAL REMAINS IN BOW CHURCH-YARD.

At the Society of Antiquaries, on Thursday, 19th ultimo, a paper was read from Thomas Lott, Esq., F.S.A., noticing some subterranean architectural remains (being stone vaultings of substantial masonry) beneath the houses in Bow church-yard, City, of a very interesting character, although of a much later date than the celebrated Norman crypts at present existing under the church.

Beneath the house No. 5, occupied by Messrs. Grocock, is a square vaulted chamber, 12 feet by 7 feet 3 inches high, with a slightly pointed arch of ribbed masonry, similar to some of those of the old London bridge. There had been in the centre of the floor an excavation which might have been formerly used as a bath, but which was now arched over and converted into a cesspool. Proceeding towards Cheapside, there appears to be a continuation of the vaulting beneath the houses Nos. 4 and 3. The arch of the vault here is plain, not ribbed, and more pointed. The masonry appears, from an aperture near to the warehouse above, to be of considerable thickness. This crypt or vault is 7 feet in height from the floor to the crown of the arch, and is 9 feet in width and 18 feet long. Beneath the house No. 4 is an outer vault. The entrance to both these vaults is by a depressed Tudor arch with plain spandrils, 6 feet high; the thickness of the walls about 4 feet.

In the thickness of the eastern wall of one of the vaults, are cut triangular-headed niches, similar to those in which, in ancient ecclesiastical edifices, the basins containing the holy water, and sometimes lamps, were placed, instances of which are seen in Old Stepney Church, and many other buildings of the same period.

These vaultings appear originally to have extended to Cheapside, for beneath a house there, in a direct line with these buildings, and close to the street, is a massive stone wall.

The arches of this crypt are of the low pointed form, which came into use in the 16th century.

There are no records of any monastery having existed on this spot, and it is difficult to conjecture what the building originally was; Mr. Chaffers thought it might be the remains of the crown sild, or shed, where the sovereigns repaired to view the joustings, shows, and great marching watches, on the eves of the festivals.

Accompanying his communication Mr. Lott had sent two old deeds, being grants by letters patent from Henry VIII., with impressions of the great seal attached, on which he had stumbled in his researches as to the existence of any monastery on this spot. One of these deeds excited great interest, inasmuch as the splendidly illuminated margin contained a portrait in colours of the king, which, from the care bestowed on its execution, and its resemblance to the heads on the coinage of the period, might possibly be a good likeness of the absolute monarch.

Mr. Lott also laid on the table the ancient silver parish seal of St. Mury-le-Bow, representing the tower of the church as it existed antecedently to the Fire of London, with its bows or arches of stone, and five lanterns therein, intended to have been glazed, and lighted at night to guide the passengers across the ferry of the Thames.

DISTRICT SURVEYORS' ASSOCIATION.

"A chiel's amang ye, takin' notes,
An' faith, he'll prent 'em!"

The anniversary dinner of this association took place on Monday last, at the Freemasons' Tavern, when forty gentlemen sat down, and H. E. Kendall, Esq., took the chair, supported by Professor Hosking, the official referee appointed under the Metropolitan Buildings Act. Mr. Baker, hon. sec., read the friendly apologies of Mr. Higgins, the other official referee, and of Mr. Symonds, the registrar, for their unavoidable absence.

After the usual toasts, the Chairman alluded to the great gratification which the presence of Mr. Hosking gave to himself and to the meeting, and proposed the health of "The Official Referees and the Registrar."

The toast having been received with cheers, Mr. Hosking thanked the society for the compliment paid to him, and expressed much pleasure at having received their invitation; it was an earnest that, under the new circumstances in which they would soon be relatively placed to each other, he should receive their co-operation; they would all shortly be in the same boat together, and when he considered the great experience of many members of the Association, and the attention which they had bestowed upon the new Act, he hoped to derive great benefit from their assistance. If, however, in the performance of his office, he should be compelled to differ in opinion from them, or to exercise any of the powers which the law gave him over their appointments and their duties, he was glad to have this opportunity afforded to him of shewing the usual feeling of an Englishman, who always shakes hands before the fight. (Cheers.) With some complimentary observations, he then proposed, "Prosperity to the District Surveyors' Association."

The Chairman having acknowledged the toast, briefly gave, "Mr. Donaldson and the newly-elected Surveyors."

Mr. Donaldson said, that the duties of the new surveyors would be comparatively light, for whenever any case of difficulty arose, he should not fail to call in Trafalgar-square for proper directions (a laugh); so that, what with following the example of the senior surveyors, and the advice of the official referees, the path would be clear, and easily pursued.

The Chairman then said, it would be recollected that, three weeks ago, Mr. Baker, the honorary secretary, had stated his intention to resign the office, and assigned his indisposition alone as his reason for doing so. The association felt that much was due to their esteemed friend, not only for the efficient manner in which he had for so long a period performed the duties of his office, but for his exertions at the formation of the society. A committee was therefore formed, and it was unanimously agreed to present him with a silver salver, having an appropriate inscription. However inadequate the gift, he now begged to present it in the name of the association, and to couple with it, a bumper to "Mr. Baker's health."

The toast having been received with cheers,

Mr. Baker said, that though he had been led to expect this mark of kindness at their hands, he was, nevertheless, but ill prepared to express, in appropriate terms, his grateful sense of it. Returning thanks seemed, at first sight, an easy task, but when the heart was full, no one knew, until he tried, how difficult it was to clothe gratitude with words. On this account, he begged for their forbearance, for like Trotty Veck, he found "every word swelling in the throat to the size of the whole alphabet." Imperfect, however, as he might express it, he assured them that his gratitude was at least sincere, and that he felt deeply indebted to all,—to those whom an intercourse of many years had impressed him with the knowledge of their worth and their good fellowship, and also to those new members, who, uncalled for and unlooked for, but not uncared for, had voluntarily come forward on this occasion. He valued the inscription upon the plate more than the plate itself, and trusted that he should preserve his friends as long as he should preserve their testimonial. He could not relinquish the post of secretary without congratulating the association on its healthy and prosperous condition: there had been no quarrellings, no jealousies, or discontent, to induce one member to retire; but all the meetings had been conducted in harmony and he might add too, with discretion, when he recollected that the last act of the association was to appoint Mr. Pownall to the post of secretary (loud cheers), a gentleman thoroughly qualified for the office, and who had already entered on his task with activity and zeal. No wonder then that a body like this, associating together quite as much for the public good as for its own, should meet with the sanctioning presence of the gentleman on the right of the chair. I am delighted, concluded Mr. Baker, to see him amongst us, and as he has alluded to our being in the same boat, I promise him that if, on the untried waters in which our vessel is to be launched on Wednesday next, he will *steer* steadily, we will *pull* heartily, and so the boat shall go merrily down the stream. (Loud cheers.)

"Mr. Allason and the visitors," "the Magistrates of Middlesex, Kent, and Surrey," and several other toasts followed. We must not omit, however, one toast proposed by Mr. Pownall, who prefaced it by saying that the company had drunk the healths of new members and new friends, and right glad was he to see them, but that they ought not to forget a certain good old friend who was about to part with them for ever. Many a time had this good friend, now seventy years old, done them able service; many were the debts of gratitude due for these services; indeed those who had known him longest loved him best, and no one therefore would refuse to drink to

"*The Blessed Memory of the old Act.*"

ST. PAUL'S CHURCH, HERNE HILL.

St. Paul's Church, Camberwell, was consecrated on the 21st of last month. The building consists of a nave and side aisles, or chancel, and a tower and spire at the west end, placed in the centre. The nave has a clerestory, and is covered with a double roof, so arranged as to give the appearance of an open roof of lower pitch. The roof of the aisles is very simple and effective; it consists of boarding supported on a frame-work of timber which forms square panels for the ceiling, and is covered with asphalted felt and slated. The pulpit is on the north side of the chancel-arch, and is entered by means of steps from the chancel; the robing-room is contiguous. The pulpit is of stone, and is adorned with paintings of St. Peter, St. Paul, and other apostles, on porcelain tablets, drawn by Nixon, executed by the firm of Copeland and Garrett, and presented by the latter gentleman, together with the encaustic tiles with which the centre of the nave and the whole of the chancel are paved. The steps, formed also of porcelain confined by iron nosings, are ingeniously designed and arranged. One difficulty in the manufacture of encaustic tiles seems to be, that of making them all exactly of the same size, and so obtaining straight lines when they are laid. A little more attention in this respect will doubtless overcome it. The materia seems excellent.

The organ is placed in a small chambe formed over the north porch, so that the fron is flush with the walls of the aisle. All th windows are filled with stained glass by Messrs Ward and Nixon, and deserve commendation The large east window contains figures o Matthew, Mark, Luke, and John, with th lamb, dove, and other emblems. Unsightl galleries, so often destructive to the effect o new churches, have been avoided, in conse quence of which, although this edifice is i reality low, it has an open and airy appearance

The church is noticeable for the extent o its coloured decorations, ably executed by Mr Warrington. The roof of nave, aisles, an chancel, is elaborately painted in patterns, th whole of the wood-work having been firs stained to represent oak. On both sides o the tie-beams of the nave-roof are Scriptur sentences; those facing west, confirmations o the ten commandments, from the New Tests ment; those east, proverbs from Solomon. O the spandrils of the arches separating the nav and aisles, is represented the vine, with scrol bearing sentences of thanksgiving, and su rounding an emblem of the sufferings of th Saviour, the crown of thorns, the nails, &c Originally the scrolls were supported by angel and over the chancel-arch were painted figur of St. Peter and others, the size of life; b these, at the suggestion of the bishop, we obliterated;—a proceeding with which, cons dering the present unfortunate state of th church, we entirely agree. In an artistical poi of view we may be anxious to see decorations this description introduced in our churches,- considered abstractedly no reasonable obje tion can be made to them; but when they a understood to be a banner of a party in th church bent on introducing dangerous change our artistical feelings give way to higher co siderations, and we express our approval the caution which would delay their introdu tion. On the subject of mural decoratio and stained glass we shall shortly offer son general remarks.

The architect of the church, Mr. Geor Alexander, F.S.A., of the firm Messrs. Steve and Alexander, has displayed most praisewort care, and much ability, in rendering the whi consistent and homogeneous, and has succeed in producing a very successful building. T

style adopted is that of the 15th century. If we were disposed to find fault, we might say that the mouldings of the principal arches in the nave are too large, and produce a heavy effect; they should have been cut up into smaller parts. Where so much, however, has been done with comparatively small means, we are not willing to qualify our praise.

The body of the church is 80 feet in length, 51 feet wide, and 30 feet high, and affords seats (low pewing of oak) for 700 persons. The chancel is 19 feet deep; the tower and spire 120 feet high. The amount of the estimate, including the stained-glass windows in the clerestory and chancel, was 4,500*l.* Some extra works and alterations amounted to 100*l.* The painted decorations cost 205*l.*; but this was defrayed by the drawback obtained on timber, glass, and other materials not liable to duty when used in the construction of a church. The boundary wall and gates cost 450*l.*; the organ, 270*l.*, and the hot-water apparatus (by May) 153*l.*; so that the whole expense, exclusive of the stained-glass windows in the aisles (which were all presented, and cost about 15*l.* each), the encaustic tiles, the porcelain decorations, and architect's commission, was 5,473*l.* The Church Commissioners contributed 700*l.*, and the remainder of the sum was obtained by subscription. The exterior of the building is of Suecaton stone (Yorkshire), hammer worked, with free-stone from Box for the dressings.

Messrs. Howard and Son, of Newington, were the builders; and it is but justice to them to say, that the works are well executed.

CHURCH ARCHITECTURE IN PARIS.

The church of St. Vincent de Paul, in the Place Lafayette, which has been many years in progress, from the designs of M. Pere and M. Hittorff, is now completed, with the exception of some external and internal paintings, and has obtained considerable praise as well for all the artists who have been employed upon it, as for the architects themselves. It was commenced in 1824; but for several years the works were suspended altogether. The building is very advantageously placed, being on a considerable elevation above the surrounding ground, and is approached by extensive flights of steps (with semi-circular terraces branching off on either side with a gradual descent for the approach of carriages), which produce a striking effect. An Ionic portico of six columns, three intercolumniations in depth, and the two towers 181 feet high, are the principal features of the entrance front.

The width of the building is 123 feet 6 inches; the depth, 298 feet 6 inches; the height of the nave is 96 feet. The interior is divided by four ranges of columns into five parts, the centre being the nave, the adjacent division on each side the aisles, and the outside divisions the chapels. The nave and aisles are two stories in height, the latter having a gallery over them. The nave is covered with an open timber roof, and was generally used for the Roman basilica: the building is terminated at the east end by a semicircular absis, embracing the whole width of the nave and aisles. Painting and sculpture, stained glass, cast iron, and all the contemporary arts, have been employed with the view of rendering the whole perfect. Erected at the expense of the city of Paris, money seems hardly to have been considered: it has cost no less than 156,000*l.*, exclusive of the steps and terraces, which cost 9,600*l.*!

A French writer, speaking of this church, says, "that although it fully recals the beauties and types of antique architecture and the primitive ages of Christianity, it is in no degree an imitation, except in the application of the principles which presided at the conception of the noble monuments of Greece and Rome." We find in it (the writer continues) no direct plagiarism; none of those counterfeits of ancient fragments, the introduction of which, under other circumstances, will be always opposed to those principles which regulate art, in architecture, the true and the fitting alone produce the beautiful."

IRON TRADE.—An advance of 10s. per ton has taken place in the price of Welch iron, while the price of Staffordshire iron has advanced 1*l.* The trade appears to be more steady than it has been for months, and it is said that a general advance of wages is not unlikely to take place shortly.—*Welchman.*

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The Institute will hold their next meeting (January 13th) in new apartments, although in the same building. The first floor of the house in Grosvenor-street has been fitted up to receive them, and arrangements have been made to give additional *éclat* to the proceedings. It is to be hoped that the members will come forward with the result of their experience and reading, to assist the council in carrying out the purposes of the society. We should like to see such men as Mr. Cockerell, Mr. Barry, Mr. Hardwick, Sir Robert Smirke, and others, communicating to their brother members new points of practice, or their observations on ancient building, instead, of as now, attending simply when vice-presidents for the year, if not totally absenting themselves. To say that they have no time to spare is but a poor excuse. They ought to consider it a bounden duty to maintain the character of the profession to which they belong, and to play their part in forming the minds of those who are to succeed them. We propose in chronicling the proceedings of the institute, not to confine ourselves to the papers which are read, but to notice such remarks as may be thrown out afterwards in discussion, so that our pages may become a more perfect record of the proceedings than exists at present.

The officers for the present year are—Earl de Grey, president; Messrs. H. E. Kendall, J. B. Papworth, and George Smith, vice-presidents; Messrs. Booth, Foxhall, George Godwin, Grellier, Noble, Parker, W. F. Pocock, Roberts, and James Thompson, ordinary members of council; Messrs. A. Poynter and G. Baily, honorary secretaries; and Mr. T. L. Donaldson, foreign secretary.

RESTORATION OF GLASGOW CATHEDRAL.

This fine old building is about to be thoroughly renovated. Workmen are busily engaged at present in removing the iron cages from the outside walls, and in lowering the soil, so as to shew the proper elevation of the church. When completed this will make the venerable pile look quite another thing outside. Inside the work of renovation and improvement is also going forward with spirit. The many and elaborately wrought pillars of the crypt, or old barony church, are being neatly mended wherever it is necessary, and the blackness settled down upon them in the course of years is being washed off by a solution for the purpose. The effigy of St. Mungo, which had been very unceremoniously removed and laid on an adjacent window-sill, has once more been deposited in its proper place, on the raised shrine in the centre of the crypt, where there is very little doubt it originally stood over the grave of the saint. The elaborate groinings and carvings of this portion of the building, most of which have been gilt and painted with various devices, is a theme of universal admiration since it was opened up to the public, and glass windows introduced instead of the blind ones. In this compartment of the building, and over a niche in the lower chapter-house, there is an inscription in Latin, which we translate thus:—"The House of Faith, the Chapel of the Lord." The arms of the founder, Bishop Lauder, are placed over the niche. Lauder died in 1425. In the different portions of the bosses of the roof of the lower chapter-house, which was built by Bishop Cameron, we have his own arms, and the arms of Archibald Earl of Douglas, who endowed the cathedral with the church of Cambushlang. Next these are the Royal arms of Scotland, and the arms of Scotland and England on one shield. Above the original south door, entering to the nave, the groined arches are decorated with crowns, which we must say we never observed before, and would not have done so now, had they not been pointed out by our friend, Mr. Andrew Adie, than whom no man in all Glasgow has a more minute knowledge of every hole and bore about the cathedral. These crowns are beautifully carved, and amount in number to eight, with inscriptions and mottoes, in the old English characters, which, we have no doubt, could be deciphered were a person near enough to trace the letters. On the arch next the ascent to the choir, on the south side, and to the right of the entrance door to Principal Macfarlan's church, the decorations of the roof point it out as a chapel of consequence. Besides a great many devices and inscriptions, there is the figure of a man kneeling before a blazing altar, with the word "Maria," thereby indicating that this was the chapel of the Virgin. We have no doubt a splendid tomb stood here, and that were the pavement removed, and a search made, its foundation and other relics would be found. When the pavement was laying a short while ago, the workmen felt quite certain that there was something strange below, as it sounded quite "boss," or empty. The arch on the south aisle, next the high altar, is most elaborately decorated and carved. Amongst the carvings to be mentioned is an emblem of the Holy Trinity, and the five wounds of our Saviour, a crown of thorns, a cross, a scourge, &c. At the south door of the lady's chapel the tombstone of Archbishop Boyd attracts attention. It bears the date 1581, and lay originally on the steps of the high altar, just below where the pulpit of the very rev. principal now stands. When removed in 1800, the skeleton of the archbishop was found in a very entire state, and wrapped in a silk, besides a worsted damask dress. On the summit of the roof of the chapter-house, we observed, for the first time, a small stone slab, bearing the initials of Archbishop Law, and the pastoral staff. It was this archbishop who restored the lead roof of the cathedral, after its destruction at the Reformation, and his monument may still be seen in tolerable preservation in the lady's chapel. He died in 1632. *Blackadder's Aisle.*—The workmanship here, and especially the groinings of the roof, are most elaborate and beautiful. The following is the style of the inscriptions over the tombs of those who are buried in the aisle, and it must be confessed the information furnished is not very great:—

Mr
J * D
1658
Mr
A N
&c. &c. 1628

Mr. Kirkman Finlay, of Castle Toward, seems to have been the last interment in this sacred spot.

The remains of the identical *Strap*, who makes such an interesting figure in Smollett's "Roderick Random," lie under a slate-coloured grave-stone in the yard, not far from the entrance to the church of the principal.

The whole of these works are being carried on at the expense, and under the superintendence of Government. A gentleman, sent down by the Woods and Forests, lately arrived in Glasgow, to make the preliminary arrangements, and to overlook a portion of the restoration.—*Glasgow Constitutional.*

METHOD OF DETERMINING WHETHER A STONE WILL RESIST THE ACTION OF FROST.

A few years since M. Brard communicated to the Royal Academy of Science, in Paris, a method of determining, by a few prompt and easy experiments, whether a stone to be used for building purposes is capable of resisting the destructive action of moisture and frost. The Academy appointed a committee to inquire into the merits of M. Brard's process, and to make a report thereon. We are indebted for the following extracts from this report to to a work recently published by Parker, and entitled *The Useful Arts Employed in the Construction of Dwelling-houses*:—

In the choice of a stone for building purposes, it is of the utmost importance to be able to determine, by a few prompt and easy experiments, whether the proposed stone is capable of resisting the destructive action of moisture and frost. The means of ascertaining this were difficult and uncertain, until M. Brard, several years ago, communicated his method to the Royal Academy of Sciences at Paris. This learned body having appointed a committee of their own members to inquire into the merits of M. Brard's process, and to make a report thereon, the united testimony of engineers, architects, masons, and builders from different parts of France was received, and proved so favourable as to its merits and simplicity, that the committee recommended

the plan to public notice and general adoption. From their report we select a few details which, hitherto, we believe, have not appeared in English.

When water is converted into ice an increase in bulk suddenly takes place with such amazing force that it appears to be almost irresistible. This is the force which cracks our water-bottles and ewers; splits asunder the trees of our forests; and destroys some of the stones of our buildings. But the action of frost upon stone is very gradual; it is confined to the surface, and when we see a layer of stone separated from the rock or the building, we see the result of the action of the frost during several successive winters, whereby the fragment is gradually thrust out of its perpendicular position, and at length falls. This natural process is repeated in our buildings: we rarely see squared stones split into large fragments by the action of frost except there be a cavity of some considerable size, in which a quantity of water can be collected. The usual action of the frost is at the surface, which is destroyed by the chipping off small fragments in consequence of the adhesion of the materials of the stone being partially destroyed.

All stones absorb water in greater or less quantities, and there is no rock that does not contain some humidity. The great difference between stones which is now to be considered is in their power of resisting frost. Stones of the same kind, nay, stones from different parts of the same quarry, are acted upon very differently by frost; for, while one stone soon begins to shew the destructive effects of its action, another remains uninjured during many centuries. It will, therefore, be convenient to call those stones, of whatever kind, which withstand the action of frost, *resistant*, and those which yield to its action, *non-resistant*.

M. Brard's first idea, in order to test these resistant properties in building-stones, was, to saturate the stone with water, and then expose it to cold artificially produced; but this was found to be impracticable on a large scale, and the freezing mixtures and other means of producing cold were liable to act chemically upon the stone, and thus produce other effects than those of cold.

M. Brard was then led to compare water with those numerous solutions of the chemist, which, under certain modes of treatment, crystallize. The expansive force of salts in crystallizing is very great, and he saw no reason why water should not be regarded as a crystalline salt similar in its nature to those saline bodies which effloresce at the surfaces of stones, and in time destroy them and even reduce them to powder.

He therefore tried, in a very large number of experiments, the action upon building-stones of solutions of nitre, of common salt, of Epsom salts, of carbonate and sulphate of soda, of alum and of sulphate of iron, and found that the stones cracked and chipped, and in many cases behaved precisely in the same way as when under the influence of freezing water. In the course of these trials, sulphate of soda (Glauber's salts) was found to be the most energetic and active, and to be the best exponent of the action of freezing water.

In order, therefore, to determine promptly if a stone be resistant or non-resistant, the following process was adopted. A saturated solution of sulphate of soda was made in cold water; the solution being put into a convenient vessel, the stone was immersed, and the solution boiled during half an hour: the stone was then taken out, and placed in a plate containing a little of the solution. It was then left in a cool apartment, in order to faciliate the efflorescence of the salt with which the stone was now impregnated. At the end of about twenty-four hours the stone was covered with a snowy efflorescence, and the liquid had disappeared either by evaporation or by absorption. The stone was then sprinkled gently with cold water until all the saline particles diappeared from the surface. After this first washing the surfaces of the stone were covered with detached grains, scales, and angular fragments, and the stone being one that was easily attacked by frost, the splitting of the surfaces was very marked. But the experiment was not yet terminated: the efflorescence was allowed to form, and the washing was repeated many times during five or six days, at the end of which time the bad qualities of the stone became fully established. The stone was finally washed in pure water; all the detached parts were collected, and by these the ultimate action of the frost upon the stone was estimated.

The behaviour of various non-resistant stones under this process was remarkable. Some were found to have deteriorated in the course of the third day; others to have entirely fallen to pieces; those of which the power of resistance was somewhat greater, held out till the fifth or sixth day; but few stones, except the hard granites, compact limestones, and white marbles, were able to stand the trial during thirty consecutive days. For all useful purposes, however, eight days suffice to test the resistant qualities of any building-stone.

The explanation of this process is very easy. The boiling solution dilates the stone and penetrates it to a certain depth, nearly in the same way that rain-water by long-continued action introduces itself into stones exposed to the severity of our changeable climate. Pure water when frozen occupies a greater bulk than when fluid, and the pores or cellules of the stone not being able to accommodate themselves to the increased bulk of the water, great pressure is exerted between and among them, whereby a portion of the water is driven to the surface, and in doing so rends and detaches small portions of the stone. The same action takes place with the saline solution; it is introduced into the stone in a fluid state, from which passing into the solid it occupies a greater bulk, and a portion of it appears at the surface. The repeated washings have no other object than to allow the salt to exert its greatest amount of destructive action upon the stone. There is a striking analogy between the effect of congealed water and that of the efflorescence of salts, in the disintegration of non-resistant stones; namely, that pure water acts on the stones destructively only in a state of snowy efflorescence, which evidently proceeds from the interior to the exterior like the saline efflorescence; whilst water at the surface of the stones may freeze into hard ice without injuring them, just in the same way as the salts, which may crystallize upon stones without exerting any injurious action.

The experience of several engineers, extending as it does over several years, fully proves, of a large variety of stones whose qualities were well known, that the action of M. Brard's process and that of the long-continued frost exactly coincide.

It is not the least interesting part of the inquiry to know that this process may be applied with perfect success to ascertain the solidity and resistant power of bricks, tiles, slates, and even mortar. From a mass of minute detail, we will select a few general results.

During one winter season M. Vicat composed seventy-five varieties of mortar, the difference between any two consisting in the proportion of sand and the method of slaking the lime. In the following June these mortars were exposed to the disintegrating process. Most of them were attacked in twenty-four hours; almost all of them in forty-eight hours; and all except two in three days. This gentleman also found that a mortar made ten years previously, of one hundred parts lime which had been left exposed to the air, under cover, during the whole year, and then mixed up into a paste with fifty parts of common sand, withstood the trial admirably during seventeen days, while the best stones of the neighbourhood speedily gave way. In this case the solution was saturated while hot, which is so powerful in its effects that stones which have resisted the action of the frost for ages, soon give way when exposed to it.

M. Vicat calculates that the effect of the sulphate of soda upon a non-resistant stone after the second day of trial equals a force somewhat greater than that exerted by a temperature of about 21 degrees Fahrenheit, on a stone saturated with water.

The action of the process upon bricks proved that, whatever their qualities in other respects, if imperfectly burnt, they are speedily acted on. The sharp edges of the brick, and then the angles, are first rounded, and finally the brick is reduced to powder. Such is precisely the action of frost often repeated. Well-baked bricks, on the contrary, retain their colour, form, and solidity by this process, as well as under the influence of frost. Ancient Roman bricks, tiles, and mortar, and hard well-baked pottery resisted the process perfectly; as did also white statuary marble of the finest quality, while common white marble was soon attacked. In Paris, portions of buildings which had been exposed to the air during twenty years without undergoing the least alteration, were submitted to this ordeal, and the experiment agreed with observation. In one extensive series of experiments on stones from different quarries of France, the action of the salt was continued for seven days, and the results noted down; it was then continued for fourteen days, and the results compared with the preceding ones, which only served to confirm the judgment first given, for those stones which were noted as of bad quality crumbled to dust or split into fragments, while those noted for their good qualities had experienced no sensible alteration.

One of the great advantages of this process is the power it gives to the architect of choosing a hard, durable stone for those parts of the building most exposed to the action of the weather, when the funds are insufficient to admit of the whole building being so constructed. Thus the cornices, the columns, and their capitals, are struck in all directions by rain, and hail, and damp air, and are consequently far more exposed to their destructive action than the flat surface of a wall, which offers but one plane to the air.

In the course of this inquiry a very curious case arose. During the erection of a church in Paris, the architect required a good durable stone for the Corinthian capitals; and many circumstances disposed him to select it from the neighbouring quarry of the Abbaye du Val. But, on seeking the opinion of two brother architects, he was surprised to find their estimations of the stone to be totally at variance, for while one declared that he had employed it with the greatest success, another said that he had seen it yield speedily to the effects of frost. On visiting the quarry it was found that two beds of stone were being worked, an upper and a lower bed; specimens of the stone were taken from each, and on submitting them to a hot saturated solution, it was ascertained almost immediately that the upper layer furnished excellent stone, while the lower one supplied that of which the architect had so much reason to complain. But it is remarkable that the stones from the two beds had precisely the same appearance in grain, colour, and texture; so much so, that when brought into the mason's yard it was impossible by ordinary tests to distinguish the good from the bad stone.

At the conclusion of the inquiry of the committee, the Royal Academy of Sciences proved the high estimation in which they held this contribution of science to the useful arts by directing to be published the following practical directions for repeating the process for the use of architects, builders, masters masons, land proprietors, and all persons engaged in building.

1. The specimens of stone are to be chosen from those parts of the quarry, where from certain observed differences in the colour grain, and general appearance of the stone, it quality is doubtful.

2. The specimens are to be formed into two inch cubes, carefully cut, so that the edges may be sharp.

3. Each stone is to be marked or numbered with Indian ink or scratched with a steel point and, corresponding with such mark or number a written account is to be kept as to the situation of the quarry, the exact spot whence the stone was detached, and other notes and information relating to the specimen.

4. Continue to add a quantity of sulphate of soda to rain or distilled water, until it will dissolve no more. You may be quite sure that the solution is saturated, if, after repeated stirring it, a little of the salt remains undissolved at the bottom of the vessel an hour or two after it has been put in.

5. This solution may be heated in almost any kind of vessel usually put on the fire, but perhaps an earthen pipkin may be most convenient. When the solution boils, put in the specimens of stone, one by one, so that all may be completely sunk in it.

6. Continue the boiling for thirty minutes. Be careful in observing this direction.

7. Take out the cubes one at a time, and hang them up by threads in such a way that they may touch nothing. Place under each specimen a vessel containing a portion of the liquid in which the stones were boiled, having first strained it to remove all dirt, dust, &c.

8. If the weather be not very damp or cold the surfaces of each stone will, in the course of twenty-four hours, become covered with little white saline needles. Plunge each stone into the vessel below it, so as to wash off these little crystals, and repeat this two or three times a day.

9. If the stone be one that will resist the action of frost, the crystals will abstract nothing from the stone, and there will be found at the bottom of the vessel neither grains, nor scales, nor fragments of stone. Be careful in dipping the stone, not to displace the vessel.

If, on the contrary, the stone is one that will not resist the action of frost, this will be discovered as soon as the salt appears on the surface, for the salt will chip off little particles of the stone, which will be found in the vessel beneath; the cube will soon lose its sharp edges and angles; and by about the fifth day from the first appearance of the salt, the experiment may be considered at an end.

As soon as the salt begins to appear at the surface its deposit is assisted by dipping the stone five or six times a day into the solution.

10. In order to compare the resisting powers of two stones which are acted upon by the frost in different degrees, all that is necessary is, to collect all the fragments detached from the six faces of the cube, dry them and weigh them, and the greatest weight will indicate the stone of least resistance to the frost. Thus, if a cube of twenty-four inches of surface loses 180 grains, and a similar cube only 90 grains, the latter is evidently better adapted than the former to the purposes of building.

LAW OF DILAPIDATIONS.

THERE are few points of architectural jurisprudence which interest so large a number of persons as does the question of dilapidations. Whether to landlord or tenant, surveyor or operative, the matter is one of importance, and several attempts have consequently been made to reduce the laws which relate to it to some sort of certainty. Being in many cases a question of degree, law cannot always be made to apply; and custom, and the experience of the surveyor, must be appealed to. "Still," as Mr. Gibbons remarks in his "Treatise on the Law of Dilapidations," "it is important that the surveyor should have some knowledge of the principles of law, in order that he may know the points to which he has to apply himself in framing his survey and estimate, and may not labour in vain. The great discrepancy in the evidence of different surveyors, and the little esteem in which their testimony is consequently held, arises in a measure from inattention to legal principles; and if, in making their surveys, they were to govern themselves by the settled rules of law, and not proceed upon their own vague notions of right, they would be more useful to the administration of justice, and their opinions more respected."

The attention of the council of the Institute of Architects having been directed to his subject, as one on which the opinion of he institute might be expressed with advanage; a committee, consisting of Messrs. Jeorge Smith (Mercers' Hall), John Newman, John Bull Gardiner, W. F. Pocock, and V. Rogers, was appointed to investigate and eport on the practice in valuing dilapidations, nd on the state of the law by which such aluations are effected. The Report of this ommittee is now published,* and forms an xceedingly useful document. We do not esitate to recommend it to our readers. In he preface to the Report, the council remark hat it appears "to be an inherent defect in he general mode of preparing leases, that they re drawn from antiquated precedents, without n attempt at the modifications necessary to eet modern improvements, or to provide for pecial cases or contingencies. A tenant ound to repair, uphold, support, and maintain a new house, is obviously in a very different position from one upon whom the same condition is imposed with respect to an old and nearly worn-out, though tenantable fabric, and yet the distinction is unheeded in the repairing covenants of any form of lease commonly adopted."

To obviate this difficulty they propose that previous to the execution of a lease the premises should in all cases be surveyed, and that a schedule should be drawn up, signed by the lessor and lessee, specifying the actual state of every part of the buildings, by reference to which the dilapidations should be assessed at the end of the term.

As to the definition of the term dilapidations, the report says, "dilapidations are, in usual practice, considered to be those defects only which have arisen from neglect or misuse; and not to extend to such as only indicate age, so long as the efficiency of the part still remains. But if the effects of use or age have proceeded so far as to destroy the part, or its efficiency in the structure, this argues neglect or misuse; it being the presumption that at the commencement of his term, the tenant was satisfied that every part was sufficiently strong to last to its close."

In cases of yearly tenancy, the usual practice, says the Report, is to require the tenant to make good all works damaged, or any waste committed during his tenancy; but not to make good injuries arising from fire, use, or wear, or lapse of time; "in fact, he is only bound to such repairs as are necessary to keep a house or building wind and water-tight." This latter statement is not correct, or all events is ill-expressed, and does not agree with that which precedes it. If paper-hangings be torn by a tenant, a hearth broken, the nosing of a step *knocked* off (not worn), or any other waste committed, he must make good the damaged work. Even if external wood-work decay for want of painting sooner than it otherwise would do, the tenant is bound to restore it.

As regards ecclesiastical dilapidations, the Report states, the usual practice "is to consider that (independently of the obligation to compensate for actual deficiencies) the representatives of a late incumbent are liable for the value of repairs equivalent to, or consonant with, the extent of those which, in civil cases, a lessee would be called upon to perform on taking a lease for twenty-one years, under an agreement to put the premises into complete and substantial repair at the commencement of such a term."

But it points attention to a case wherein it was ruled that the incumbent was not bound to supply or maintain any thing in the nature of ornament.

The Report afterwards says, "An incumbent is in many instances bound to keep the chancel of the church in repair; and the liabilities to repair it may be considered as amounting to those above stated with respect to the other premises held by him."

The law is more stringent than is here stated. Excepting through special custom, the incumbent is bound in all cases to repair the chancel and maintain it in a proper state for divine service. By the 35th of Edward I., statute 2, the incumbent is permitted to fell timber growing in the church-yard for this purpose, and may, if he please, do so for the relief of the parishioners when the body of the church needs repair.

* Weale, London, 1844.

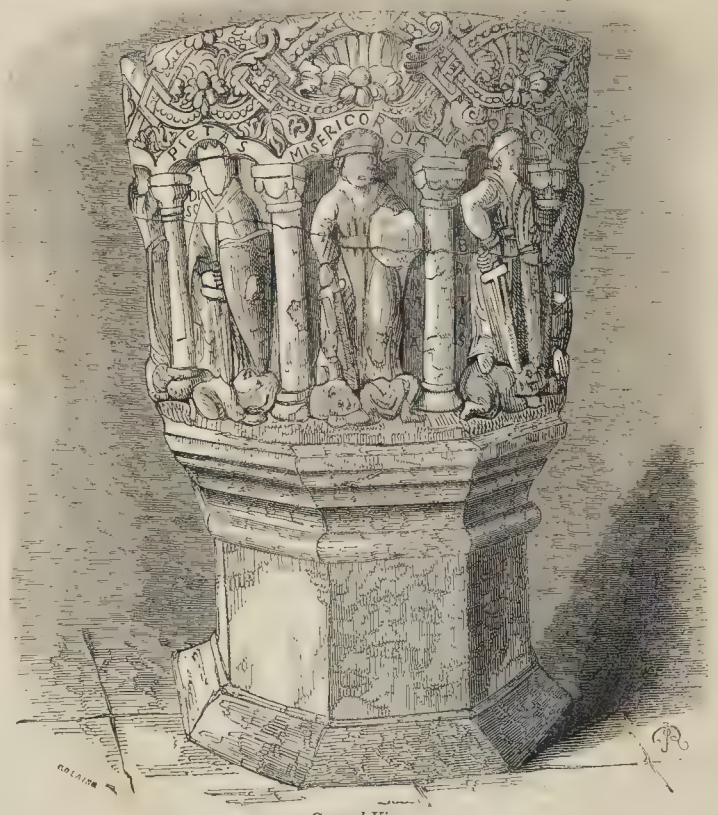
FALL OF A SCAFFOLD THROUGH OVERLOADING IT.

On Monday last a melancholy event occurred at the corner of Jermyn-street and Duke-street, St. James's, involving the loss of one human life, if not more. During the last few weeks, the house at which the occurrence took place had been pulled down, and was nearly rebuilt. At the time of the accident the workmen were employed in raising a large cornice-stone, weighing between six and seven hundredweight, and on its arriving near the top of the building, the stone was over-balanced, and fell with the scaffolding, striking a workman named Francis, a mason's labourer, and two other workmen, John Perry, a mason, and William Smith, a labourer. The poor fellow Francis was killed on the spot, and fell into a well which was in the area, the depth of several feet, whilst Smith and Perry were so frightfully injured, that they were conveyed to St. George's Hospital in an almost dying condition; Smith, in particular, had his skull fractured in a shocking manner. On the recovery of the body of Francis from the well, he appeared literally crushed to an almost indistinguishable mass, and those who saw the sad spectacle were so paralysed, that for some time they were unable to render assistance. At the inquest upon Francis, the following evidence was given:—James Sanderland said he was a labourer in the employ of Mr. Archbutt, the builder, of Chelsea, and was at work that morning at the house rebuilding for Mr. Slater, at the corner of Jermyn and Duke streets. Deceased was in the same employ, and worked there also. Shortly after nine o'clock he was on the scaffold when it gave way. The deceased, with the other two injured men, were on the scaffold at the time. There were two stones on the scaffold, weighing between fourteen and fifteen hundredweight. Witness was engaged with the others in lifting one of the stones, weighing six and seven hundred-weight, when some part of the scaffold gave way, and both pieces of stone fell suddenly, and deceased and the other two men with them. Could not account for the accident, and thought the scaffold perfectly safe before. Most likely it was the putlocks gave way. They were not very strong, at least they did not appear to be. Mr. Edward Foster deposed that he was clerk of the works for Mr. Archbutt, at the house, 47, Jermyn-street. Was in the building at the time, and heard the scaffold break. He ran from the place where he was standing, and saw the poor fellows, Perry and Smith, lying in an excavation made for vaults. They must have fallen at least from 60 to 80 feet. He could not assign any reason for the accident, as the scaffold was a good one, although only a bricklayer's scaffold. The putlocks might have given way, but he thought that could only have been caused by the working of the stone with the mallet on the scaffold; that would considerably increase the weight. The strength of the scaffold was not increased on account of the stone being raised upon it. It was considered safe, as on Saturday the scaffold had upon it three times the weight of stone it had to-day. The jury, after considerable discussion, returned a verdict of Accidental Death. They, however, added their strong opinion that the scaffolding had been used for the purpose of suppoting a much greater weight than was proper.

NEW METHOD OF SILVERING GLASS.—At a meeting of the Chemical Society, Mr. Warrington described a new method of covering glass, by precipitation, with a coating of metallic silver, the invention of Mr. Drayton. It consists of partially precipitating, and thus neutralising (to use the inventor's own words), a solution of nitrate of silver, by spirit of hartshorn, and adding to the clear solution, after subsidence, oil of cassia, previously dissolved in spirits of wine. This compound mixture forms the silvering menstruum, and is to be poured on the surface of the glass, or into the vessel intended to be silvered, the surfaces having been previously rendered perfectly clean. Oil of cloves, dissolved in spirits of wine, is then to be gradually dropped over the surface of the silvering solution, or the two solutions may be rapidly mixed and then applied immediately. In the course of about fifteen minutes a faint purple cloud appears, and this gradually spreads through the whole of the solution, and deepens in tint until it becomes opaque, when the operation is complete, and a most beautiful mirror is obtained. As thus produced, the reflecting surface is darker in its aspect and more similar to the brilliancy of a very highly polished speculum. The risk of breakage attendant on the usual process, by means of tinfoil and mercury, is also avoided, particularly where very large looking-glasses are being constructed; and the great advantage obtained of being enabled to silver uneven surfaces, as of lenses or cut glass.

BISHOP KEN'S TOMB.—A subscription has been opened for the purpose of renovating the tomb of Bishop Ken in the churchyard at Frome, and, as a tribute to the memory of the good bishop, restoring, in strict accordance with ecclesiastical propriety, the adjoining chancel of Frome church. In furtherance of these objects, the family of Longleat have subscribed 250*l.*, the Bishop of Salisbury, 10*l.*, and there follows a long list of contributors.

NORMAN FONT, AT STANTON FITZWARREN CHURCH, WILTS.



General View.



Elevation of Figures round the Font.

ANCIENT NORMAN FONT AT STANTON FITZWARREN CHURCH, WILTS.

The small church of Stanton Fitzwarren, in which the fine font represented on the other side, is to be found, is situated about three miles from Swindon, in Wiltshire. The font has, only within the last three years, been relieved from a load of whitewash, which had so completely filled up the carving, that it looked like a rough stone. This cleaning out was superintended by the Rev. J. Trenchard, the rector, and he certainly has been rewarded for his trouble, as a more interesting font can scarcely be found. The date is probably that of the late Norman. The illustrations scarcely require any description, except to state that it is termed an emblematical and inscribed font, representing the Triumph of the Virtues, with the aid of the Church, over a variety of curious hob-goblins termed Vices. On one side of the font, opposite to the figure emblematical of the Church, is a kneeling stone, no higher than the slanting moulding at the base. The sketch was taken with the camera lucida while a strong light was on the object.

The church is said to have been a very curious structure, but it has now, from being either compoed or refaced, the appearance of a modern building. The interior has a chancel arch, which bears the reputation in the neighbourhood of being Saxon, but it is in reality a fine early Norman specimen. C. J. R.

DESCRIPTION OF A HOUSE IN DAMASCUS.

In order to give me an opportunity of seeing his house, the Effendi politely sent a message to the ladies of his establishment, announcing the presence of a stranger, on which they withdrew to the upper chambers. The Mulatto having duly informed us that all was in readiness, we rose, and passing through another dark passage, found ourselves in the court-yard of the harem. Then, and not till then, did I understand the warmth with which travellers had spoken of the beauty of the Damascene houses: we seemed to have passed from Purgatory to Paradise. The pavement of the immense yard was of polished marble of various colours, beautifully inlaid. A fountain in the centre, thirty feet in length and half that breadth, into which brazen snakes' heads poured a copious supply of water, was overhung by orange, citron, and pomegranate trees; and an immense vaulted recess (*leewan*) at the further end was fitted up with a divan, which, having a northern exposure, is never subject to the rays of the sun. As in Egypt, the ground-floor was of stone, and painted in alternate layers of white, blue, and red: this, with the rich dark green vegetation of parterres divided by slabs of Carrara, produced the most brilliant and captivating effect on me. The space between the basin and the recess was elaborately inlaid, and the marbles of rarer quality than in any other part of the court-yard. The principal apartment, which opened off the lower part of the leewan, was lofty, extensive, and of dazzling magnificence. Every part of the wall was of stone, cut into arabesque ornaments, the most curious object being a miniature recess of white marble, supported by tiny columns with gilt capitals, between which the Saracenic honeycomb luxuriated in all its intricacy. The raised floor was covered with a rich Persian carpet, and the divan that ran round the room was in satin, embroidered with flowers. Large antique China bowls displayed themselves in various shelves; and altogether I felt that the often sought but rarely found splendour of the Arabian Nights' Entertainment was at length realized.—*The Modern Syrians.*

Bonner Hall.—Last Monday week a sale took place, by order of the Commissioners of Woods and Forests, of the ancient residence formerly belonging to Bishop Bonner, called Bonner Hall, which is situated on a part of the site of Victoria-park. The portion remaining, which is stated to have been a part of one of the wings of the original palace, is about 120 feet long and about 20 feet in width, the external walls being the same that were first erected. This building has for several years past been separated into five houses, one of which was a public-house. These have been internally constructed according to the modern style of architecture, and there is very little to denote its former state.



THE BROMPTON PAROCHIAL NATIONAL SCHOOLS.

These Schools, represented above, are situated on the north side of Knightsbridge, and will accommodate 200 girls and 200 boys; rooms for the master and mistress are attached, on either side. The building was erected from the designs of Mr. George Godwin, by Mr. Bonnin, Jun., in little more than four months. The amount of the contract was 1100*l.*, the additional works came to 8*l.*; the forms, boxes, and desks cost 48*l.*

FIRE FROM OVERHEATED FLUES.

Mr. Braidwood, the superintendent of the Fire Brigade, accompanied by a surveyor, made a close examination of the ruins of Mr. Farey's house in Great Guildford-street, recently burnt down, with the view of ascertaining, if possible, the cause of the fire, for the information of Mr. Wakley and the jury; and the former gentleman expressed his decided opinion to be, that it was occasioned by a hot-air flue becoming overheated, and setting fire to a beam in the back parlour. The death of the unfortunate persons he attributes to the falling in of the upper stories, through the insufficiency of the building, the timber, and joists, &c., having been (as he says) too light for so capacious a residence, as was the case in Lord Hillsborough's mansion in Grosvenor-street last year, which fell in before it was burnt to the lower stories. Mr. Braidwood is confirmed in this opinion by several surveyors. Mr. Farey differs from Mr. Braidwood as to the particular flue in which the fire originated. In addressing the jury Mr. Wakley observed, "If this inquiry should have the effect of drawing the attention to flues in general, great benefit may be derived from it, and future accidents be prevented. Too much attention cannot be paid to them, and I am really surprised that intelligent people in this country as we are should allow such fires to be continually occurring without taking measures to prevent them." At the inquest, Colfe, of the Fire Brigade, remarked that "even hot-water pipes would set fire to beams. Such an instance had recently happened at Day and Martin's Warehouse." The coroner said "this was something new in science," but, we are sure, if he had reflected, he would have seen it was nothing new, and was perfectly correct. In an open vessel, water cannot be heated above the boiling point, all the surplus caloric goes off in steam; but in a close boiler the case is very different. It may be made *red-hot*, so to speak, and would ignite wood. Two or three years ago this fact excited considerable attention, in consequence of a fire at Manchester which was attributed to the hot-water apparatus on the premises. Persons having stoves with iron pipe flues, should be certain that the pipe is not in contact with any ignitible material. In the construction of chimneys it is important to see that the end of no beam enters the flue, and that, in fixing skirting-grounds, no deal wedges be driven through. To the subject of fires generally, we shall return before long.

ON THE CONSTRUCTION OF HAND-RAILS OF STAIRS.

BY MR. GEORGE RIDLEY.

No. III.

25. From the combined properties of the trihedral and the cylindric solid, as shewn in our former remarks on this subject, we are enabled to make their use subservient to any purpose relative to the formation of the face-mould; and from the properties of the trihedral alone, we can ascertain, to the greatest degree of accuracy, the bevels for the butt-joints in the wreathed portions of the hand-rail. In order, however, to make the use and application of these solids more clear, let us suppose that it were required to lay down the face-moulds, for the formation of the wreathed portion of a hand-rail, where a flight of seven winding steps intervenes between two ranges of flyers. Let the semi-circular well-hole, around which the winding steps radiate, be 3 inches in diameter within the perpendicular planes of the outside surfaces of the rail. Let the rail itself be 3 inches wide and 2½ inches deep; also let the treads of the flyers be 10 inches wide, and the height of each step 7 inches.

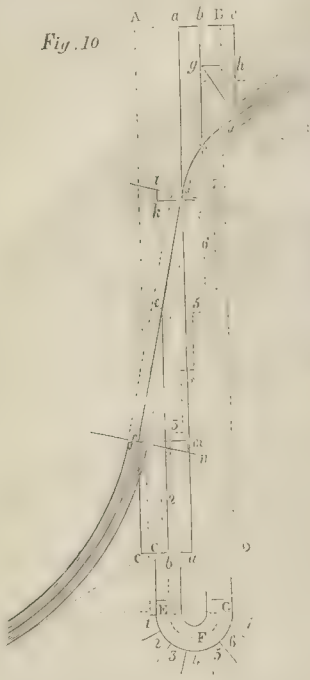
26. The first thing to be done is to lay down a plan of the rail, as shewn by fig. 10, wherein the circular line, E F G, is taken as the mean line for the radius of our cylindric surface (see article No. 11. page 620, vol. ii.); next proceed to lay down a development of this cylindric surface, by obtaining the length of the circular line, E F G, in the manner described in article No. 10, page 619, vol. ii., or, by having ascertained the diameter, E G, which in the present case is 6 inches, we may, from the well-known properties of the circle, obtain the length of one-half the circumference, thus,

$$\frac{11 \times 6}{7} = 9\tfrac{3}{7}\text{ inches.}$$

the length of the line, E F G, sufficiently near for practice. Make the line, C D, equal to E F G; let the point *a* in the development correspond with the point F on the plan. At the point C lay down the riser and tread of the last step in the first range of flyers, draw the parallelogram, A B C D. Upon D B set off the entire height of the seven winding steps, and next lay down the tread and riser of the first step in the second range of flyers; also lay down the treads and risers of the winding steps, as they occur immediately beneath the central line of the rail. Draw the inclination of the rail over each of the flyers, as thus laid down; but from the steepness of the steps, at the narrow ends of the winders, it is usual to bring forward the rail, as shewn

in the figure. Draw the line shewing the thickness of the rail, and draw also the central line of the rail on the development (for which cause see article 13, page 620, vol. ii.); upon this central line, which we

Fig. 10



have designated as the line of heights (see article 15, page 620, vol. ii.) case of the abrupt angles, caused by reason of the different inclinations of the rail, in the manner described by article 13, page 620, vol. ii. Next determine the points *e* and *e* of the development of the cylindric surface, through which the cutting plane of the face-moulds are to pass; the mode of ascertaining these points is described by articles 16 and 17, figs. 5 and 6, page 620, vol. ii. Having done this, draw the lines *f c*, *b e*, and *a d*, which represent the heights for our guidance in laying down the face-mould.

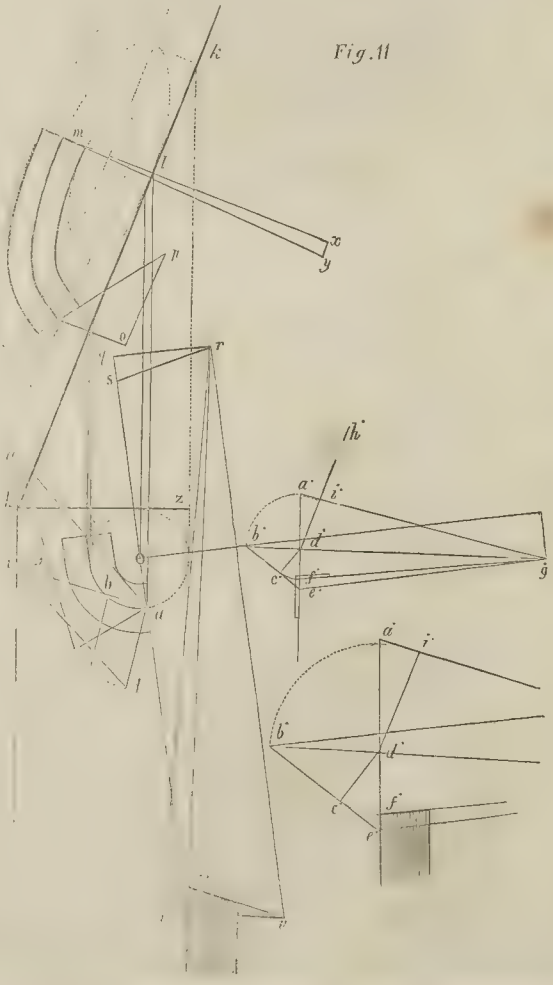
27. In article 16, page 620, vol. ii. we have noticed that the division of the wreathed portions of the rail should not, as far as regards the economy of the material, exceed one-fourth of the revolution around the entire cylinder; it is therefore necessary to mark off, on this developed surface, the position of the butt joints; thus, the lines *f n*, *i l*, and *f g* are made as near as possible at right angles to the inclination of the rail. The line *f n* is fixed at a sufficient distance from the circular surface of the cylinder as to admit of the joint being entirely free from the wreathed part of the rail, and the line *f g* should be similarly arranged for the same purpose; but when convenient, it is best to have this butt joint at the commencement of the straight rail, as shewn by the engraving. From the points *f* and *f* draw the lines *f c* and *f c*, each parallel to B D and A C; but the height or distance *f c*, which regulates the line A B, should always be sufficient, to avoid confusion, in laying down the lines for the face-mould, as will be seen in figs. 11 and 12.

28. Having thus far completed our development of the line of heights, we are next to lay down such portions of the plan of the rail as pertain to each of the divisions of the wreath respectively; for this purpose, let the central line, *a b c* of the plan in figs. 11 and 12, represent the line E F in fig. 10, with the addition of the straight portions of the rail, as shewn in the development by the line B *c* and C *c*. Fig. 11 shews the mode of obtaining the face-mould for that portion of the wreath contiguous to the lower range of flyers, and fig. 12 shews that which is required for the wreath adjoining the upper range of flyers. In both figures, each portion of the plan is similar to the other, but varying in the heights and inclination of the rail; by reason of which, the angles as well as the bearings in each figure will be found to differ widely; in each case, however, the same principle and mode of construction may be traced throughout by the letters of reference which apply to both figures.

29. We shall, however, confine ourselves to fig. 11 (which is here laid down to a scale of $\frac{1}{4}$th part of an inch to the inch), wherein the line *a b c*, represents the plan of the cylinder with a portion of the straight line of the rail attached thereto; let the distance from *a* to *b* on the plan be the same as the distance from *a* to *b* on the line A B of the development in fig. 10. Here let the student refer back to article 23, fig. 9, page 632, vol. ii., and article 9, fig. 2, page 619, vol. ii., where the mode of determining the position of a plane, cutting obliquely through three given points on the surface of a cylinder, and the mode of performing the contour of the ellipse, produced by the cylindric section, are described; it will be observed, that the same methods therein propounded must be adopted. In the present case, the line *a b c* is the base line of the cylindric surface, the three heights *c f*, *b e*, and *a d* fig. 10, are the perpendiculars which give the position of the cutting plane over the points *c b* and *a* respectively. In laying down the intersecting lines *h*, upon the plane of the base of the cylinder it is of little importance whether we take the entire length of the lines *c f*, *b e*, and *a d*, or of any proportionate part of each, inasmuch, as we arrive at the same result by substituting one-half or one-fourth of the entire height of each; in the present case, as will be seen from the lines *a d*, *b e*, and *c f*, in fig. 11, they are taken at one-fourth of the entire heights of each of the lines *a d*, *b e*, and *c f*, in fig. 10. The elliptic curve of the cylindric section, which forms the central elliptic line of the face-mould, will require the same method of procedure as that adopted in article 9, fig 2, page 619, vol. ii., by which rule also the inner and outer curves of the section of a hollow cylinder, whose shell is equal in thickness to the width of the rail, may thus be obtained; these curves we have shewn in fig. 11 by the dotted elliptic lines, which surround the central line *n m* of the face-mould; but if our face-mould (in such a case as the present) were constructed so as to form a perfect section of the shell of a hollow cylinder, and the outline thereof were marked upon the faces of the plank at the proper pitch, so that by cutting the cylindric surfaces of the quadrilateral solid (as referred to in articles 4 and 5, page 619, vol. ii.) out of the plank, by means of the saw-cutting in the direction of the vertical surfaces of the cylinder, we should find (however strictly scientific the process may be) that much waste of material would be made by the requirements rendered necessary in the formation of the joints. We may observe, however, that it is only in cases like the present, where a great number of winders are introduced, and where small well-holes are adopted, that it becomes necessary to deviate from the general rule.

30. Hence, then, by articles 16 and 17, page 620, vol. ii., we have shewn the proximity which exists between the line or arris produced by

Fig. 11



winding the development of the line of heights round the surface of the cylinder; and that, which is produced on the same surface by the inter-section of the cutting plane, made to pass through any three given points which approximate nearest to the line of heights. From this it will be seen that the central line *m n* of the face-mould approximates very nearly to the centre line of the hand-rail; and as our line of heights is made to pass through the centre of the rail, it therefore follows, that if we mark off a parallel width of 1½ inches (one-half the width of the rail), on each side of the central line *m n*, we shall have a face-mould, which, when marked on both surfaces of the plank, each face being brought directly opposite the other, the solid may cut out of the plank, of substance sufficient for the formation of our rail when moulded to its finished shape.

Fig 12.



31. But we are first to determine not only the width for a face-mould of this description, but also to lay down such lines as may enable us to work the butt-joints with accuracy. Having already determined the points *m* and *n*, in the central elliptic curve of the face-mould, let us proceed to find the bevels, not only for the ends of the face-mould, but also the bevels of the ends across the thickness of the plank. Thus to find the bevel for the end of the wreathed portion of the rail, contiguous to the straight part of the rail, over the upper range of flyers—in fig. 10, take any point *h e* in the line *f c* draw *h g* perpendicular to *f c*, cutting the line of the butt-joint *f g* in the point *g*: in fig. 11, draw a line from O in the centre of the circle on the plan of the rail through the point *b·*; also draw the line *e· g·* parallel thereto; draw any line *e a·* parallel to the intersecting line *h i*; make the perpendicular distance of the point *d·* from the line *e g·*, equal to *h g* in fig. 10. Through the point *d·* draw the line *b· g·* at right angles to *a· e·*; make *d· a·* equal to *h f* in fig. 10; join *a· g·*, and draw the line *d· h·* parallel to *h k*, intersecting the line *a· g·*, as shewn in the figure in the point *i*. From this point of intersection, and with one point of the compasses in the point *d·*, describe the dotted circular line, cutting the line *b g·* in the point *b·*; join *b· e·* from which let fall the perpendicular line *c· d·*; and with *d·* as a centre, describe the circular line *c· f·*, cutting *d· e·* in the point *f·*; join *f· g·*, and the angle *e· f g·* is the bevel which is to be applied to the end of the face-mould in forming the butt-joint across the thickness of the plank.

32. Again, to find the bevel or end of the face-mould for our guidance in marking the face of the plank: having already drawn the ordinate line, *o n*, at right angles to *h k*, make the distance *o n* equal to *d· e·*, also make the perpendicular line, *o p*, equal to *b· d·*, and through the points, *n p*, draw the line across the end of the face-mould, as shewn in the engraving, which is the end of the face-mould required. The bevels for the opposite end of this face-mould are obtained in a similar manner. Let the line of the butt-joint, through the point *d* of the development, fig. 10, form the hypothenuse to a right-angled triangle, whose base, *k· l*, is parallel to the line A B. In fig. 11 draw a line through the centre O of the circle and the point *a* of the plan of the rail; let this line be produced to the distance of the points *t* and *q*, as shewn in the engraving. At any distance from the point *q*, draw the line, *r v*, parallel to *q t*; make the triangle, *q r s*, in fig. 11, similar, in all respects, to the triangle, *k l i*, in fig. 10; parallel to *g i* draw the line *r t*, cutting the line *q t* in *t*; from the point *t*, draw the line *t v* at right-angles to the line *r t*, and cutting the line *r v* in the point *v*. Then, with the line *r t* as a base, form a right-angled triangle, whose perpendicular, *t u*, make equal to *q s*. With the point *t* as a centre describe a circle touching the nearest point of the hypothenuse, *r u*, and cutting the line *r t*, produced in the point *w*, join *w v*, and the angle which it forms with *t w* will be the bevel to be applied across the thickness of the plank.

33. The direction of the end of the face-mould through the point *m* may be ascertained in the following manner:—Produce the ordinate line through the point *m* to *x*, make the distance, *m x*, the same as *r t*; from the point *x* let fall the perpendicular line *x y*, which make equal to *t u*; next draw the line *y m*, which, when produced across the width of the face-mould, will form the position of the end thereof.

34. The bevels for the other portion of the wreathed rail may be obtained in a similar manner to those here shewn.

35. The more important use of these bevels are for the purpose of constructing the jointing-box (which we shall hereafter describe), without which it will be next to impracticable, by the use of the plane and the bevels only, to work to that degree of truth which the nature of the work requires. The shaded parts in the figures shew the thickness of the plank, on which a centre line is drawn, also shewing by the end thereof what allowance should be made beyond the centre of the butt-joint for the obliquity of the planes of the butt-joints with the planes of the faces of the plank.

PROPOSED NEW PARK AT BATTERSEA.

Public attention has recently been directed to the formation of a new park in Battersea-fields. It has been ascertained that 500 or 600 acres of land might be purchased there at very moderate price; and if half of it only were appropriated to the public as a park, the other half would, if let for building, most likely produce sufficient rental to pay all expenses; and it would make a valuable place of recreation to the public, who could get easy access to it from the most crowded parts of London. The steam-boats have become a very important means of transit; they still appear to be increasing very much, and probably they cannot have too much encouragement. By diverting the busy traffic of our streets to the river, they relieve the crowded thoroughfares of the town, and they have already proved themselves to be important auxiliaries in the cleansing of the river and its shores.

By means of these boats this park would be accessible to a vast number of all classes of persons who live on both sides of the Thames, including the whole extent of London, a length of 7 or 8 miles. The poorer class of persons could get there by the steam-boats at a less expense than they can get a change of air in any other way.

Another of the advantages connected with the purchase of this land at Battersea, would be that from its position by the side of the Thames, there would be facilities for making large pieces of water. In summer these might be changed, if necessary, every tide; and they would furnish an excellent bathing-place for the working population in hot weather. At present the working classes have no means (or at best very limited means) of bathing. These baths might be so inclosed by plantations as to prevent them from being in any way offensive, and on that account would be much fitter for the purpose than the Serpentine River, where the bathing is always a great nuisance, and so offensive, as to drive many persons from the park, and where, even if this objection did not exist, there is not a tenth part of the space requisite for these purposes. Besides, any bathing-places made here would not only have the advantage of the water being frequently changed, but they might be so regulated as to be perfectly free from danger, by standing at any desired depth, being affected neither by dry weather nor by floods.

A further advantage, it is obvious, which would result to the population of London of all classes (and one which would be attended by not one shilling additional expense), would be the very perfect skating-ground which these pieces of water would afford in winter. Now the ground is of comparatively little value at present, and therefore very extensive means of promoting the health and recreation of the public could be acquired for a small sum. The number of persons who would take advantage of it would be immense, and however desirable it may be (and it undoubtedly is so) to widen our crowded thoroughfares, and to improve our over-populated districts, yet some outlay would not be misapplied in the acquisition and inclosure of spaces on the immediate outskirts of the town where there is little if any building at present to remove; and where, consequently, improvements could be made at comparatively small expense, to make good communications and airing places to which the public would be tempted to resort, and above all, in the selection, when opportunities offer, of sites having the river for their leading highway—a highway subject neither to the wear and tear, nor the expensive repairs, nor the dusty and inconvenient transit in dry weather of ordinary roads, and by which it is obvious no one can travel without, by that alone, whatever may be his occupation, enlarging his stock of health.

Mr. Thomas Cubitt, the eminent builder, has the credit of having first proposed this improvement. The daily observation and extensive intercourse which this gentleman has with artisans and working people of all sorts, his means of knowing their reasonable wants and their real value, and the unusual interest he takes in whatever concerns the health and comfort of the poorer classes of our population, evidently led to the idea, and induced him to submit his philanthropic proposal to the consideration of her Majesty's Commissioners for the Improvement of the Metropolis, who, in their second report (the first being exclusively devoted to the embankment of the Thames), will doubtless refer to it at length.

Engineering in Egypt.—On the 28th of November, a dry dock at Alexandria, which has been about eight years in execution, and has cost Mehemet Ali half a million sterling, was opened, and the first vessel hauled in. According to the *Times*, it is constructed in deep water; and the engineer, a Frenchman, of the name of Mougel, had great difficulties to contend with from the nature of the soil, besides labouring under a peculiar disadvatage, owing to there being no tides in this port. The dock has been made on the model of that of Toulon; its length is 243 feet, and its width 72 feet, taken on a level with the sea. M. Mougel will shortly leave for France, and it is said that he has received from Mehemet Ali instructions to take all the necessary measures for the construction of the "barrage" of the Nile, which work, if ever completed, will be a great boon to Egypt. The site fixed upon, at present, for this purpose is the point of ramification of the Rosetta and Damietta branches of the river, about ten miles below Cairo. It will consist of two bridges, one over each branch of the Nile, both joining at the extreme point of the Delta. The bridges will be formed of a certain number of arches, and one arch of each bridge will be made with a lock, for the purpose of navigation. In the centre of the Delta, will be opened several canals, to which the water of the Nile will be allowed ingress, as it may be required.

New Books.

The Church Restorers: a Tale, treating of Ancient and Modern Architecture and Church Decorations. By F. A. Paley, M.A., Hon. Sec. Cambridge Camden Society. Van Voorst, London: 1844.

Three years ago, when the Cambridge Camden Society had but commenced the publication of their opinions, the *Dublin Review*, a Roman catholic organ, said their position was most inconsistent, and that "the good men who were so earnestly labouring for the revival of catholic church architecture must be convinced that we must have the catholic service revived, in the first place, before any real good could possibly be accomplished." At that time they resolutely *denied* any such conviction, but the tendency of their views was nevertheless sufficiently apparent to all who looked beneath the surface. Now-a-days they speak out more plainly, or at all events individual members do; and when each individually says the same thing, and the society, when they *do* speak collectively, coincide, it would be absurd to make any distinction; even though, as in the present case, the author state carefully in his preface, "that neither his publisher, nor the society with which he is connected, can be in the remotest degree responsible for any opinions expressed in the narrative."

The little book before us is one of those which have been justly termed "engines of polemical theology." Its intention is to prove the "meanness of protestantism" (p. 3), "the desecrations and profanities of protestantism" (p. ix), "the desolation of protestantism," and to shew what "hell-hounds of destruction" (p. 62) were let loose by the Reformation — the *glorious* reformation, as the author satirically terms it; and glorious it unquestionably was, notwithstanding the excesses which disfigured it, or the sneers of a disguised jesuit. The advantage of daily mass, cressets constantly burning, incense, and holy water, is quietly hinted. He cannot hope that we "shall *yet* get back our monasteries" (p. 179); he urges the propriety of prayers for the dead (p. 22), and devotes several pages to induce a more unlimited belief in miraculous cures at holy fountains, and the preservation of saints' bodies "entirely incorrupt," than is at present general.

The deep chancel, the screen to separate the clergy from the laity,* the rood above it, and all the other fittings and arrangements in use when the church was Rome's, are to be introduced in our new edifices. And with these fittings, Mr. Paley does not blink it, the rites and ceremonies in accordance with them are to be restored also. He says (p. 190), "In Christian architecture, we find a definite use for every single part of a secular as well as of a religious edifice. Now the question is this; can we retain the form, irrespective of the use, without violating the fundamental principles of architecture?" and then he answers unequivocally, "*Clearly we cannot.*"

Far be it from us to speak disrespectfully of a creed because it differs from our own (our conviction of the weakness of human judgment, if of our own fallibility, would prevent us); and if this book were written by an honest Romanist, we should have little to do, perhaps, but to thank him for some zealous efforts to protect old memorials of Christian art from the injuries of time and the ignorance of men. As it is, however, we say that it is a disgrace to its author and the college to which he belongs, and denounce it as an insidious attempt (one of many, or it would not require notice) to introduce theological opinions of the most dangerous character.

Conversationslexicon für bildende Kunst. Band I. Williams and Norgate, Henrietta-street, Covent-garden: 1844.

This work promises to be a very complete encyclopædia of architecture and building, and embraces all the arts and sciences connected with them. The volume now before us, consisting of 640 closely-printed pages profusely illustrated, is occupied solely by letter A, and contains some able articles on Grecian and Egyptian art (*Aeginetische kunst; Aegyptische kunst*), acoustics (*akustik*), &c., &c. When it is further advanced, we shall examine it more carefully, and transfer to our pages some of the information it contains.

To such of our readers as are acquainted with the language in which it is written, we do not hesitate to recommend the book itself. A knowledge of German, by the way, has become almost indispensable to architects, in consequence of the numerous excellent works relating to their art which have been recently published in that tongue. Architectural students who wisely seek to diversify their evening studies, cannot do better than apply themselves vigorously to it. Recreation may be found in change of labour.

Companion to the Almanac for 1845. Charles Knight, London.

The "British Almanac" for the new year, published by that able and enterprising caterer for the public, Mr. Charles Knight, contains its usual amount of information. The "Companion" to it, which more immediately concerns us, presents a general view of public improvements and the erection of new buildings, and although necessarily brief, forms, with preceding volumes, a valuable record. It contains views of the Royal Exchange, new church, Lever-bridge (executed in *terra-cotta*), Nunhead Cemetery Chapel, Lincoln's-inn new Hall, the Conservative Club, and the new Guildhall in progress at Bristol.

Description of the New Royal Exchange. Effingham Wilson, London: 1844.

A very pretty little volume, containing an historical notice of the former edifices, a description of Mr. Tite's new building, and a brief memoir of Sir Thomas Gresham, the founder of the original *burse*. It is illustrated by eighteen woodcuts, and nicely printed. The following engraving, which we introduce, includes a view of Gresham's tomb, in St. Helen's Church, Bishopsgate-street, a singularly interesting structure. Without explanation, which the work does not give, the reader would be led to conclude that the monument with columns and arches belonged to Gresham; this, however, is in memory of Sir William Pickering, who is said to have been the finest gentleman of his time "for worth in learning, arts, and warfare." We don't read the words "fine gentlemen" so now-a-days. Gresham's monument is in the farther corner. It is a large sculptured altar-tomb, covered with a marble slab, on which is inscribed, "Sir Thomas Gresham, Knight, bury[d] Decem[br] 15[th], 1579."



GRESHAM'S TOMB.

METROPOLIS IMPROVEMENTS.

(*From the 21st Woods and Forests' Report, not yet Published.*)

In the several lines of improvement authorized by the Acts 3 & 4 Vict., cap. 87, and 4 Vict., cap. 12, we have, since the dates of those Acts respectively, completed purchases to the amount in the whole of 457,844*l.* 15s 10d., and have contracted for further purchases to the amount in the whole of 191,617*l.* 15s. 10d.; and besides these, the purchases now remaining to be made in order to clear the whole of the ground required for completing the several lines of improvement, it is estimated will cost the further sum of 54,256*l.* 5s., or thereabout, viz.:—

1. In the line from Oxford-street to Holborn we have completed the purchases to the amount of 211,684*l.* 14s. 10d., and have contracted for further purchases to the amount of 56,979*l.* 3s. 4d., and besides these there remain to be made purchases estimated to cost the sum of 14,571*l.* 15s., or thereabout.

2. In the line from Bow-street to Charlotte-street, Bloomsbury, we have completed purchases to the amount of 70,958*l.* 18s. 3d., and have contracted for further purchases to the amount of 3,000*l.* 11s. 9d., and besides these there remain to be made purchases estimated to cost the sum of 17,595*l.*, or thereabout.

3. In the line from the London Docks to Spitalfields Church, we have completed purchases to the amount of 96,742*l.* 16s. 11d., and have contracted for further purchases to the amount of 30,236*l.* 8s. 7d., and besides these there remain to be made purchases estimated to cost the sum of 6,740*l.*, or thereabout.

4. In the line from Coventry-street to Longacre we have completed purchases to the amount of 77,078*l.* 5s. 10d., and have contracted for further purchases to the amount of 89,202*l.* 12s. 2d., and besides these there remain to be made purchases estimated to cost the sum of 8,097*l.* 10s., or thereabout.

5. In the line from East Smithfield to Rosemary-lane we have completed purchases to the amount of 1,420*l.*, and have contracted for further purchases to the amount of 12,200*l.*, and besides these there remain to be made purchases estimated to cost the sum of 7,252*l.* or thereabout.

By a statement of receipts and expenditure in respect of monies applicable to these improvements, it appears that of the sum of 500,000*l.* mentioned in our nineteenth report to have been borrowed of the Equitable Assurance Company for the purposes of these improvements, upon the security of certain portions of the land revenue of the crown in the county of Middlesex, and of monies arisen from interest on exchequer-bills and profit on the purchase and sale of those bills, in which part of that loan was temporarily invested, from the sales of old materials, and from rents of property purchased for the purpose of these improvements, there remained a balance of 1,420*l.* 6s. 6¼d.

These funds being, as will be seen by the statement above-mentioned, nearly expended, we are taking measures for obtaining a further loan of 250,000*l.*, which, we find, it will be necessary to raise for the purpose of making the several remaining purchases requisite for the completion of these improvements.

Tollington Park New Church, Hornsey.—The trustees of the Metropolis Churches Fund have contributed 1,000*l.* towards the erection of this church; the Marquis of Northampton has intimated his intention of contributing 50*l.*, and the Rev. Mr. Venn has presented 200*l.*

West London Railway.—The London and Birmingham Railway Company has agreed to pay the existing liabilities of the West London Railway Company, amounting to 60,000*l.*, and to allow the shareholders one-fourth of the *gross* proceeds arising from the traffic on the railway and Kensington Canal. Application will be made to Parliament when it meets, for powers to extend the line to the Thames and to Knightsbridge. In its present incomplete state this railway has seemed to those who were ignorant of its real purpose a fit subject for ridicule. There can be little doubt that, when fully carried out, so as to give to the Great Western and the Birmingham a west-end terminus, and connect both these lines with the Thames, shares in it will become first-rate property.

* "Do we not instinctively feel that while the nave is, as it were, the vestibule, the chancel is the palace of the Great King" (reserved solely for the clergy?). "The chancel is the choir of the angels, the church triumphant, the Holy of Holies."—p. 105.

Correspondence.

ARCHITECTURAL COMPETITIONS.

TO THE EDITOR OF THE BUILDER.

SIR,—I received a very oily letter from the Bursar of Magdalen College, stating that the College, "after long and painful deliberation," had decided in favour of Mr. Derrick's design for the Choristers' School, and terminating with some further civilities by way of thanks—without a word as to the very extraordinary favour granted to the successful (?) competitor.

If you or I were to break an agreement, we should be immediately proceeded against "with the utmost rigour of the law." Now, as the "Instructions to Architects" is to all intents and purposes an agreement, cannot all the competitors proceed against the College for the value of the drawings sent to them in pursuance of that agreement? For, in fact, the designs sent at the time appointed by them—*and not a fortnight after*—were to be considered as exclusively those in *bonâ fide* competition. The law may not help me in this case, but equity should do so. Perhaps you or some of your correspondents will oblige me by stating your opinion in your valuable paper. By-the-bye, don't you think this is a proper subject for the Institute to take notice of? I wish they would wake up a little; their slumbers have been very long, and, if I may judge by the little notice that has been taken of them, undisturbed.

ONE OF THE DUPED.

Dec. 30, 1844.

[We believe our correspondent is correct in saying the law will not help him. If, however, some of our legal friends will look carefully into the matter, and give us the result of their examination, they will earn the thanks of the profession. Few competitions are decided, wherein the agreement (morally, if not legally, binding) is not broken. In the case of the "Hospital for Consumption" last year, the committee threatened to refuse examination even to any design likely to cost more than the advertised amount, and yet ultimately selected a plan, the estimated cost of which was half as much more. They fancy, from the time which has elapsed since their scandalous decision, that they have escaped the castigation they deserved; they may find themselves deceived. —ED.]

ESTIMATES FOR WORK NOT TO BE EXECUTED.

SIR,—As much has been written in your valuable publication on the subject of the ignorance and partiality exhibited upon the decisions of architectural competitions, fully sympathizing with those who have spent their talents and time to gratify the curiosity or cupidity of self-appointed committees, I do hope the exposure in THE BUILDER of the system will be the means of checking the evil. To assist in so desirable a work, allow me to record on your pages a method (I trust a solitary one) of victimising the builders.

During the past autumn, a gentleman practising one of the liberal professions, not 50 miles from this place, conceived the idea of having a residence built suitable to the importance of his station in life; an architect was selected, and Elizabethan the style adopted. Plans were prepared and builders solicited to tender, but as the sanctity of the architect's office could not be invaded, tracings of the drawings with copies of the specification were to be furnished, upon each competitor paying down five guineas!! with the privilege of obtaining a copy of the quantities for four guineas more!!! which latter charge may be considered moderate, as duplicate and in some instances triplicate estimates of certain parts were to be made, the architect not having decided whether certain parts were to be worked in stone or cement. Seven builders were caught, taken in, and nicely done for; three of whom, I believe, paid the nine guineas; the rest only paid five each, for the privileges of making estimates of a building not likely to be executed, as the estimates of the builders exceeded that of the architect, who of course was the best informed upon the subject.

Now, Sir, if the architect was paid by his employer, and did not go upon the speculation of being paid by those who were willing to give up their time and experience, to enlighten him upon the cost of carrying his design into execution, I think they should receive back their money. The several amounts were as under:—

Ashby	£2,200	0
Grover	2,109	9
Haynes & Co.	2,100	0
Wood	1,997	0
Coleman	1,913	0
Sanham	1,832	0
Kirk	1,767	0

Should you consider the foregoing statement worthy a place in your columns, I should feel obliged, as an original subscriber, and A BUILDER (NOT ONE OF Dartford. THE VICTIMISED).

[We agree with our correspondent, that if the building be *not* erected,—if no prize be given, for the chance of obtaining which the builders each bought a ticket, so to speak,—their money should unquestionably be returned. We cannot vouch for the accuracy of the statement; indeed, we hope our correspondent may have been misled, and that one of those who tendered may yet be employed.—Ed.]

TEMPLETS AND MOULDS.

SIR,—A joiner and carpenter contracted for his branch in building a church, finding all timber and workmanship, and in his contract bound himself to make all moulds and templets of timber that might be wanted for the stone work. He has done so, and completed his contract satisfactorily; *to whom do the templets and moulds belong?* If you would be kind enough to insert the answer in your next number, you will confer a favour on me, and set the question at rest. C.

[To the carpenter.—ED.]

CARPENTERS' PRICES.

SIR,—I beg leave to inform you that your list of prices for timber and deals is apt to deceive the builders; for instance, the present price of Quebec red pine timber is 85s. to 90s. per load at first hand and by the cargo; Quebec oak is also from 105s. to 150s. ditto; spruce deals are from 17*l.* to 21*l.* per 120; Christiana deal 30*l.* to 32*l.* per 120 as 12 fs.; second pine planks are now 11*l.* to 12*l.* standard.—Your obedient servant, W. CLEAVE.

[No pains are spared to obtain a correct list, but prices vary so much, and are so influenced by circumstances, that the utmost we can do is to give an approximation to the truth.—ED.]

LEEDS BOROUGH GAOL.

SIR,—In the last number of THE BUILDER, it is stated, under the head of "Tenders," that we are the "inspectors for the committee," of the new gaol now erecting at this place; this is incorrect: we are the architects of that building, and no other party is, or has been employed in that capacity.

The building is being executed according to a design made by us, and approved by Sir James Graham, on the recommendation of Major Jebb, inspector of prisons.

There is another inaccuracy in the paragraph which mentions only three branches of work as being the third contract (C), whereas the plasterer's work, slater's work, plumber and glazier's work, painter's work, smith and founder's work, form part of the said contract and tenders were sent in for these branches also; the amount of the whole contract being about 15,000*l.*

When information is sent for insertion in your useful journal, it is the duty of those who furnish it to ascertain its correctness, in justice to the parties concerned and the public: if this course had been pursued by your correspondent, we should have had no cause to trespass upon your time with this explanation.—We remain, Sir, your most obedient servants,

PERKIN AND BACKHOUSE.

Leeds, Dec. 31st, 1844.

LIST OF NEW PATENTS RELATING TO ARCHITECTURE, ENGINEERING, &c., GRANTED FOR ENGLAND.

[SIX MONTHS FOR ENROLMENT.]

Louis Antoine Ritterbandt, of Gerrard-street, Soho, doctor of medicine, for certain improvements in preventing and removing incrustation in steam boilers and steam generators. December 2.

William Henry James, of Clements'-lane, London, civil engineer, for certain improvements in carriages for the conveyance of passengers and goods, and in the means of working the same. December 2.

James Winter, sen., of Wardour-street, Soho, upholsterer, James Winter, jun., of the same place, upholsterer, and William Lane, of Bedford-place, Russell-square, gentleman, for an improved scaffold, or mode of scaffolding, applicable also as a fire-escape for life and property. December 2.

James Nasmyth, of Paticroft, Lancaster, civil engineer, for certain improvements in machinery or apparatus for hewing, dressing, splitting, breaking, stamping, crushing, and pressing stone, or other materials. December 2.

Benjamin Seebohm, of Horton Grange, York, merchant, for an improved mode of manufacturing certain description of chains. December 4.

John Ryan, of Liverpool-street, surgeon, for certain improvements applicable to or in the construction of casks, barrels, or other vessels intended to contain wine, beer, fermented liquors, or other liquids or substances which are liable to fermentation or decomposition from exposure to the action of the atmosphere. December 7.

William Wilcocks Sleigh, of Saint James's-square, M.D., for the hydro-mechanic apparatus, which, by a certain combination of hydraulic and mechanical apparatus on well-known philosophical principles, is intended to supersede the use of fire and steam in working and propelling all kinds of machinery and engines. December 7.

Joseph Weiger, of Vienna, doctor of medicine, and surgeon-dentist, for improvements in the amalgamation, alloying and soldering of certain metals. December 12.

Charles Louis Felix Franchot, of Paris, engineer, for improvements in engines, to be worked by air or gasses. December 12.

William Malins, of Mansion House-place, London, ironmaster, for improvements in constructing roofs and other parts of buildings of iron or other metals, and in the preparation of the materials of which the same are or may be constructed. December 12.

Robert Heath, the younger, of Shidsgrove, Stafford, coal agent, for improvements in heating ovens and kilns used in the manufacture of china, bricks, tiles, and other earthenware. December 12.

Moses Poole, of Searle-street, London, gentleman, for improvements in the construction of fids for ship's masts and in the means of setting up ship's rigging. Being a communication. December 12.

Warren De la Rue, of Bunhill-row, manufacturer, for improvements in covering the surface of paper and other materials with colour and other substances. December 12.

Nathaniel Fortescue Taylor, of Vauxhall, engineer, for improvements in apparatus for measuring gas. December 18.

Arthur Wall, of Bisterne-place, Poplar, surgeon, for certain improvements in the manufacture of steel, copper, and other metals. December 18.

Benjamin Biram, of Wentworth, Yorkshire, gentleman, for certain improvements in oscillating engines, worked by steam, water, or other fluids, which are also applicable to the raising or propelling of fluids. December 21.

Charles Johnstone, of Southampton, Hants, engineer, for certain improved arrangements for raising ship's anchors, and other purposes. December 21.

Miscellanea.

NEW LUNATIC ASYLUM, &c. WARWICK.—The following motions will be submitted by C. H. Bracebridge, Esq., at the next Warwick Quarter Sessions:—"That the committee appointed at last Sessions do make every inquiry respecting the expense of erecting a county lunatic asylum, the probable number of lunatics, and a proper site."—"That the committee appointed at last Sessions, for the purpose of inquiring into the extent of alterations in the county prisons necessary to carry out the regulation of the Acts 4th George IV., c. 64, and 2nd and 3rd Victoria, c. 56, be continued, with power to confer with Major Jebb, and determine on the most feasible plan for altering the prisons, and to report at the Easter Sessions.

COMPETITION OUTLINES FOR ART UNION OF LONDON.—In reply to the advertised premium of 60*l.* for the best series of designs in outline, the committee of this valuable association have received nineteen sets of various degrees of merit. So soon as the decision is made, we shall allude to them at greater length.

NEW CHURCH AT FARRINGTON GURNEY, SOMERSET.—This church was consecrated on the 23rd ultimo by the Bishop of Salisbury. It is built from the design of Mr. Pinch, architect, of Bath, in the Norman style, and consists of a nave, 35 feet high, with a clerestory, supported by round pillars and semicircular arches; a deep chancel at the east end, and a tower, 55 feet high, at the west end. The whole length of the building is 91 feet, and the width 42 feet. The proportions and general effect of the interior appear to great advantage in consequence of the absence of galleries, excepting one in the tower for the singers. The chancel is lighted by a triple window, and one on either side, intended to be filled with stained glass. There is accommodation for about 350 persons in low, open seats, three-fourths of which are free and unappropriated for ever; the whole of these, with the gallery, altar-rail, desk, and timbers of the roof, are in imitation of dark oak. The pulpit, altar-piece, and font, are executed in Bath stone. The execution of the work was intrusted to Mr. John Thatcher, of Wellow, and Mr. David Aust, of Bath, whose contract for the building was under 1,200*l.*—*Somerset Gazette.*

MONUMENTAL BRASSES.—A monument lately erected in Stonehouse Church, Gloucestershire, to the memory of the Rev. Washington Hallen, has excited a good deal of attention. It is in imitation of the monumental brasses prevalent several centuries since, except that in the present instance the metal used is lead, which has apparently been molten and run into the sculpture. In the centre of the slab is a pedestal supporting a cross, which is bordered on the four sides by an inscription, the letters of which are formed of the above metal, as follows:—"Here rests Washington Hallen, a priest of the Anglican Church, born into this life 1797, departed 1837. *Pray we, as our Holy Mother teaches, for the perfect consummation of his bliss, both in body and soul,* through Jesus Christ." In addition to the principal centre cross, there is a small Maltese cross at each corner of the slab, and the whole effect of the monument is a revival of the antique models.—*Gloucester Journal.* [Yes; and an attempted revival of something more than antique models.—ED.]

LIVERPOOL SAILORS' HOME.—An association has lately been formed in Liverpool similar to the one in the eastern part of the metropolis for the purpose of providing a suitable dwelling for sailors while ashore. The first meeting of the members was held last week, and presided over by James Aiken, Esq. The subscriptions and donations announced amounted to 13,193*l.*, among which was one of 400*l.* from Messrs. Brocklebank. On the motion of Mr. Cotesworth, seconded by Mr. Henderson, the following gentlemen were appointed trustees:—Mr. Robertson Gladstone, Mr. Ralf Brocklebank, Mr. William Potter, Mr. Duncan Gibb, and Robert Rankin. In reply to a question put by a subscriber, the chairman stated that buildings north and south of the town had been spoken of and various plans had been suggested, but nothing could be done until they knew the result of their appeal to the public. On the motion of Mr. J. B. Yates, seconded by Mr. E. Molyneux, it was decided that the committee be recommended to take steps for obtaining the patronage of her Most Gracious Majesty to the institution.

ALTARS IN THE EAST.—There is no canon that I know of, says Bishop Heber, for placing churches with their altars eastward; and though this custom is certainly most ancient and usual, there have been many remarkable exceptions to it, from the cathedral of Antioch, built in the age immediately succeeding the apostles, down to St. Peter's, at Rome, which has also its sanctuary westward.

NOTICES OF CONTRACTS.

For Bodies, Wheels, Axles, Axle-boxes, Guards, Guard-plates, and Springs for 200 Coal Waggons, for the Taff Vale Railway. January 6.

For laying the Pipes required in the Hull New Water Works.—Thomas Thompson, Esq., Town Clerk, Hull, or Mr. Thomas Wickstead, Old Ford, near London. January 6.

For the supply of the following stones for pavements, namely, York Flag of 3 inches and 2¼ inches thick, at per yard superficial; Castle Hill Stone, 2¼ and 1¾ inches thickness, at ditto; Rock-hill of like respective thicknesses, at ditto; Aberdeen Granite, half sovereigns, at per ton; Devonshire Kerb, at per yard run, &c.—Francis Southgate, Clerk to the Paving Commissioners, Milton, next Gravesend. January 7.

For the execution of certain alterations at the Workhouse of the Coventry Union.—Thomas Hine, Clerk to the Board of Guardians, Coventry. January 8.

For Re-pewing Leverington Church, near Wisbeach.—The Rev. Henry Jackson, Leverington, or Mr. W. Adams, Architect, Wisbeach. January 7.

For Four Locomotive Engines and Tenders.—George King, 62, Moorgate-street, January 8.

For a Survey Plan and Valuation of the Township of Kimberworth, in Rotherham Yorkshire.—Mr. George Taylor or Mr. Richard Rhodes, Overseers of the Poor. January 8.

For taking down the present Bridge at Carrick-on-Shannon, and constructing a Stone Bridge of five segmental arches, with its approaches; building quays and harbour, forming wharfs, and deepening the bed of the river.—Edward Hornsby, Secretary, Shannon Commissioners' Office, Custom-house, Dublin. January 8, 1845.

For completing the Railway from Bishopstoke to Salisbury.—Alfred Morgan, Secretary, Nine Elms Station, Vauxhall. January 10.

For building a Sewer in Vine-street, Minories.—Joseph Daw, Sewers' Office, Guildhall. January 14.

For the erection of a Wesleyan Chapel at Hythe.—Mr. T. Pilcher, Stationer, &c., Hythe. January 21.

For making a Sewer in the town of Cambridge. The sewer to be cylindrical, and 2 feet diameter in the clear, the length will be about 385 yards, and the average depth about 9 feet.—Frederick Randall, Town Hall, Cambridge. January 21.

For the erection of the Railway Works between Leeds and Bradford, including fencing, earthwork, masonry, roads, and permanent way.—William Clarke, Secretary, Hunslet-lane Station, Leeds. January 27, 1845.

For the execution of Works on the Chester and Holyhead Railway.—1st. A distance of eight miles, or thereabouts. 2nd. A distance of twenty-two miles, or thereabouts. 3rd. A Tunnel through the promontory of Penmaen Back, near Conway.—George King, Secretary, 62, Moorgate-street. January 29, 1845.

For the supply of Wrought Iron Rails and the requisite number of Chairs for about 15 miles of the Southport and Euxton Junction Railway. The weight of rails to be from 60lb. to 70lb. per lineal 2 yards and 15 feet lengths, equal to from 1,500 to 1,800 tons of wrought iron, and about one-third of that quantity of cast iron.—Woodcock and Part, Solicitors, Wigan. January 31.

For erecting the Works of the third division of the Main Line of the Great Southern and Western Railway, being 11 miles, 6 furlongs, and 75 yards in length. Also for the first division of the Carlow branch, being 10 miles, 7 furlongs, and 160 yards; comprising excavation, embankments, bridges, culverts, &c.—William Taylor, Secretary, 3, College Green, Dublin. February 1.

For the supply of 11,000 feet of nine-inch cast-iron Pipes for a new line of Aqueduct to be laid in the Island of Malta.—Vin. Casolani, Collector of Land Revenue, Office of Land Revenue and Public Works, Valletta, Malta. March 31, 1845.

COMPETITIONS.

THE Committee of the Association recently formed in the Metropolis for the Construction of Baths and Wash-houses for the Labouring Classes, are desirous of obtaining Plans and Estimates for the Erection and Fitting-up of the First Establishment. The general basis of the plan can be seen at the Office, No. 3, Crosby-square. The author of the plan considered the best by the Committee will be selected to execute the work.

Plans and estimates are required for a Pauper Lunatic Asylum for the County of Somerset; the building to accommodate 300 patients, and to contain two Stories. The Committee of Visiting Magistrates wish it to be of a plain, cheerful character, but will not further fetter the architect by suggesting any particular arrangement as to the interior, its ventilation, warming, or otherwise. The ground selected contains 36 acres.—The Clerk of the Peace, Taunton. A Premium of 100*l.* will be adjudged for the best plan, and 50*l.* for the next best. January 22.

Plans and estimates are required for a Workhouse, to contain about 1,180 persons. The whole to be done in a plain and substantial manner, without any expensive embellishments. The plans and architects' estimates to be sent to Robert Mercer, the Clerk of the Clifton Union, Pennywell Road, Bristol, on or before the 17th of February next, and the Board of Guardians will adjudicate on the 28th. The architect producing the best plan in the estimation of the Board will be employed at a sum not exceeding 5 per cent. on the outlay, and a gratuity of 25 guineas will be given to the architect producing the second best plan in the opinion of the Board.

The Committee of the Art Union of London offer the sum of 500*l.* for an Original Picture illustrative of British History. Cartoons, six feet by four feet six inches, are to be sent in (as will be hereafter notified) by the 1st day of January, 1846, and from these the selection will be made. Artists must send specimens of their abilities as painters, if required so to do. The successful candidate must undertake to complete the finished picture, of the same size as the cartoon, by the 1st of January, 1847, and to superintend the engraving. The Committee wish it to be understood that their object in giving so long a period for the preparation of the cartoon is for the purpose of affording artists sufficient time thoroughly to study the various details of their compositions, and to produce in the cartoon a completely finished and well-wrought study for the picture. The Committee reserve to themselves the right of withholding the premium if works of sufficient merit be not submitted.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

January 6.—At Willesden: 318 Oak, Ash, and Elm Timber Trees.—Baker and Son, auctioneers, Manor Terrace, Kilburn.

January 7.—At 90, Blackman-street, Southwark: 600 cut Deals; 3,000 Fir Boards; 250 Pine Plank; 100 Red Pine Deals and Plank; 100 Yellow Deals; 3,000 feet of Quartering; 1,000 feet of Mahogany; 20 load of Ash, Beech, Birch, &c.—Southey and Son, auctioneers, 191, Tooley-street.

January 7, 1845.—At the Hall of Commerce, Threadneedle-street: 1,232 logs of St. Domingo Mahogany of superior quality and large dimensions; also 3 logs of Satin Wood; 182 logs of pencil cedar; 850 lancewood spars.—Thomas Edwards, Broker, 1, Pinner's-hall, Great Winchester-street.

January 17, 1845.—At Garraway's Coffee-house, Cornhill: 10,000 Baltic and Swedish Deals and Battens; 10,000 Colonial Yellow Pine and Spruce Deals.—E. D. Warrington, broker, 15, New City Chambers.

TO CORRESPONDENTS.

"J. M. Newport."—*Will our correspondent inform us in what respect his mode of drawing elliptical arches of large span, by means of two figured rods working on pins at the two foci, is superior to the common mode, wherein a cord the length of the span, and secured at the two ends, occupies the place of the rods?*

"New Flooring Dog."—*The model submitted by Mr. Snowball, although ingenious, is not likely to supersede the present form. The lever is more effectual than wedges in driving the boards together. The inapplicability of the new dog to joists and trimmers of various sizes is likewise an objection. The model is left at the publisher's, with thanks.*

"A Young Architect."—*We will inquire.*

"John Howe" *will find an answer in another part of the Journal. The official referees are Mr. James White Higgins and Professor Hosking, Trafalgar Square.*

"William John Lea."—*The sketch is left at the office, with many thanks.*

"J. W. W., Jun." *next week.*

"J. J. F." "H. G." "J. S." "H. S." *and* "Nanticus" *received.*

A correspondent wishes to know what form it is best to adopt in the construction of Pot Kilns for common red ware.

*** *We have received several letters requesting us to give, in a tabular form, a list of the New District Surveyors and their official residences; immediately they are all fixed and have received a Magistrates sanction, agreeably to the Act, it is our intention to comply with the wishes of our correspondents.*

APPOINTMENT.

The Commissioners of Sewers for Westminster and part of Middlesex are about to appoint a Fourth Clerk of the Works at a salary of 120*l.* per annum. The appointment in the first instance will be for one year only, and take place at the Office, No. 1, Greek-street, Soho-square, on Tuesday, January 14.

The Builder.

No. CI.

SATURDAY, JANUARY, 11, 1845.

THE Metropolitan Buildings Act came into full operation on Wednesday, the 1st instant, and the new surveyors appointed under it came into authority. Their duties are not light,—there is much work before them; as, indeed, there is much increase of work for the district-surveyors appointed under the old Act,—and they must apply themselves vigorously to their task.

According to the new Act, buildings begun before the 1st instant, "and covered in and rendered fit for use within twelve months thereafter," are exempted from its provisions. A knowledge of this circumstance led to the commencement of a vast number of buildings in the new districts at the end of last year, for the most part in an insufficient and faulty manner. Immediately preceding the frost, and in some places during its continuance, the bricklayers were at work without taking even ordinary precautions to prevent injury to the work, such as using the lime quite fresh, clean Thames sand, good bricks perfectly dry; and covering up the walls at night, so as to allow the mortar to set as quickly as possible. The great demand having made bricks scarce, and consequently very dear, the merest rubbish has been used, and *mould*, in many places under our own eyes, has supplied the place of sand in the mortar. The consequence is, that much of the work done is not sound, and should be taken down; in fact, in several quarters it has not waited to be taken down, but has fallen of its own accord. Except in extreme cases, however, we apprehend the district-surveyors will not be able to interfere. Where danger is actually apparent, they may perhaps treat them as *ruinous buildings*, under the 40th section, and with the aid of the overseers and official referees, may cause them to be strengthened or demolished.

Schedule E. provides, relative to projected buildings, that "such projections must neither be built with, nor be added to, any building, or any face of an external wall thereof, so as to extend beyond the general line of the fronts of the houses." In some of the new districts, where the houses stand back from the road, and have front gardens, shops have been hastily executed on that space, to the destruction of regularity, the annoyance of the neighbourhood, and the manifest injury of the adjoining houses. In Brompton (part of Mr. Donaldson's district), a number of such erections have been made, in rows of what have been private houses. Whether or not the owners of adjoining buildings will be allowed to come forward in the same manner, the value of the houses as private residences being destroyed, will depend on the surveyor, as by the section already referred to, what is "the general line of the fronts of the houses" may be determined by him.

The question of drainage is one to which the attention of district surveyors is now first directed, and a very important one it is. Schedule H. provides that the drains from all buildings (hereafter built) shall be completed before the walls are ten feet high; and shall be taken into a common sewer, "if there be within 100 feet from any part of the building, or from the inclosure about the building, a common sewer into which it is *lawful and practicable to drain*."

Further on it provides, touching cesspools, that "if there be a common sewer within 50 feet from any front of or from the inclosure about any house or other building (hereafter built), then a cesspool must not be made for the reception of drainage from such house or other building, unless there be or shall be built a good and sufficient drain from such cesspool to such common sewer."

Insomuch, however, as the Commissioners of Sewers, who retain all their powers and authority, will not ordinarily allow drains to be taken into a sewer until it be brought up to the building about to be drained, this provision would seem to have the effect of compelling owners in many cases to build 50 feet of sewer:—a sewer being within that distance, they may not form cesspools.

Every main drain must be 9 inches in diameter inside; and must have a fall of at least half an inch to every 10 feet, and be arranged so that it shall be wholly covered over under the lowest floor, and independently thereof. It must likewise be made air-tight. In many new houses built "to sell," the pavement in the kitchen or passages forms the top of the drain: a most inefficient and improper mode of construction, which the foregoing provision will prevent for the future. All cesspools constructed under a building must be made air-tight. We need hardly say to our practical readers that in nine cases out of ten where the drains go into a sewer, it is much better to have no cesspool at all. With drains properly formed, sufficient water, and a good fall, cesspools are quite unnecessary, and should be avoided as a great nuisance.

Another important matter (so far as relates to public health) in which district surveyors are required to co-operate is, the prohibition of the use of buildings unfit for dwellings. No decided steps can be taken till the 1st of July, 1846; but overseers should already have reported to the official referees, the number and situation of dwellings in their respective parishes, wherein any underground room or cellar is occupied as a dwelling, in order that notice may be given to their owners and occupiers, of the provisions of the Act in this respect.

DECAY OF TIMBER—CAUSE AND CURE.

THE prevention of decay in the timber-work of buildings we may consider as being very much within our own power; for where due precautions are taken, in felling at the proper time, and thoroughly seasoning the wood itself, and in obviating the chances of harm which might accrue to it from contact with other materials, decay will rarely appear in any form. There are, no doubt, causes which induce decay, where the operation of those under the control of the architect or builder has been prevented: lofts are often filled with stores of a damp and musty nature; manufactures are carried on in which much water is used, much constantly spilt; very frequently, co-operating with this moisture in the work of destruction, is the heat of powerful stoves, which keep the air at a high temperature; painted and other floor-cloths are unsuspectingly and unsparingly spread and fastened down, intercepting the salutary action of the air, and retarding, if not totally preventing, such evaporation as may be wanted. But for such cases as some of these, extraordinary treatment is necessary, although much may be accomplished by mature preconsideration of the intended purpose of the building, and an anticipation of its liabilities.

Among the most active agents of decay in the timber of buildings may be instanced deficient drainage and imperfect ventilation. Where these exist, even perfect seasoning will not be sufficient to ensure durability. Where a radical reform is carried out in them, timber, even imperfectly seasoned, may better serve our purpose; for where damp is precluded, and thorough ventilation sustained, the seasoning must advance to perfection. It is in this conviction that we feel disposed to arraign the whole system of building, as it has been pursued in later times; and to hail with gratulation a change which, though little more than begun, will progress surely, and the further the more rapidly; till, with the "wisdom of our ancestors," in this particular, in vivid light before our eyes, enhanced by the superior state of science, a code of principles will be formed, infallible because founded on common sense. It will not long, we think, be cavilled with, that the existing (now passing) system of stuccoing, external and internal, however much talent, in many respects, it may display, is, in a great measure, contemptible and injudicious. Compoing induces bad bond; bad bond has given rise to bond timbers; these have been pent in by brick and plaster till they rotted away, and disunited the work they were meant to hold together. A niggardly anxiety to reduce the cost of carpentry, the most scientific and perhaps the most beautiful part of good building, has produced plaster ceilings, to the endangerment at once of the science itself, therefore of the stability of our walls, and of the durability of our floors, confining noxious and corrupting vapours. What can we more admire than the open timbering of an ingenious, skilfully-disposed roof, one worked with a view to its being left at all times visible? Which can we the more esteem, the palpable falsity of an ornamented plaster ceiling, that impends over our own heads and the brilliant scenes that shine around, or the more honest and safe, and equally ingeniously-elaborated timber soffit, not blandished over at fitful intervals with colour, but kept in healthy trim by good wholesome rubbing? But we must not diverge further from the straight line of our subject.

DAMP is a very active cause of decay: alternations of dryness and moisture are very destructive, such as is the case with the supports of a wooden bridge, or any other timbers in similar circumstances, weather-boarding, or fencing, exposed to the vicissitudes of the weather, for example. Timber placed in a situation which is constantly damp, is also liable to rapid decay—especially when exposed to atmospheric influence.

The object, then, is so to prepare the wood by some saturation or coating, as to render it impervious to the moisture which assails it: for this purpose several compositions are employed; but it must be remembered that while they are calculated to prevent decay in seasoned timber, unless the wood is thoroughly so, the application of any such covering will produce just the opposite effect to that which is intended—inclosing sap, and preventing evaporation, being known to afford infallible facilities to internal decay, besides which, however well the timber may be seasoned, and its sides defended against external influences, if due attention be not paid to the ends, whatever the position, all the care otherwise bestowed will be unavailing; the pores will admit the moisture, and decay will follow.

It is found that the wooden posts introduced to support the impending portion of salt mines, are rendered in a great degree imperishable by the constant and strong saline infusion which they imbibe; but notwithstanding this fact, it is obvious that timber seasoned by immersion in sea-water ought never to be employed for house-carpentry; for the impregnation which it has received will render it ever after most susceptible of damp, as indeed is any substance which contains salt; and while the particular timbers which had been so seasoned might contain within themselves principles exempting them from decay, they would most probably be the vehicle to bring destruction to the work around them: for the same reason the walls of buildings should not be built with mortar made with sea-water, or finished with plaster in which it is used.*

* If the mortar or parget with which a chimney-flue is to be plastered be mixed with salt, it will obviate any future temptation to contravene a very humane enactment—that which closed the particular channel for the pursuit of k.u.d., which whilom invited the especial investigation of the climbing-boy; for with every spell of damp weather, the salt will liquify and disengage the soot, a property which in one recorded instance remained unimpaired after thirty years' operation, but whether to the advantage or discomfort of those immediately interested does not appear.

In building on a damp soil, having provided for the drainage of the site and its vicinity, the walls to a little above the ground-line should be built with mortar incorporated with some ingredient giving it the property of a hydraulic cement, or such as would set under water; otherwise the mortar will never properly harden, but be inclined rather to decompose, and will always facilitate the rise of damp into the walls of the superstructure. Where there does not appear imperative occasion for incurring this extra expense, and indeed in all other cases than the one named, it is well to introduce near, but out of contact with the ground, a course of some material which is of a nature much more impermeable to moisture than the generality of building materials, a thin plate of some incorrodible metal for example, or a layer of hard slates in Roman cement, or of coal-tar and sand; either of these will intercept the rise of damp. In buildings of brick, it is the more necessary to have recourse to such measures, since that material is very absorbent in its nature, draws up damp to a considerable height, and retains it for a long time. Where the walls of a building in which no such precautions have been taken, have become damp, it would have a salutary effect to dig out the earth which lies against them, and apply a coat of concrete, or Roman cement, to the parts under the ground-line, then fill in the earth again; the current would thus be effectually stemmed, and on the right side of the wall; and all short-sighted attempts to shut it out from within, by means of tarred-paper, or tea-lead, rendered unnecessary. It is plain that where water is collecting, it must either run out or run over; and if an internal coating resists the percolation, the more is the pity, since the consequence must be the rise and spread of the mischief.

But where there is a sunk basement, and indeed in all cases, the best practice is to separate the walls from the surrounding ground by open areas, more or less wide as they can be obtained. Then, interiorly, the flagging should not be laid upon the natural earth or vegetable mould, but upon a stratum of concrete, or compact layer of ashes, stone-chippings, dry lime-rubbish, or other material calculated to intercept humidity and destroy vegetative principles, a precaution which is of course equally essential under the boarded floors of the same story,—it being provided in the latter case that a clear space of 18 inches height, or more, intervene between the said finishing stratum and the floor-boards, and a thorough ventilation admitted by means of perforated iron castings in the plinth course of the external walls. Where sleeper-walls occur, little arched openings should be formed in them for the same purpose. In superior buildings this method should be adopted for the flagging as well, as being the best for insuring a perfect exemption from damp,—the slabs being of large dimensions, assorted to certain widths, laid on dwarf walls with apertures, and their cross joints joggled or rebated for mortar to prevent any upward draught. Allusion need only be here made to the necessity which there is for making the right sort of provision, in the first instance, against the leakage of parapet gutters, down-pipes—whether soil or rain-water, cisterns, tanks, drains, &c.; the gutters named demand more care than is usually bestowed on them, and indeed can scarcely be made altogether perfect; and it is frequently from some of these causes, and where there is no damp foundation to blame, that timbers are rotted, and serious mischief occasioned: here then let us urgently recommend the relinquishment of wood bond, and suggest also the invariable adoption of a method of inserting the ends of timber beams in lieu of the more common practice of building close about them. Arched recesses, larger in every way than the ends of the beam, and having stone cills flush on the face, somewhat wider than the opening, and dovetailing inwards, should be prepared in carrying up the walls; the beams when laid in their places should be held there in one or other of the following ways; irons, say 2 feet long, should be bolted or screwed against the sides at each end, and turn down into mortises in the stone cill or templet, or dowels of iron or Valentia slate (if the latter, say 3 inches square by 4 long) should be let one-half of their length into the contiguous surfaces of the beam and templet—centrally in their width and as far from the ends of the former as is compatible with the strength of the latter supposing a tendency in the walls to fall outwards, and the beam to fulfil the part of a tye. The former and more expensive method is best calulated for cases where damp, and consequently decay at the ends of the beam is to be feared, but where all other precautions have been taken, the latter, which is extremely simple, is sufficient. When it is inconvenient to place the beams at the time of carrying up the walls, there can in general be no obstacle to leaving the back of one of the recesses open that the beam may subsequently be pushed far enough through it to admit of its other end being introduced into the one opposite. This mode of placing beams provides for the circulation of air round their ends, which from the exusion there that proceeds from such vegetable moisture as happens to remain, are liable to be soonest affected; it supersedes the necessity for charring or pitching the ends, which, however excellent in cases where the timber is perfectly seasoned, is injurious where it is not so; it also affords superior facility, should any deficiency take place, for splicing or entirely replacing them. J. W.

ROYAL INSTITUTE OF ARCHITECTS.

In the middle of last year the Institute offered medals for the best essays on the following subjects:—"On the system and principles pursued by the Gothic architects from the eleventh to the fifteenth centuries inclusive, in the embellishment by colour of the architectural members and other parts of their religious and civil edifices;" and "On the various species and qualities of slates, with an analysis of their component parts, their relative value and applicability for building purposes, and the best chemical tests for ascertaining their durability." They further offered the Soane medallion for the best design for a college in a university, of Roman or Italian architecture, with chapel, theatre, &c.; and required that the principal buildings should compose in a noble and imposing manner.

We regret to learn that, in reply to these invitations, only two essays have been received, both on the qualities of slates; and that no design has been sent in. It is extraordinary to find so little emulation amongst the rising members of the profession, as is thus rendered apparent. We shall aid in rendering widely known the subjects proposed for the ensuing year, and hope we shall have to record a more satisfactory result. The merits of the essays now submitted remain at present unknown.

At the next ordinary meeting of the Institute, which will be held in the new rooms on Monday next, a paper will be read by Mr. T. L. Donaldson, "On the history of architecture, from the building of the pyramids to the revival of Italian architecture in the sixteenth century."

Rise in the Price of Timber.—We are informed that the advance in the price of American timber, within the last twelve months, has been nearly 50 per cent. This extraordinary rise is attributed to the steady demand and the diminished stocks, caused by the great amount of shipping employed in the guano trade. The timber-carrying trade has not, for many years, been a profitable one, and though a great amount of tonnage will, no doubt, be employed next year, and tend to check the rise, still, as freights will necessarily be high, timber will, no doubt, for some time to come, command first-rate prices to the importers.—*Glasgow Courier.*

Gigantic Bronze Statue.—The *Journal des Débats* states that the gigantic head of the statue of Bavaria, a bronze statue, which is to be 68 feet high, was withdrawn from the mould in which it was cast at the royal foundry of Munich on the evening of the 14th ultimo, in presence of the king and queen of Bavaria, and a considerable number of distinguished personages. The beauty of the head of Bavaria, which is the work of the celebrated Schwanthaler, excited such enthusiasm amongst the spectators, that they joined their voices to a chorus of 300 of the Philharmonic Society of Munich, who chanted a hymn composed for the occasion by the Baron de Poissel, director of the Theatre Royal of Munich.

BUILDING SOCIETIES.

Letter V.

BY WILLOUGHBY WILTON.

We hinted in our last that we should now touch upon the *interest* charged by these societies; this, however, must briefly give place to some matters equally important in our investigations. If our readers will turn to page 589 of The Builder (vol. ii.), they will find what interest is charged per cent. per annum. For example, a man takes 4½ shares at the price of 70*l.*, making 315*l.*; for these 315*l.* he covenants to pay in time 540*l.*; but till he does so, he is charged what is called "redemption money or interest" *per* share per *month* upon the sum he gives up to the society as a *bonus* for immediate *cash*. In the case before us, he submits to a deduction of 50*l.* a share, or 225*l.* for 315 + 225 = 540. This monthly payment the poor man deems easy; the rich man finds it the nimblest element in the improvement of his capital. For it is this: interest or *redemption* money at 4*s.* a month, *i. e.* on the bonus or sum which the man did not receive; this on 4½ shares makes 18*s.* a month, which, with redemption money, 10*s.* a month, makes 3*l.* 3*s.*, or 37*l.* 16*s.* a year; but 37*l.* 16*s.* multiplied by 8½, become 321*l.* 6*s.*; so it is made to appear that the man can within even 8½ years pay off the loan with interest on the *bonus* by monthly instalments of 3*l.* 3*s.* We must not, however, omit the ground-rent, 5*l.* a year or 50*l.* in ten years, dilapidations, insurance of property, and loss of time in dancing attendance on the secretary with monthly payments, which we may here pass over, having already shewn the operation of these; nor must we omit the bonus of 225*l.*, which *must be made good eventually*, and which drags on the man's existence for some six years more than the 8½ we have alluded to above, or in all about 14½ years, as explained at large in our second letter, pages 601 to 603 of The Builder. But it is shewn, page 626, column 3, that the bonus is as much as 55*l.*; and in the same page column 1, at the top, we quote the words of the "London and Westminster Society," which says, "the average bonus for such advances being 63*l.* 0*s.* 10*d.* per share;" so that in this case the borrower would receive in cash 56*l.* 19*s.* 2*d.*, making himself answerable for 120*l.* on each share he takes up at this practical valuation of the price current.

In the first case the man takes 70*l.* to pay 120*l.*; in the second 65*l.* to pay 120*l.*; in the third 56*l.* 19*s.* 2*d.* to pay 120*l.* in ten years; the impossibility of which has been fully demonstrated.

This constitutes what is termed *the sale of shares*, "for in full satisfaction of the share or shares he subscribes for of 120*l.* each, "he shall immediatly pay 1*l.* per share in part of the subscription money, and charges payable thereon."* Moreover, "members not wanting money are liable to be ballotted to draw the shares, or be subject to a fine;"† but in "other societies the more general plan is to give power to the directors to dispose of money not wanted by the society in some profitable manner," as in the Bridgwater Building Society, which makes "advances upon notes of hand,"‡ "as the committee shall deem most conducive to the interest of the society."—"We think it highly expedient in societies where competition is allowed, to get a good number of capitalists."§ Here then we have proof of the inference deduced in our last letter, that these are more properly speaking *Loan* than *Building Societies;* and they identify themselves with the money lending clubs in the manufacturing districts.

Let us now consider the *security for money advanced* by the building societies. From what we can learn the property must be of "sufficient security to the society," or the borrower must find good men and true to join in the common bond for the amount advanced, the parties agreeing "to accept the said shares or shares, subject to the payments, rules, and regulations" of the society.

If the party wish to build, one-half of the money shall be advanced when the building is covered in on paying half the premium; and the other half when the premises are finished on paying the residue of the premium: but

* Tring Benefit Building Society, pp. 46, 47.
† Idem, p. 48.
‡ Bridgwater Benefit Building Society's Rules—*Investment of Underspendable Funds.*
§ Kerr's Building Societies, p. 52.

the party fail for six nights (monthly) to pay subscriptions, payment, and redemption money, the trustees shall absolutely sell the premises for the most money that can be gotten for them, and all loss shall be borne by the mortgagor. We see nothing objectionable in the party being made answerable to the society for the payments of the subscriptions and other charges, as the same shall become payable, after he consents to take its money at terms which must eventually prove his ruin to "the satisfaction of the solicitors and trustees for the time being."

The following plan has been suggested to render Building Societies really beneficial; and we cheerfully insert it on the principle, *audi alteram partem;* premising that our quotation is the result of its author's laborious calculation :—

"Suppose a member to require an advance of 450*l.*, the following statement will shew the comparison between the present system and that suggested by the writer :—

Present System.		*Proposed System.*	
7½ shares, at 60*l.*	£450	3 shares, at 150*l.* ..	£450 0
the annual payments would be			
Subscription, 7½ shares, at 6*l.*	45	Subscription, 3 shares, at 12*l.*	36 0
Interest, 7½ shares, at 48*s.*	18	Interest, 3 shares, at 150*s.*	22 10
	£63		£58 10
which, multiplied by	10		9½
would make a total payment of	£630		£555 15
Deduct the sum received by the borrower—	£450		£450 0
shews the actual amount paid for the loan of the money to be	£180		£105 15

"Now, if it were possible for the existing societies to close in ten years, the payments by the borrowers for a loan of 450*l.* would be 4*l.* 10*s.* per annum less to a society similar to that here suggested, than it would be to any of the existing societies, and there would be a difference in the total payments of 74*l.* 5*s.* The borrowers who paid the lesser sum would likewise have the advantage of only being required to give security for the amount they actually received; and, in the event of their failure in making their monthly payments, the property would not be sold for more than the balance remaining due of the amount actually advanced.

"In a society formed on this principle, it would be the interest of all the members to prevent the failure of the borrowers; at any rate, if such an event did occasionally occur, it would not have been caused by his connection with the society, or would they be liable to the imputation of having largely benefited by his ruin ?"

Transfer of shares.—Shares may be transferred on payment of 10*s.* 6*d.* for each share transferred or sold, as a bonus to the society, and subject also to the premium at which the same shall have been purchased, and to all other fines, subscriptions, and charges, payable according to the rules of the society, all of which make a material difference in augmentation of the society's funds, and which we could not contemplate in our previous calculations of the capitalists' profits.

Members withdrawing.—"Protest, if you like," said Lord Ellenborough to William Cobbett, "and go about your business;" not so the building societies—if a member withdraw, we suppose he has protested—in the first year he shall forfeit *one guinea* per share, in addition to the entrance fee; if within the second year, a forfeiture of 10*s.* 6*d.* per share, in addition to the entrance fee, and so on; but these forfeitures extend not to the widows and children of deceased members, holding not more than two shares in the society."

Power of the directors to borrow money for the use of a society.—This is very questionable, and, we believe, entirely at variance with the letter and the spirit of the Act of Parliament, under which these societies are constituted, though that Act, s. 2, allows of "bonus on any share or shares, for the privilege of receiving the same in advance prior to the same being realized." Capitalists in these societies should not need to borrow; and a banker who would lend, at 4 or 5 per cent., to enable a society to discount "notes of hand," would, in Parliamentary language in the times of George IV., burn his back upon himself."

We may be associated with that "detestable class of wretches who oppose building societies;"* but we would bear any obloquy if we could reform things amiss in these societies; and shew sensible men, who may be in their direction, that the borrowers are aggrieved, and, we believe, no two justices of the peace in Britain can gainsay our arguments, as to the profits of the lenders and the duration of these societies. It is the abuse, not the use of the thing, we speak about; and we discard all morbid philanthropy for the industrious classes in treating of the equity belonging as well to the rich as to the poor man. We would court justice for both; and we should recommend the directors to print their rules as the *Book of Justice of Building Societies*, and add thereto the *Catechism of Borrower and Lender.*

These observations, in allusion to the reformation of building societies, are suggested by the arithmetic of their managers, not by assumed data of our imaginings; and we find them responded to by the "Fourth Annual Report of the Liverpool Temperance Benefit Building Society," in which the average premium is stated to have been 58*l.* 10*s.* 6*d.* a share; and while the society "had not the least difficulty in effecting sales of its *funds*," yet the withdrawals during the past year had increased, and the committee could not look upon this peculiarity in the history of the year gone by without feelings of pain; "but this is ascribed to the pressure of the times, which pervaded in so calamitous an extent every grade, but more especially the industrious classes of the community."

We might bring an array of figures, like the trees in an American wilderness, to dissect the balance-sheets of the several societies we have noticed, and of others we have not space to introduce, but we spare ourselves the trouble, and the societies the pain, this would inflict, being satisfied of this one thing, that the legislature will soon look into the management of these societies; for as sure as "the prayer of the humble pierceth the clouds; and till it come nigh he will not be comforted;" so will the appeal of men yet reach the ears of the legislature, who "will not accept any person against a poor man, but will hear the prayer of the oppressed, and will not despise the supplication of the fatherless, nor the widow when she poureth out her complaint."

In that of LAMBETH the borrower is said "to participate equally in the premium and interest given by himself and by all other borrowers," thus "reducing in proportion his amount of premium and interest, till at last, when the deeds of property are returned to him, he will find that he has paid the capital borrowed, *that the premium has become a shadow*,—

——"agnovitque per umbram
Obscuram, qualem primo qui surgere mense
Aut videt, aut vidisse putat nubila lunam.
Demisit lacrimas, dulcique adfatus amore est :
* * * *
'Siste gradum, teque adspectu ne subtrahe nostro,
Quem fugis ?' "

"and the interest trifling." But we have done, observing that the people of Lambeth covet domiciles at Kingsland, where they have mortgages in six houses; the city, where they have *one;* Newington, *one;* Lambeth—*proh pudor!* one; and FOUR at Lewisham, which "are mortgaged for 6,600*l.*," or above 576*l.* a piece. And, in the balance-sheet, it is fairly stated that "3,556*l.* are Dr. to premiums on fifty-five shares taken up and secured on property," viz. the thirteen houses aforesaid mortgages on the Cr. side of the account. This, we presume to believe, makes it pretty plain that the bonus is treated as profit which the society has realized by its transaction with the borrower; and when we look at the very small sums allowed surveyors in the balance-sheets of the various building societies, we cannot lend our belief to the words of "W.," who has replied to Greenway Robins, that "Architects and surveyors are the gentlemen who most profit by these societies;" professional men—save and except the lawyers, are not usually men of means to set on foot or sustain such societies; and we therefore still adhere to our opinion, that these societies could not make the advances they lavish without the assistance of capitalists; for to whom else would the Liverpool Banking Company advance 466*l.*, the Hertfordshire Bank 414*l.*, the Reading Bank 994*l.*? Not to the man assuredly who bought 57*l.* for 120 good sovereigns, to be paid within a given time.

We speak without prejudice and in a spirit of reverence in what follows, that the rules of these societies are "as the words of a book that is sealed, which men deliver to one that is learned, saying, Read this, I pray thee; and he saith, I cannot, for it is sealed. And the book is delivered to him that is not learned, saying, Read this, I pray thee; and he saith, I am not learned." Isaiah xxix. 11, 12. Learned men, good men, and men well skilled in commercial dealings, belong to these societies; they are their supporters. All other men who question their management are denounced "traducers" of building societies. But in a great country like Britain this should not be the language applied to these conscientious dissentients, who are not "found where parables are spoken."

We will conclude this letter with a quotation from the proceedings of the Court of Common Sense, which puts the case in a somewhat different point of view from our argument, and leave the reader to adopt which he pleases; especially as the question regards the operation of interest and the duration of the societies :—

"In order to terminate the society in ten years, a payment of 10*s.* per month, with compound interest and accumulations, must realize 120*l.*; and to accomplish this, the money paid in each year must produce twenty per cent. per annum, as is proved by the following calculation :—

INTEREST REQUIRED BY THE LENDERS.

Payments each year.	Number of years' interest required.	Amount at 20 per cent.	Amount paid with interest at end of 10 years.
£. s. d.		£. s. d.	£. s. d.
1st. 6 0 0	9½	11 8 0	17 8 0
2nd. 6 0 0	8½	10 4 0	16 4 0
3rd. 6 0 0	7½	9 0 0	15 0 0
4th. 6 0 0	6½	7 16 0	13 16 0
5th. 6 0 0	5½	6 12 0	12 12 0
6th. 6 0 0	4½	5 8 0	11 8 0
7th. 6 0 0	3½	4 4 0	10 4 0
8th. 6 0 0	2½	3 0 0	9 0 0
9th. 6 0 0	1½	1 16 0	7 16 0
10th. 6 0 0	½	0 12 0	6 12 0
Sum paid 60 0 0		Interest 60 0 0	Total in 10 yrs. 120 0 0

"The borrowers pay two pounds per cent. on the nominal value of the share—viz., 120*l.*; but as only 61*l.* is received from the society, and the repayment is by monthly instalments, it is actually seven and a half per cent., that is, supposing these societies to terminate in ten years. If they continue for a longer period, the annual payments are to be added to the interest, which is thereby very largely increased.

"If the fines and other extra payments amount to another two and a half per cent., making in all ten per cent., the monthly payments of ten shillings will, if constantly employed (which is very doubtful), in ten years only realize 90*l.*, being but half the profit required to terminate these societies.

"In the Manchester society, those members who did not purchase shares had to pay 110*l.* before they realized the sum of 150*l.*; by the same rule, a monthly payment of ten shillings will, in the same time, only realize 75*l.* The members of the Manchester society paid fourteen shillings and eightpence before they realized twenty shillings, being five shillings and fourpence profit in the pound : and if the members of these societies have to pay in the same proportion, their duration will be fourteen years and eight months."

FIRES FROM FLUES AND HOT-WATER PIPES.—In Mr. Braidwood's report on fires during the ten days ending Jan. 1st, it is stated that out of twenty-six which occurred, in six cases the fires were caused by stoves or flues, one by unslacked lime, one by hot-water pipes used for heating the building, one by a malt-kiln, three by the ignition of curtains, and one by the breaking of a melting pot. In the remaining cases the cause was unknown.

THE TEMPORARY EXCHANGE.—This building, which was erected about six years ago in the Excise-office yard, Old Broad-street, is to be sold next Wednesday, in one lot, by Messrs. Simson, of King's Arms-buildings. It is 140 feet in length, and 40 feet wide, supported on wood pillars, with wrought-iron girders, and slate roof.

* Kerr's "Advantages to be derived from Building Societies" rule xxii.; (his commentary thereon), p. 73.

ECCLESIASTICAL ARCHITECTURE.

Mr. Wightwick has recently published a letter on the determination of some principle for the establishment of an ecclesiastical style of architecture, expressing the reformed church of England, in consequence of a communication from the secretary of one of the church-building societies, which seemed to indicate the prohibition of "any departure from ancient ecclesiastical example," and of the encouragement given to that prohibition by the Cambridge Camden Society. He says:—

"That the Diocesan Architectural Societies have effected great good in aiding to subvert the 'Carpenter's Gothic' of Batty Langley, it were most unjust to deny: but, if they have done this only to insist hereafter on the close imitation of the mere *models*, rather than of those *motives of fitness*, which guided our old Roman Catholic architects, they will tyrannically impede those progressive movements, which might, ere long, lead to the perfection of a form and style of architecture emphatically expressing the 'True and perpetual Church.'

"The magnificent cathedrals of our ancestors are admirable, from their perfect adaptation to the religious ceremonies which prevailed in the English Church before the Reformation; and it is said to have been in the hope of reviving the popish service, with its processional pageantries, that the Duke of York opposed Sir C. Wren's first design for St. Paul's cathedral, on account of its 'departure from ancient example;' thus precluding the only opportunity which has ever yet been afforded of our possessing a cathedral essentially Protestant."

Mr. Wightwick considers the positive requisites for a church to serve all the purposes of Christian worship as now established in England to be these:—

"First under the head of *Convenience*—

"1. A main space for public worship, &c., wherein a maximum number of persons* shall be commodiously seated without impediment to sight and hearing. Pillars, therefore, and galleries which must be supported by pillars, are prohibited. 2. An altar, as open as possible to the whole congregation, with the least practicable interception by the pulpit and desk. 3. A highly-raised pulpit, and a lower-raised reading-pew or lectern, having one desk for the Prayer-book, looking towards the altar, and another for the Bible, looking towards the people. Also a faldstool for the Litany, in a central position, directly facing the altar. 4. A font, within view of the assembled congregation; or, 5. A baptistery, united with the body of the church. 6. An organ-loft, at the west end of the church, opposite the altar at the east end. 7. Chapter-room, library, vestry, or other offices as required, near the chancel. 8. A tower, or towers, for the reception of bells, and as also useful in attracting the distant observer to the locality of the church.

"Secondly, under the head of *Expression*:—

"9. The general plan to be cruciform, as prominently symbolizing the Christian faith. 10. The visible signs of Trinitarian belief to be indicated, wherever practicable, consistently with the unity of the whole. 11. The sentiment of Infinity to be observed in the adoption, or invention of a style most conducive to it, as affording the best opportunities for proportional loftiness and length of perspective. 12. The utmost respect to be manifested for our ancient examples, in the consideration (and, if practibable, in the adoption) of so much of their form, style, and particular features, as may be pure, and interesting in their connection with the progressive history of the 'Holy Catholic Church;' and equal care to be taken in avoiding the repetition of those architectural dispositions and decorative details which are proper only to the Romish Church."

In reference to Pointed architecture, and its fitness for ecclesiastical buildings, he says,—

"The movement which Pointed architecture has now taken, as most suitable to the Christian temple, derives additional impetus when we consider it as the positive offspring of Christianity itself. Churches have been built in almost all styles; but the Gothic Pointed architecture of Catholic Europe is exclusively Christian in its origin, progress, and perfection. In form, in detail, in mysterious effect, it proclaims the spirit of which it is the sign.

"But, by that same authority under which our Saxon architects differed from those of the Constantinal era, by that under which the designer of the first Pointed church differed from the matured and established Norman model, and by that under which were practised all the successive modifications of Pointed architecture, from the Temple Church to the chapel of King's College at Cambridge, we claim the privilege of allowing our regard for present necessities and altered circumstances, to co-operate with our respect for ancient usages and forms, in the production of what shall have both a retrospective and prospective merit; nor will we be told that, because we may find it imperative to deviate from 'ancient example' in general form and proportion, we shall therefore exhibit a 'departure' from the *spirit* of our pious ancestors. We have looked minutely into the merits of Pointed architecture, and have vainly sought to improve on its essential principles and details, whether of construction or ornament; but we have now to provide for certain requirements which did not exist when our Gothic churches were built, and to avoid the mere imitations of such forms, &c., as are no longer necessary, but are rather hostile to our reformed worship."

* It has been found, by experiment, that not more than 2,000 sitters can be conveniently placed within a church (even where there are galleries), so as to have the advantage of perfect hearing; the sight being, of course, rendered imperfect by the pillars supporting the galleries.

ENGLISH SKILL AND CAPITAL ENLIGHTENING THE CONTINENT.

If we do borrow from our foreign neighbours singers, musicians, *modes*, and the polka, they have to thank us in return for much increase of comfort, and for the means of social advancement. Amongst the advantages conferred by England on continental towns there is none more evident than those afforded by the supply of gas.

In France, Germany, Belgium, and Holland, English capital and English skill have laid down pipes, built manufactories, and still direct the supply of light to numerous towns. In Holland it was some time before the authorities could be induced to afford facilities for such undertakings, fearing the danger which might arise from opening trenches in their uncertain soil, and the difficulty of passing pipes through the canals and basins which occur constantly; but experience has shewn that these fears were groundless.

The last town visited by English enterprise for this purpose is the Hague, where the works, commenced hardly six months ago, were completed only a few days since. The local papers are full of compliments to English skill. Honour, says one of them, to the able and active engineer, Mr. Shepherd, who has directed the whole, and realized with so much talent and rapidity the idea of this vast undertaking! Honour to the clever manufacturers, Messrs. Goldsmid and Co., who have made so complete all the machinery of this fine establishment! and honour to our Ediles, who, enemies of routine and conquerors of prejudice, have given us the advantage of a useful discovery. The Hague is now the equal of the great cities of Europe,—like them, she too has a sun for the night.

New Lunatic Asylum, Somerset.—At the Quarter Sessions held last week at Wells, a report from the Lunatic Asylum Committee was read. It stated that every thing was now nearly complete for the conveyance of the land selected as the site of the asylum, and that they had contracted for an additional four acres of land, which were considered necessary. They had advertised for plans for the building, but circumstanees over which they had no control had delayed the appearance of the advertisements, and complaints had been made that the time fixed for receiving plans was too short; it had, therefore, been extended to the 22nd of January. The committee would have increased difficulty in their choice of a plan, unless they knew the amount of money which would be granted; they were bound by the 26th section of the 9th Geo. 4, c. 40, to fix the sum which might be expended; and from the inquiries which the committee had made, they entertained the confident hope that 30,000*l.*, the sum formerly stated as required, would not be exceeded.

FIRE-PROOF HOUSES.

The attempts which have been made to render houses fire-proof are so intimately connected with the construction of dwellings, that it will be proper to give a few brief details on the subject. There are many difficulties attending these attempts; for so long as wood forms the chief inner frame-work of a house, there will always be considerable liability to destruction by fire. Most of the proposed plans have had relation to the coating of the wood with some substance which should render it less inflammable, while others have been directed rather to the rejection of combustible substances from the list of those used in house-building.

So long back as 1775, Mr. Hartley made several trials in order to test the efficacy of a method invented by him for that purpose. Thin iron plates were nailed to the top of the joists: the edges of the sides and ends being lapped over, folded close, and hammered together. Partitions, stairs, and floors were proposed to be defended in the same manner. The plates were so thin as not to prevent the floor from being nailed on the joists in the same manner as if the iron were not used; and the plates were kept from rust by being painted or varnished with oil and turpentine. Mr. Hartley had a patent for this invention; and Parliament voted a sum of money towards defraying the expense of his numerous experiments. It does not, however, appear that the plan was permanently adopted.

About the same period, Lord Mahon, afterwards Earl Stanhope, a nobleman possessing a highly inventive tact in mechanical matters, brought forward another method having the same object in view. This method was of a three-fold character, comprising *under-flooring*, *extra-lathing*, and *inter-securing*.

The method of under-flooring is either single or double. In single under-flooring, a common strong lath of oak or fir, about one-fourth of an inch thick, should be nailed against each side of every joist, and of every main timber, supporting the floor which is to be secured. Other similar laths are then to be nailed along the whole length of the joists, with their ends butting against each other. The top of each of these laths or fillets ought to be at an inch and a half below the top of the joists or timbers against which they are nailed; and they will thus form a sort of small ledge on each side of all the joists. These fillets are to be well bedded in a rough plaster when they are nailed on, so that there may be no interval between them and the joists; and the same plaster ought to be spread with a trowel upon the tops of all the fillets, and along the sides of that part of the joists which is between the top of the fillets and the upper edge of the joints. In order to fill up the intervals between the joists that support the floor, short pieces of common laths, whose length is equal to the width of these intervals, should be laid in the contrary direction to the joists, and close together in a row, so as to touch one another; their ends must rest upon the fillets, and they ought to be well bedded in the rough plaster, but are not to be fastened with nails. They must then be covered with one thick coat of the rough plaster, which is to be spread over them to the level of the tops of the joists; and, in a day or two this plaster should be trowelled over, close to the sides of the joists, without covering the tops of the joists with it.

In the method of double-flooring, the fillets and short pieces of laths are applied in the same manner as here noticed; but the coat of rough plaster ought to be little more than half as thick as that in the former method. Whilst the rough plaster is being laid on, some more of the short pieces of laths must be laid in the intervals between the joists upon the first coat, and be dipped deep in it. They should be laid as close as possible to each other and in the same direction with the first layer of short laths. Over this second layer of short laths there must be spread another coat of rough plaster, which should be trowelled level with the tops of the joists, without rising above them. The rough plaster may be made of coarse lime and hair; or instead of hair, hay chopped to about three inches in length may be substituted with advantage. One measure of common rough sand, two measures of slacked lime, and three measures of chopped hay, will form in general a very good proportion, when

sufficiently beaten up together in the manner of common mortar. The hay should be put in after the two other ingredients are well mixed up together with water. This plaster should be made stiff; and when the flooring boards are required to be laid down very soon, a fourth or fifth part of quicklime in powder, formed by dropping a small quantity of water on the limestone shortly before it is used, and well mixed with this rough plaster, will cause it to dry quickly. If any cracks appear in the rough plaster work near the joists, when it is thoroughly dry, they ought to be closed by washing them over with a brush wet with mortar wash; this wash may be prepared by putting two measures of quicklime and one of common sand into a vessel, and stirring the mixture with water till the water becomes of the consistence of a thin jelly.

Before the flooring boards are laid, a small quantity of very dry common sand should be strewed over the plaster work, and struck smooth with a hollow rule moved in the direction of the joists, so that it may lie rounding between each pair of joists. The plaster work and sand should be perfectly dry before the boards are laid, for fear of the dry rot. The method of under-flooring may be applied to a wooden staircase, but no sand is to be laid upon the rough plaster work. The method of extra-lathing may be applied to ceiling joists, to sloping roofs, and to wooden partitions. The third method, which is that of inter-securing, is very similar to that of under-flooring; but no sand is afterwards to be laid on. Inter-securing is applicable to the same parts of a building as the method of extra-lathing.

Such is a general outline of the modes proposed by Lord Mahon for rendering houses fire-proof; in which it will be seen that the safeguard consists in the use of a non-combustible material with, and among, and between the pieces of wood forming the frame-work of a house.

The more recent attempts to gain the same object by means somewhat similar have been very numerous; some of which we may here notice as examples of the whole.

An American patent was granted in 1837 to a Mr. Louis Pambœuf, for the invention of a fire-proof paint. The mode of preparing it is thus described. A quantity of the best quicklime is selected, and slacked with water in a covered vessel; when the slacking is complete, water, or skimmed milk, or a mixture of both, is added to the lime, and mixed up with it to the consistence of cream. When milk is not used, a solution of rice paste is employed, obtained by boiling eight pounds of rice to every hundred gallons of paint. When the creamy liquor is prepared, alum, potash, and common salt are added, in the proportion of twenty pounds of alum, fifteen pounds of potash, and a bushel of salt, to every hundred gallons of the paint. If the paint is to be white, six pounds of prepared plaster of Paris and the same quantity of fine white clay are added to the above proportions of the other ingredients. All these ingredients being mingled, the mixture is strained through a fine sieve, and then ground in a colour-mill.

When roofs are to be covered, or when crumbling brick walls are to be coated, fine white sand is mixed with the paint, in the proportion of one pound to ten gallons of paint; this addition being made with a view to giving the ingredients a binding or petrifying quality. In applying this paint, except in very warm weather, it is prepared in a hot state; and in very cold weather precautions are necessary to prevent it from freezing. Three coats of this paint are deemed in most cases sufficient.

In another variety of this paint oil is the chief liquid ingredient. To prepare it forty gallons of boiled linseed oil are mixed with slacked lime to the consistence of a paint; and to this are added two pounds of alum, one pound of potash, and eight pounds of common salt; or good wood-ashes may be substituted for the potash. This paint is used in the same manner as other paint; and any colour may be obtained by adding the usual pigments to the composition.

The preparation of a kind of paint containing alkalies seems to have been a favourite measure among inventors of "fire-proof" composition; for many of the modern projects have had this for its basis. But in most cases there have not been means for determining the degree of efficacy possessed by these compositions.

Perhaps the mode in which we may more consistently look for the practical attainment of the object in view is by the adoption of some improved mode of building, in which either wood is not employed at all, or, where sparingly used, measures are taken to shield it from the action of fire. One such method is Leconte's, described as follows.

This plan consists in the employment of iron frames to receive concrete matter for forming the walls. The basement story of the building is constructed according to the ordinary methods up to one foot or more above the ground. On the basement so constructed is to be erected the patent wall, formed of frames entirely of cast-iron, in one or more pieces, or a combination of cast-iron and wrought-iron plates. These frames are to be set one on the other until the required height is attained, the necessary stability being obtained by means of steady pins at the corners of one frame fitting into holes made in the corners of the frame which is opposed to it. Suitably-shaped frames are employed for the internal partition walls, and for doorways, window-frames, &c. The flues of the chimneys are formed of iron or other metal pipes, placed in the thickness of the walls. When the required elevation is obtained, a concrete of any suitable material is poured into the framing, and fills up the vacant space, giving firmness and solidity to the structure; the concrete being made of gravel and lime. To give steadiness, lead is to be introduced between the joinings of the iron-work. The doors and window-frames are to be fastened to the walls by any of the usual known methods. The main beams and cross beams of floors and roofs may be of cast-iron, or formed of iron and wood; or they may be formed of one or more pieces of plate-iron, bent up into an oval form, and straightened by an iron or wooden bar passing through them lengthwise, the upper edges of the metal being turned over to increase the strength. In the interval between the beams there are to be iron rods running in various directions, and supporting a metallic wire-work, which forms the foundation for the ceiling. Similar wire-work is to be employed in lieu of lathes for all plaster surfaces. All the iron-work is be painted over with some suitable composition to prevent oxidation.

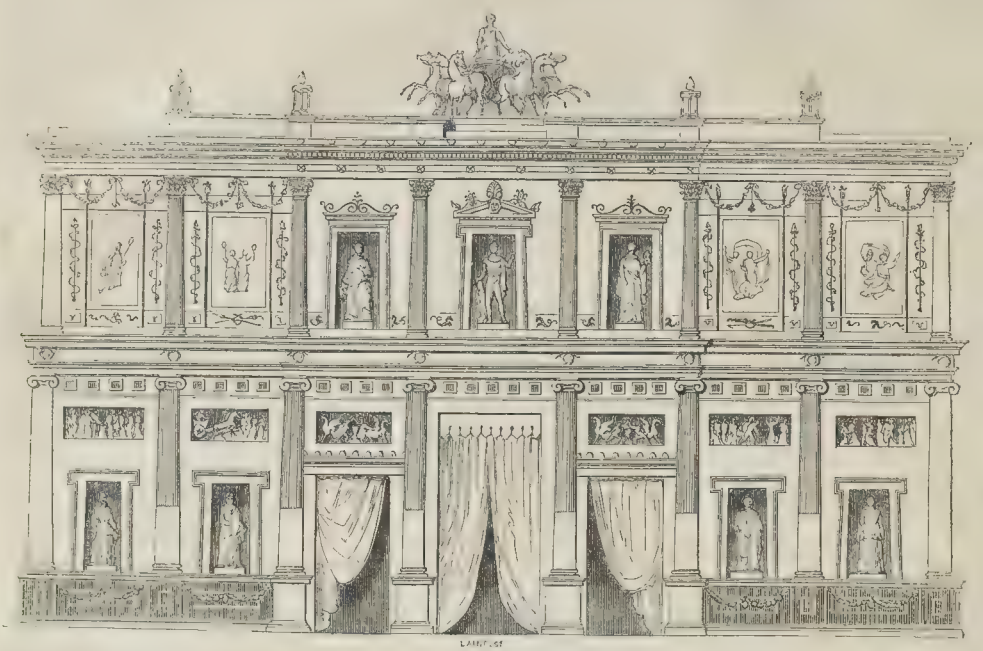
A plan for the same purpose has been proposed by Mr. Varden as follows:—"It appears probable that common fir or oak joists with their lower edges chamfered, and coated over with a mixture of alum, black lead, clay, and lime, or some similar composition, would (if closely floored above with earthenware tiles, bedded all round into the plastering, the joists being made air-tight) resist the action of flames, at least for a considerable time. Fire could not descend through such a flooring so as to communicate with the rooms below, till the tiles used in it had become red-hot; neither could it ascend until the tiled floor above gave away from the burning joists; which if coated, as proposed, would not take fire from below till the tiling over them acquired a sufficient heat to cause the distillation of the turpentine from the wood. In general, there is not furniture enough of a combustible nature in any room to do this. The battening against the outer walls might be of larch, as that wood burns less freely than most others; but if the walls were brick, or lined with brick, battening of any kind will be unnecessary. If this plan should be thought likely to answer the end proposed, houses built in the common manner might be altered at a moderate expense, by taking up the boarded floors, and substituting earthenware tiles."

Another plan, proposed by Mr. Frost, consists in forming the floors of rooms of hollow earthenware tubes embedded in cement, combined so as to form a sort of flag-stone, covering the whole floor. These hollow tubes are squares in section, about an inch and a half on the side externally, with a tubular space of an inch and quarter on the side internally; they are formed of brick earth, prepared in a superior manner, and pressed through moulds by machinery; and their length is about two feet. In forming a floor of these tubes, the centering, after being prepared and fixed in the usual manner, is first covered with a coating of cement of a quality sufficiently fine to form the ceiling of the apartment to be floored over; and if it is desired that there should be mouldings or ornaments in this ceiling or its cornices, moulds for them can be placed in the centering, so as to form a part of it. One or two coats of cement having then been laid over the centering, a stratum of the square tubes laid side by side, and breaking joint, is next embedded in fine cement, and the interstices between them also filled in with that material. One thin coating of cement is then laid over the whole stratum; and in a week, when this is dry, another stratum of tubes is laid over the first in a contrary direction, bedded and filled in with cement as before, and finished by a coating of the same material.

Mr. Loudon gives descriptions of two methods, the one for building houses in general fire-proof, and the other for imparting that property to houses already built. He considers the two main points for the consideration to be, to have staircases of iron or stone, or both combined, and to avoid having any hollow partitions or floors. A house having a stone or iron staircase, and having all the partitions either of four-inch brickwork, or of brick nogging, in whatever way it might be set on fire, could hardly be burned down, if ordinary exertions were made to extinguish the flames. One apartment might be set on fire, but before the flames could spread to the one under or over it, or to a staircase adjoining it, the fire might be extinguished. In a house so constructed there would be no piece of timber that was not in close contact with mortar, at least on one side; and all the strong pieces of timber, such as joists, rafters, quartering in partitions, &c., would be closely imbedded in mortar on two sides. Where the partition could not be made entirely of brick, the interstices might be filled up with a mortar prepared of clay with a small proportion of lime. The same material might be filled in between the joists, and where it was desired to render the roof fire-roof, the rafters might be made of iron, or the space between wooden rafters might be filled in with thin mortar. This mode of proceeding would lengthen the time required for the drying of a newly-built house, and would also add somewhat to the expense; but it is conceived that the increased safety would more than counterbalance these inconveniences.

In respect to the means of giving a fire-proof quality to a house already built, Mr. Loudon remarks:—"All the interstices between the floors, in the partitions, and in the roof, where there was a ceiling formed to the rafters, might perhaps be filled in with earthy matter in a state of powder. This powder might be clay or loam mixed with a small proportion of Roman cement; it might be injected into the vacuities, through small orifices, by some description of forcing-pump or bellows, which, while it forced in the powder, would permit the escape of the air; and, while this operation was going forward steam might be injected at the same time so as to mix with the mortar and be condensed by it; by which means the whole mass would be solidified with a minimum of moisture. In short, in rendering houses fire-proof, the next important object to using fire-proof materials, is that of having all the walls and partitions, and even the steps of wooden staircases, filled in with such materials as will render them in effect solid. On examining into the causes of the rapidity of the spread of the flames in London houses when on fire, it would almost invariably be found, that whatever may have occasioned the fire to break out, the rapidity of its progress has been in proportion to the greater or less extent of the lath and plaster partitions, the hollow wooden floors, and the wooden staircases. Were the occupiers of houses sufficiently aware of the danger from lath and plaster partitions, especially when inclosing staircases, they would never occupy such houses, or, if they did, they would not give such rents for them as they would for houses with brick-nogging partitions. It appears to us to be the duty either of the general or local government or police to see that no houses are built without stone or iron staircases; and that no partitions and floors are made hollow; or, if they are, that the materials should be iron and tiles, or slates, or stones, or cement, or other earthy composition."—*The Useful Arts Employed in the Construction of Dwelling Houses.*

THE GREEK SCENE AT COVENT GARDEN THEATRE.



THE GREEK SCENE AT COVENT GARDEN THEATRE.

Amongst the Greeks and Romans, the theatres were regarded as important public buildings. Every citizen was entitled to admittance, and they were consequently required to be of large size. An arbour constructed of the branches of trees, or if in a town, a rude scaffolding, served in the early ages of Greece as a scene for dramatic representations; but these soon gave place to vast and magnificent structures in all the Grecian cities. As regards the decorations of them, there are no actual examples left; but from accounts which remain, and comparison with the theatres in Italy, it is believed that although the Greek and Roman theatres differed in some minor arrangements, they were similar in the general distribution of the parts, and were used in the same manner. The most perfect specimens remaining of the Roman theatre are those at Pompeii and Herculaneum.

Their form was semi-circular, and consisted of two parts, the *cavea* and the *scena*. The former was appropriated to the audience, and had seats rising one above the other, of such size and height, that the back of the seat of one row served as the foot-place for the row above. The seats were in three divisions, the lower being appropriated to the magistrates, the middle to the people, and the topmost to the women. The *scena* had two main divisions, the *proscenium*, or stage, which the actors occupied, and the *orchestra*, for the bacchanals and chorus. The stage was very shallow, as compared with that of our own theatres; the back wall of it formed the scene, and was nearly the only part of the Greek theatres which was *erected*, as they were generally excavated in a hill, and so formed at comparatively little expense.

The theatre was open at the top, but was at times protected by a *velarium*, or awning. This was sometimes of silk, but generally of woollen cloth. It is stated that Nero once covered the Coliseum with a purple *velarium* sprinkled with gold stars to represent the heavens, and having the chariot of the sun embroidered upon it. The *orchestra* was semi-circular, and spread out from the stage to the first row of seats, and was in reality, therefore, in the position of our pit. In the centre of it was an altar inscribed to Bacchus, to whom theatres were dedicated, because the origin of dramatic entertainments was found in the solemn processions in honour of Bacchus and Ceres, which took place at the times of harvest and vintage.

Moveable scenes were not ordinarily introduced, but it is stated there was on each side of the stage a triangular frame for painted representations, which revolved on a centre, similar to some advertising carts which may be seen in our streets.

As a conventional mode of informing the audience the relative position and character of the actors in the piece, the latter were required to enter and leave the stage by particular entrances. The scene had a principal door in the centre, called the royal door, through which only the king, or chief actor, entered and retired; this was often situated in a semi-circle, and was very richly decorated. On the right of this was a second door of less size and importance, for the next principal characters; and on the left a third door for the inferiors. Joining each end of the fixed scene was a lower wall, at right angles, in which on both sides was a door: that on the right leading to the city, for the citizens, &c., and that on the left, leading to the country, for messengers and strangers. The choruses entered the orchestra by doors at each side of it, on one side the *strophe*, on the other the *antistrophe*.

The scene was decorated with niches, containing statues, and, no doubt, as at Pompeii, so in Greece, it was painted in polychromy; as were the other chief buildings of antiquity, both Egyptian, Greek, and Roman. On the stage near the royal door was an altar to Apollo, and behind the scene were gardens and colonnades, sometimes a temple, visible when the curtains of the doors were withdrawn. The access to the principal parts of the theatre was often from the back.

The theatre always faced the sea, if a sea was near, even though it might not be visible. The reason for this arrangement probably was that as a breeze generally prevails in the after part of the day from the sea, the voice of the actors was thus carried to the audience.

We are led to make these few general remarks on the Greek stage by the production of a scene at Covent Garden Theatre for the representation of the "Antigone" of Sophocles, wherein the ancient arrangement is adhered to, as far as circumstances would allow, and which we recommend our readers to see. The manager very wisely consulted an architect for the design, and the result is a degree of completeness and architectural propriety not often found on the stage. As the pit could not be given up to the choruses and bacchanals, the front of the stage is set apart as the orchestra, and the action of the piece takes place on an elevated platform behind, from the level of which rises the fixed scene. The scene is represented by the engraving at the head of this article (made from the original drawing), and shews the principal and two secondary doors mentioned in the previous description. Cleon and his son use the centre door, Antigone and her sister the right-side door, and the sages and guards the left-side door. The side-walls, not shewn in the engraving, contain the fourth and fifth doors before alluded to, from one of which the dead body is carried in as from the country. The strophe enter at the right side of their orchestra, and the antistrophe the left; the altar of Bacchus is in the centre of it.

The scene is decorated with statues of Melpomene, the muse of tragedy, Clio, the muse of comedy, Apollo, bas-reliefs, &c. Tripods are painted on the doorposts, figures in the panels, and the whole of the architecture is

olychrome. Tripods are burning on the top f the scene, and in the centre, terminating the hole, is a car of triumph. The orchestra nd stage present the effect of a pavement of lack and white marble with a fret border. It ay be objected, and with justice, that the ecorations are Pompeian rather than Greek, nd that a simpler and severer character should ave been attained; but it must be remembered at no examples of the Greek scene remain, nd that in Pompeii, so far as related to painted ecorations and sculpture, the Greek style and anner prevailed.

The scene was painted by Mr. John Macarren, who is entitled to special praise for the are with which the parts are made out; this as the more important, as the scene is brought loser to the eye than usual. It is not the rovince of THE BUILDER under ordinary ircumstances to allude to actors, but we cannot void pointing attention to the fine series of ttitudes introduced by Miss Vandenhoff in ie part of Antigone, which might be usefully udied by sculptors.

BARBER-SURGEONS' HALL.

BARBER-SURGEONS' HALL is situated on he west side, and near to the middle of Monkwell-street, in Cripplegate ward, London; the oundation of the building being partly laid pon the ancient City wall. At what time ie original structure was erected does not ppear; but it was enlarged at different periods own to the time of Charles the First. The Theatre of Anatomy was built by Inigo Jones n the years 1636 and 1637. Walpole calls it one of his best works." This theatre, hrough being a detached building, escaped onflagration, but all the other parts suffered n the great fire of 1666; and the theatre itself, hich had an elliptical cupola, and was decoated with figures of the seven liberal sciences, —the signs of the Zodiac, cedar benches and oors, &c.—was pulled down about the year 783, the company having no use for it; and hree houses were soon afterwards erected pon its site. The present buildings were rected by subscription within a few years fter the fire, and are of brick; the entrance nd dwelling of the clerk fronting the street re separated from the other parts by a small aved court. The *hall* is a good room, but ot large; the west end is semicircular, and emarkable from having formed the interior f one of the towers (or bulwarks as they are alled in the minutes) that defended the city all. Here are two full-length paintings of uman figures, shewing the disposition of the nuscles, &c.

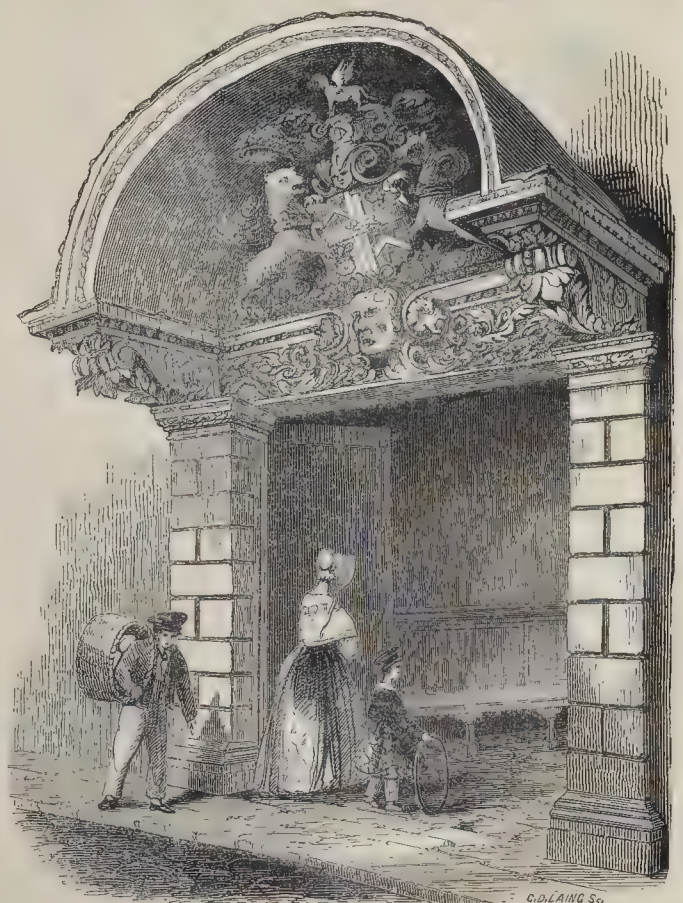
The *court-room*, which has a small elliptical upola in the centre, built in 1752, is an apartient affording much interest, from the various ictures with which it is decorated. The rincipal of these is the celebrated piece by Holbein of *Henry the Eighth delivering the Charter of the Barber-Surgeons to the Court of Assistants and Company*. This picture, which painted on panel, and in a very excelnt state of preservation, measures ten feet vo inches in length, and six feet in width. The bluff sovereign is represented in his royal obes, and crowned, seated in a chair of state, hd holding in his left hand a sword erect, esting upon his knee; on each side are the rincipal members of the company, kneeling, ith others behind standing; and the king is n the act of presenting the charter with his ght hand to Thomas Vicary, the then master. The names of thirteen of the chief members re above their heads. All are in gowns rimmed with fur; the three on the right of he king represent the Doctors Chamber, utts, and Alsop, all of whom, at the time of he giving of the charter, were past masters of he company. Dr. John Chamber was Henry's rincipal physician, and Dean of St. Stephen's ollege, Westminster, where he built the curius cloister, a part of which remained in the speaker's house until destroyed by fire a few years since; he has on a close cap, and his hands are wrapped in the large sleeves of his gown. Dr. William Butts, who was also king's physician, is also in a cap, and has a gold chain over one shoulder; his conduct on the presumed degradation of Archbishop Cranmer has been finely portrayed by Shakspere in his play of Henry the Eighth.

Vicary, who has a gold chain like Butts, was serjeant-surgeon to the sovereigns, Henry VIII., Edward VI., Queen Mary, and Queen Elizabeth, and is reputed to have been the author of the first work on Anatomy that was ever written in the English language. Sir John Aillife was also an eminent surgeon, and had been Sheriff of London in 1548: according to the inscription on his monument in the Church of St. Michael Bassishaw, he was "called to court," by Henry VIII., "who loved him dearly well," and was afterwards knighted for his services by Edward VI.

This picture is not only finely coloured, but is also finished with such carefulness and minuteness of pencilling, that even the subordinate parts, as the rings on the king's fingers, the ermine of his robes, &c., will bear a very close examination, and still appear true to nature. It is remarkable likewise from furnishing an example of a beginning of an alteration in costume in respect to shirts, the wrists of Henry being encircled by small *ruffles*, and the necks of several of the members displaying a raised *collar*. An engraving from it was made in 1736, at the expense of the company (who have the plate still in their possession), by B. Barrow, whose reduced drawing in red chalk is also preserved in this apartment. The painting itself was borrowed by James I. (whose grandmother, Margaret, was Henry VIII.'s sister), and his letter on the occasion is yet preserved by the company; it asserts that "the portrait of Henry was both like him and well done."

On the same side of the room with this picture, are two excellently painted wholelengths, said to represent "A Spanish Gentleman and a Lady, his sister," but unknown, and a mezzotint head of John Paterson, Esq., formerly clerk to this company, and Member of Parliament for Ludgershall, in Wiltshire. This gentleman was deputy for the Ward of Farringdon-within; he projected various useful plans for the improvement of the City, and was the principal means of the streets being paved with Scotch granite, &c. in the regular way, which universally prevailed until the recent introduction of wooden blocks. He presented the company with a very beautiful painting of a Duchess of Richmond, said to be by Sir Peter Lely, but more probably by Vandyke. The Duchess is represented sitting, with a lamb and olive branch: the drapery is very finely coloured.

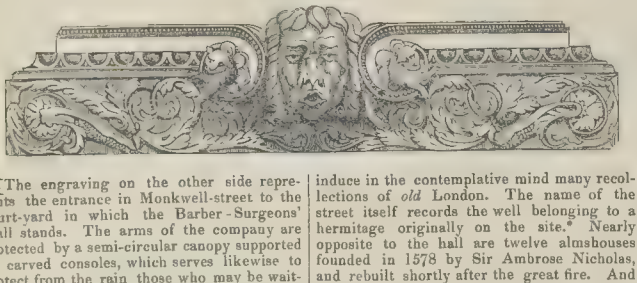
The principal other pictures in this room are Charles II. sitting; Mr. Lisle, barber-surgeon to that monarch; Sir John Frederick, who was sheriff in 1655; Sir Charles Bernard, surgeon to Queen Anne; Inigo Jones, a fine head, by Vandyke; Mr. Ephraim Skinner; Edward Arris, Esq., an alderman of London; and the celebrated Sir Charles Scarborough, chief physician to three sovereigns, Charles II., James II., and William III., and one of the first mathematicians of his time. The two last portraits are in the same piece, and were ordered to be "set up (that is, painted) in the void table" in February 1654. Dr. Scarborough was chosen anatomical reader in this hall on the 12th of October, 1649, and shortly afterwards he commenced the delivery of his highly-fumed anatomical lectures, and continued them with great approbation for many years; he has the reputation of being the



ENTRANCE TO BARBER-SURGEONS' HALL.

first person who in discourses on the muscles demonstrated their uses and power by geometrical and mechanical illustrations. He is represented "dressed in the red gown, hood, and cap of a doctor of physic in the act of lecturing, with one hand on his breast, the other a little stretched out. On the left is another figure, Mr. Alderman Arris, dressed in the livery gown, holding up the arm of a dead subject, which is placed upon a table and partly covered with a sheet, the sternum, or that part of the breast where the ribs meet, being naked and laid bare, so that the pectoral muscles are seen." Under the picture is an inscription in Latin which was composed by Dr. Thomas Arris, M.P. for St. Albans in 1661, and son to Mr. Alderman Arris, the latter of whom bequeathed the sum of 510*l.* for founding the muscular lecture in the hall.

H.



[The engraving on the other side represents the entrance in Monkwell-street to the court-yard in which the Barber-Surgeons' Hall stands. The arms of the company are protected by a semi-circular canopy supported on carved consoles, which serves likewise to protect from the rain those who may be waiting for admittance. Under the arms is the date 1671, with the words *De Præscientia Dei*. The foliage on the lintel, represented at large by the annexed engraving, is well carved. A gateway of similar character may be seen at the entrance to New-inn, Wych-street, Strand, but there the canopy is concave inside, and is ornamented simply with foliage, and a shield on the face of it.

Monkwell-street and its immediate neighbourhood present a very different appearance from the more frequented parts of the city, although immediately adjacent, and serve to induce in the contemplative mind many recollections of *old* London. The name of the street itself records the well belonging to a hermitage originally on the site.* Nearly opposite to the hall are twelve almshouses founded in 1578 by Sir Ambrose Nicholas, and rebuilt shortly after the great fire. And at the north end of the street are "Lamb's Chapel" and Almshouses, originally the Hermitage of St. James-on-the-Wall, above referred to. Then you see written, "Aldermanbury Postern Chapel," and in another direction the "Barbican." On coming suddenly on St. Giles's Church, Cripplegate, you remember that immortal John Milton lies buried there, and wander on full of pleasant thoughts and associations, till you come to Grub-street, and so have your ideas diverted into another course.—Ed.]

* Malcolm's "*Londinium Redivivum*," vol. ii.

SCAGLIOLA, OR THE ART OF IMITATING MARBLE.

The art of manufacturing scagliola, or imitation-marble, was well known to the ancients; although chiefly confined to the pure white or *marmoratum opus*, and *albarum opus*, mentioned by Pliny, and of which the statues, busts, basso-relievos, and other ornaments of architecture were composed. The cements of the Egyptians employed in coating the walls of the tombs, and forming the ground-work of their paintings, also partake of the character of marble. In modern times the art of imitating marbles has been carried to a far higher state of perfection, particularly in Italy, and some parts of France and Germany; and the imitations of many of the precious marbles, such as sienna, brocatello, jasper, porphyry, verde antique, &c. exhibit an astonishing degree of beauty of perfection and finish. In England this art is comparatively unknown, having almost sunk into disuse in consequence of the perishable nature of the material, its insecurity when employed as pillars having to bear a heavy super-incumbent weight, its liability to damage, ready absorption of damp, and its expense, which, although trifling when compared to marble, is still much higher than is warranted by the nature of the material.

It is evident that this truly beautiful art is open to great improvement, and experience tells us there is something wanting beyond that of mere skilful imitation and beauty of finish, for after all it is simply lath and plaster with an exterior coating, rather harder, it is true, than the rest, but still incapable of resisting the influence of moisture or the slightest external violence. By the present imperfect process the plaster of scagliola work is produced by applying a pap of finely-ground calcined gypsum, mixed with a weak solution of Flanders glue upon any figure formed of laths nailed together, or occasionally upon brickwork, and bestudding its surface while soft with splinters of spar, marble, granite, bits of concrete, coloured gypsum, or veins of clay in a semi-fluid state. The substances employed to colour the spots and patches are the several ochres, boles, *terra di sienna*, chrome yellow, &c. The surface of the column is turned smooth with a lathe, polished with stones of different fineness, and finished with some plaster pap to give it lustre. Pilasters and other flat surfaces are smoothed by a carpenter's plane with the chisel finely serrated, and afterwards polished with plaster by friction.

By the above process the scagliola manufacturer, with a vast deal of labour employed in the final polishing, is enabled to turn out pillars and pilasters of great magnitude and beauty of polish; but the glue which is the cause of the gloss, is also a cause of its subsequent dulness and decay when it becomes exposed to moisture and damp air. Again, by employing plaster of Paris alone the manufacturer is subject to great loss by waste of material, in consequence of its setting too rapidly, or of the coagulating property of the burnt alabaster being very much impaired or lost by the powder being kept too long, especially if in the open air, before it is made use of, for when it has once been suffered to grow hard, it is no longer serviceable, nor can it be made so, by any known process of burning.

The first and most important step towards improving the art, so as to ensure durability, is by employing more substantial materials in the body or ground-work than are at present used. The second consideration is to substitute a cement of mixed qualities instead of pure plaster of Paris or burnt alabaster, so as to ensure the requisite strength and density of the material, and to enable the artist to finish off the polishing without the use of glue or any other substance which has the property to absorb, and thereby cause the rapid decay of the work; greater hardness is also essentially requisite to avoid moisture, the chipping, indentations, and scratches to which it is now so very liable.

For pillars of magnitude, pedestals and pilasters, a core of rough brickwork might be used to great advantage instead of the present lath and plaster, the bricks being cemented together, and roughly covered in by one of the cheap durable cements commonly in use, or by a mixture of lime, oxide of iron, and manganese, similar to Parker's cement, which has the effect of setting rapidly even under water. Mortar made with about five parts of flint powder, one of shell-lime and the necessary quantity of lime-water and molasses, well triturated together, will make an exceedingly fine and durable base on which to dispose the colours, and if properly used and followed up with an outer coating composed of fine shell-lime, flint powder, milk, and eggs, will assume the hardness and capability of polish of marble. The room in which these works are carried on should be kept at a warm temperature, and great care should be taken under all processes of scagliola work to exclude the atmospheric air as much as possible, also that the stucco should be free from saline impurities, contain some cohering body, and be capable of acquiring hardness gradually until it become of stone-like quality.

The art of making plasters of mixed qualities, to be employed in modelling statues, busts, and other works of architecture, instead of using pure plaster of Paris, is unknown to us. The Romans paid great attention to these matters, and the ancient plastering preserved to this time, where it has not met with violent blows or injuries from accidents, is still as firm and solid, as free from cracks or crevices, and as smooth and polished on the surface as if made of marble; the bottoms and sides of their aqueducts were made of plaster, which has endured many ages without decay. Again, the roofs of houses and the floors of rooms at Venice are covered with a sort of plaster, made at later date, and yet strong enough to endure the sun and weather for several ages without spoiling or cracking, and without much injury from the feet. But the greatest attention perhaps is paid to this subject by the natives of the East Indies, who, for their finer cements, which are capable of receiving a most exquisite polish, use ghee (butter in its oily state), oils, jaggery, and other to us expensive ingredients. At Madras fifteen bushels of pit sand well sifted are added to fifteen bushels of stone lime; this is slaked in the common manner, and so laid two or three days together. Twenty pounds of coarse sugar or molasses is dissolved in water, and the mortar is sprinkled with the liquor, which is then beat up together and well incorporated, and afterwards let to lie in a heap. A peck of *gram* (similar in nature to our coarse gray pea) is then boiled to a jelly, and the liquor strained and preserved. A peck of *mirabolans* is also boiled, and the liquor set aside; the three waters are then added together. The mortar beaten up, and, when too dry, sprinkled with this liquor, proves remarkably good for laying bricks or stone, keeping some of the liquor always at hand for the workman to wet his bricks with. For very strong work, tow is incorporated with the mortar. Of this the natives make many architectural ornaments, such as columns, arched work and imagery, besides using it for common building purposes. For finer works, to every half bushel the white of five or six eggs and four ounces of *ghee*, or ordinary salted butter, and a pint of butter-milk beaten all well together; mix a little of the mortar with this, till the ghee, butter-milk, and white of eggs be soaked up; then soften the rest well with plain fresh water, and so mix all together, and let it be ground, a trowel-full at a time, on a stone with a stone roller. When you use it, in case it be too dry, moisten it with some water, or the before-mentioned liquors. This is for the second coat of plastering.

When the first coat of plastering is laid on, let it be well rubbed with a hardening trowel, or with a smooth brick, and strewed with a gritty sand, moistened, as occasion requires, with water, or the before-mentioned liquor, and then well hardened again; when half dry, take the last-mentioned composition for the fine plastering; and, when it is almost dry, lay on the whitening varnish; but, if the work should be quite dry, then the chunam liquor must be washed over with a brush.

The best sort of whitening varnish is made thus:—take one gallon of toddy (the juice of a tree), a pint of butter-milk, and as much fine shell-lime as shall be proper to colour it; add to it some of the chunam liquor, wash the plastering gently over with this, and when it is quite dried in, do the same again. A plaster thus made is more durable than some soft stone, and stands the weather better in India than any of the bricks they make there. Butter-milk is always added to the outer coating. There are several varieties of cements of durable quality, and capable of receiving a fine polish.

I have been thus particular in describing one of the Indian methods because the cement so made is vastly preferable in every respect to the plaster of Paris used in the process of scagliola work, and also for making large capitals to imitate marble, which, however beautifully executed, soon lose their polish, and are liable to be injured past the power

of repair. It may be thought that the materials are much too expensive, but the small quantities of each actually required for scagliola or plastering of walls and floors will raise it but little above the common price of cements.

The boles and earths laid on for the imitative part of the work ought to be mixed with the like material, so that it may incorporate as one with the interior coats, the pillars being carefully fashioned on the lathe, as is at present practised, or polished dry, or with the use of the liquor. Clay ought to be used as sparingly as possible, the requisite plastic quality being given to the mass by the mixture. The common scagliola of the day, as exhibited in some of the leading shops of the metropolis, deceives nobody; it is what it purports to be, a vile imitation of Nature; but nevertheless there are some fine specimens to be found in Buckingham Palace, the Pantheon in Oxford-street, in Everington's, and other buildings of the metropolis. No attempt is, however, made in the present day to extend and improve the art of imitating the precious marbles, or to ensure durability, consequently it falls into disesteem, and is rarely used.

I have mentioned in a preceding article that the Palace of Munich is built of artificial marble, the material being boiled, and the colouring added when the boiling mixture has acquired consistence. This practical application of the art might be employed to great advantage with us, chimney-pieces and vast variety of ornaments being by this means formed at so cheap a rate, and of so fine a fabric, as to supersede marble. I trust that this beautiful branch of architectural art will speedily be revived, and that no opulent householder will be without some specimen of it adorning his mansion, as pillars, pedestals, slabs, vases, baths, or other ornament. A little determination and enterprise on the part of the scagliola manufacturers, and the importation of a few first-rate Italian artists, would soon bring it into favourable notice.

H. G. M.

PROJECTED ACADEMY OF PAINTING.

The lovers of the fine arts will hear with no small pleasure that an Academy of Painting is about to be established in Bristol, under the most favourable auspices. Its object would be to foster and call forth native talent and genius in the various branches of art, and to gratify the public by periodical exhibitions of paintings. A School of Design, and prizes to reward superior merit, form also parts of the plan. The want of such an institution has long been felt in Bristol, particularly by the artists, but the sum of money required to give efficiency to the plan is so considerable, that no hopes were entertained of raising it. In fact, a spacious picture gallery, and apartments for artists to study and copy casts, designs, and pictures, form essential parts of the projected scheme. The pecuniary difficulty, the most formidable of all, is, however, removed in a considerable degree by the munificence of a lady, whose name we shall ere long have the pleasure to announce as a contributor of no less a sum than 2,000*l.* (under certain conditions) to the Academy. This splendid example will, we feel no doubt, attract numerous contributions from the public of Bristol and its neighbourhood in furtherance of the design. When we mention that P. W. S. Miles, Esq., M.P., John S. Harford, Esq., and Robert Bright, Esq., are actively promoting this truly interesting object, in conjunction with the artists of this city and neighbourhood, we are persuaded that these names will be deemed a sure guarantee of success.—*Bristol Journal.*

York and Ripon Training Schools.—The subscriptions and donations towards the erection of these buildings already amount to 2,500*l.*; but much more is needed to carry the original design into execution. It is remarked by the *Hull Packet*, that nearly half the subscribers are clergymen.

Hamburg Improvements. — We learn from the *Frankfort Journal* that Mr. Munday, the builder of Abchurch-lane, is at present constructing a sewer at the cost of 80,000*l.* through Hamburg, and employs on the work 500 Englishmen.

VENTILATION.

(From a Correspondent.)

If an architect were to build a house without windows, he would be thought a very odd sort of person, but he may shut out what is far more important than light—fresh air, and neither he nor any one else will discover any thing unusual. We are so much in the habit of looking on a building as a shelter and an ornament merely, that we do not require it to be any thing else. As to any provision being made for a due supply of fresh air, that never enters into the mind of an architect at all, or if it do, he regards it as an art and mystery which has as little to do with construction as law with physic. If fresh air should happen to be insisted on, he must needs call a professor of the science of ventilation to his aid, and he, by dint of fire or force, or both, contrives to accomplish his purpose, as many a legislator can vouch, to his cost.

Now, however, that the importance of ventilation is beginning to be understood, the best means of effecting it are being studied, and several ingenious and scientific persons are taxing their invention to repair the omissions of former architects; some by providing efficient vents for the foul air, others by giving free and safe admission for pure air.

The plans in common use for accomplishing the same object are, the revolving ventilator, the hopper, and the glass louvres.

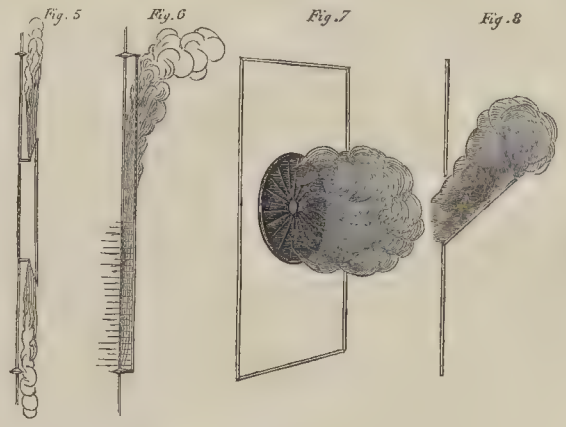
The first of these, *the revolving ventilator*, is open to every possible objection. It is noisy, dirty, ugly, and liable to get out of order; and it does not prevent a draught. When not in action it is useless, and when revolving it is a nuisance.

The *hopper* is somewhat better, but open to the serious objection, that it disfigures a building by breaking the line of the window; and that, though it modifies a draught, it does not prevent it.

The *glass louvres* are elegant in appearance, and ingenious in arrangement, but very expensive, and open to the same objection as the hopper, viz., that they only modify, but do not prevent draughts.

Indeed, it must be quite evident that no form of ventilation which causes the air to enter a room at an angle, however small, can prevent a draught; for the cold air, though its course may be altered, and it may be directed above the head, will descend again into the room before it has mixed with the warmer air of the apartment. There is but one way then in which a draught can be prevented, and that is by a shield fixed, not obliquely, but parallel to the point of admission of the air. If, in addition to this shield, a perforated plate or plates be provided, by which the current of air is broken up into a number of small streams, we have the most complete invention for preventing a draught which it is possible to imagine.

This is the principle of a mode recently invented by Dr. Guy. In place of the oblique shield, of the hopper, and louvre, he employs a parallel shield, by which means the air is distributed over the wall or window by which it gains admission, and all direct draught is effectually prevented. The aperture in the wall or window is filled by a perforated plate, which is flush with the surface of the wall or window itself, and the shield is connected with this plate through the medium of a second perforated plate and flanges.



The first of the subjoined figures (marked fig. 5) represents a section of Dr. Guy's simplest and cheapest form of ventilation, with the course of the air traced by smoke. In this figure, the dotted line represents a plate of perforated zinc bearing upon it a narrow flange. The plate is let into the centre of a pane of glass; parallel with this perforated plate is a shield of glass, joined to a second flange, fitting within the first by means of a second perforated plate, inclined at an angle to the shield and flange. The air enters through the first-mentioned perforated plate, strikes on the glass shield, and is thrown back through the second perforated plate on to the glass, along the surface of which it runs to an extent proportioned to the force with which it enters the room.

Another form, which is open to the objection that the air is thrown into the apartment instead of being confined to the line of the wall or window, is shewn in fig. 6. The remaining figures shew the course of the air as it issues through the revolving ventilator and the common hopper.

It is said that Dr. Guy's invention, besides possessing the great advantage of preventing a draught, may be made to assume a great variety of ornamental forms, so as to adapt it to any style of architecture. The parallel position of the shields evidently gives it an advantage, in this respect, over all other forms of ventilator. When the apertures in the zinc are large (as they must be in large towns, or they will soon become so clogged with dust and soot as not to allow any air to pass), and the shield is of glass, the ventilator obstructs very little light, and if kept clean, is open to no reasonable objection. Messrs. Cottam and Hallen, in whose hands Dr. Guy has placed his patent, have succeeded in introducing the ventilator securely into a pane of glass without using cross bars, so that the pane and the ventilator seem one.

If on trial Dr. Guy's invention shall be found effectually to prevent a draught, we shall congratulate him and the public on the fulfilment of a great desideratum. The prevention of a draught lies at the root of all improvement in this respect; without it, the most elegant and costly inventions are mere waste of time and money.

[We shall take an opportunity to examine this invention.—Ed.]

Proposed Method of Cleaning Statues exposed to the Air.—It has long been remarked that the stone staircase of the bronze obelisk to the memory of the Bavarians who fell in the campaign of Russia, was perfectly clear from green mould in the parts washed by the rain. M. Jobard, of Brussels, is of opinion that the oxide of the copper carried down with the rain destroys this vegetation; and recommends that a solution of copper should be tried in the cleaning of statues covered with vegetable matter.

ORIGIN OF THE APPELLATIONS DORIC, IONIC, AND CORINTHIAN,

AS APPLIED TO THE ORDERS OF ARCHITECTURE.

Researches into the early history of nations, the rise and development of their languages and arts, have long possessed a peculiar charm for the inquirer, though little but conjecture can result. Out of the mass of mythi and traditions handed down from the times when the Pelasgi ruled, or from those in which the first symptoms of Hellenic civilization appeared, how hard must it be from the false to select the true, to divest the tangible body of its beautiful but deceptive garb. Yet I venture to offer a few conjectures, arising out of certain well-authenticated features in the early age of Grecian history. During that period the Hellenes were divided into four great tribes, two of which subsequently merged into the others; and the country may from that time be considered as inhabited by the widely differing races of the Dorians and the Ionians. In examining the characteristics of the latter, we behold a yearning after intellectual culture, a keen perception of the beautiful, and a desire to excel in the arts, which gave birth to the philosophic legislature of Solon, the breathing sculpture of Phidias, the impassioned poetry of Sophocles, and the commanding eloquence of Demosthenes. Wheresoever the Ionian influence was shed, arose a people peculiarly alive to the refinements of life, sowing seeds destined to expand and refructify till the globe itself should become extinct. Athens, "the violet queen," from her isolated position in the continent of Greece, retained in a peculiar manner the distinctive impress of an Ionian origin. Angelica Kaufmann somewhat fancifully ascribed her enthusiasm to the water of Rome; but it would appear as though the "earthborn" Athenians were gifted with a love of beauty, and a thirst for fame, by the consecrated soil from which they sprung, and by the azure sky on which they gazed. Historic recollections of their own city, for whose sovereignty deities contested, and where the genius of liberty was invoked by Solon, and defended by Harmodius and Miltiades, tended to enlarge and heighten the influence of their birth.

Opposed to the revivifying picture we contemplate in Athens, we are struck by the repulsive character of the Dorian Spartans, whose name only remains to after-times. Fit subjects for the cold and mechanical legislature of Lycurgus, they were ever desirous by craftiness and obstinacy to gain the supreme rule over the Grecian states. Selfish in their policy, they shared not in the glorious victory of Marathon, which even to themselves was a second birth, and by their apathy to the cause of Greece, they had nearly brought about the enslaving of the whole country. Their severity of manner was increased by Lycurgus, but was from the first a feature of the Dorian race.

The peculiar characteristics of the two nations being thus contrasted, may we not argue that the names "Doric" and "Ionic," as applied to each order of architecture, severally arose, not so much from its having originated in any particular country, as from its typifying those distinctive features?

It is scarcely requisite to contend against the exploded story of Vitruvius (lib. iv., c. i.), since the period to which he assigns the introduction of the orders is long antecedent to the time of Homer, who, so remarkable for the care he takes in describing minute points in the history of his own time, would hardly have omitted mention of the names. Columns, indeed, he speaks of, but without leading us to suppose that they were any thing but posts; and we know from Pausanias and others, that the earliest temples were constructed of the rudest materials. (Pausan. lib. x., c. v.) The opinion of Goguet (Origine des Lois, &c.), that the orders arose in the colonies of Asia Minor, may have foundation, without militating against the opinion expressed as to the origin of their names. But, if the Doric order was invented by the Dorians, to which country, bearing the name Doris, must it be ascribed? Names are not good marks for ascertaining the origin of things; in proof of which we need but cite the appellation Gothic. If the Ionian colonies preferred the Ionic order, we should hardly assume that circumstance as a proof that it was by them invented: we might with as much propriety ascribe the *invention* of the Corinthian to the Romans. (Gwilt.) The fact is, there is no conclusive evidence for stating the origin of either order; but, it appears, that, whichever was invented first, *that* one received no distinct name, further than the name "Grecian order," until the invention of the second, when the names would be applied for the reasons stated. Holding these opinions as to the Doric and Ionic orders, I feel even more confidence in stating them as regards the Corinthian. The story of Vitruvius can but be considered as a beautiful fable; for there are Egyptian capitals, bearing so striking a resemblance to those of the Tower of the Winds, which last were, probably, copied from the earliest examples, that we feel justified in looking to Egypt as the country from which the first idea of the order was brought to Greece. Heeren (Manual of Ancient History) says, that "what the Greeks borrowed from foreigners, they previously stamped with their own peculiar character, so that it became as it were, the original property of the nation." Thus was it with the Corinthian; under their improving hand the decorations of its capital were varied and nationalized; and, in place of encircling its bell with plants nourished by the the waters of the sacred Nile, they substituted leaves of the olive, sacred to the tutelary deity of Athens. It became the richest of the orders, and, the city of Corinth being famed for richness and luxury, the order was denominated "Corinthian," a name probably applied to any thing of surpassing luxuriance, in the same manner that the term "Cyclopian" was given to works of great size or laborious execution, though, perhaps, not erected by the Cyclops. We need but mention the words "stentorian" and "herculean" as having had similar origin.

Edward Hall.

SOCIETY OF ARTS.

January 8th.—Dr. Roget, Sec., R.S.V.P., in the chair.

The first illustration for the evening was "On the Arts and Manufactures of Mexico and Yucatan," by the Rev. James Thompson.

The second subject for illustration was "Pilbrow's Atmospheric Railway, without a valve," a large working model of which was placed before the meeting, including a carriage, which was moved on the railway at considerable velocity by exhausting the tube by means of an air-pump.

The object aimed at by the inventor is to get rid of the slot or chase in the cylindrical main pipe or tube, and also the valve, with its appurtenances. If, in practice, this desideratum can be attained as efficiently as it is accomplished on a small scale, an important advance will be made in railway locomotion.

The pipe or tube, instead of being fixed above the level of the rails, as in the case of Pinkus's and Samuda's plans, is sunk considerably below it, whereby facilities are afforded of effecting a junction between two or more railways, as also of allowing (when necessary) roads and railways to be crossed on a level. At intervals of about 30 feet are fixed two boxes, cast on to the tube, one on each side, in each of which works a vertical spindle or axis, to which are fixed two small cog-wheels or pinions, the one being inside the box, and the other outside. A diaphram or piston works within the main pipe or tube, as in the ordinary atmospheric railway tube, to which, however, is attached a double rack, so that when the piston is moved forward by the exhaustion of the tube in front of the piston, the rack is moved with it, and which, working on two or more sets of the lower or under pinions, causes the upper or outside pinions to revolve at the same time and with the same velocity. A second rack, of the same length as that within the tube, is attached to the first carriage of a train, and as the upper pinions revolve, the rack, and consequently the carriage to which it is attached, moves with it. Thus the valve ordinarily used is entirely dispensed with.

The London Baths and Wash-houses.—The Committee have so far advanced their plans as to be ready to treat for the purchase of eligible sites for the erection of model establishments. The space required is equal to 100 feet square at the least. The situation, in or very near to a crowded and poor neighbourhood, but with good access. Freeholds will be preferred.

New Books.

Ecclesiastical Architecture. A series of illustrations of the rise and progress of decorated window-tracery. Edited by E. Sharpe, M.A., Architect. Van Voorst, London, 1845. No. 1.

The object of this work, according to the prospectus, is to supply the want of some publication expressly devoted to the illustration of the origin of tracery, its gradual development, and the perfection which it attained in the middle of the 14th century. Our parish churches contain examples which for purity and elegance of design are unsurpassed, and it is proposed to present in this publication a continuous series, exhibiting the gradual alteration which took place from the early geometrical form to the elaborate window-heads of rich flowing tracery. The present Number contains eight examples, and is nicely got up. The work would be more valuable if sections accompanied the elevations.

Correspondence.

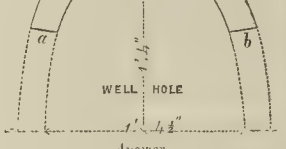
HAND-RAILS.

TO THE EDITOR OF THE BUILDER.

Sir,—By inserting the following question, you will oblige me and instruct many:—

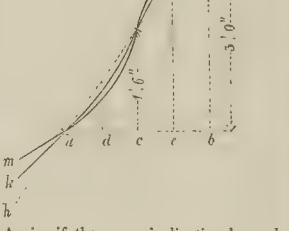
What is the least thickness, and how much stuff will be used, in getting out a hand-rail $2\frac{1}{2} \times 2$ in., as the drawing, without a joint, the rise on the falling mould from a to b being 3 ft.?

J. W. W., Jun.



Answer.

If the mean inclination of the rail from a to a point 3 feet in height above b be uniform, as shewn by the dotted line $h\ i$, in the diagram below, the thickness of plank required for the formation of the wreathed rail (moulded in the ordinary manner) will be $4\frac{1}{2}$ inches; or, if the mean inclination be an undulating curved line, as shewn by the line $k\ l$, the thickness of plank required will be $3\frac{1}{8}$ inches.



Again, if the mean inclination be such as shewn by the undulating curved line $m\ n$, the thickness of the plank required should not be less than $2\frac{5}{8}$ inches, so as to allow for the proper finishing which ought to be given to the work.

G. R.

SHIP-BUILDING.

Sir,—From the name of your paper, I presume you enter into the controversy of ship-building, for nothing can be worse than those that have lately been built for the service of Government.

I have all along asserted we shall never improve the speed of our ships without we alter their form, which is decidedly against going a-head. If they would study to make the sails on the fore-mast to keep the ship to the wind, we should not want all that after-sail for that purpose, which impedes going through the water. Our study should be that the prows divide the water, and as it comes aft, should form that resistance at the water-line only, and not as it is at present.

We are going to commission a number of ships, to try their good qualities, but as for sailing, they will never go faster than they have invariably done, from the mal-formation adhered to. A sensible plan has been suggested, that would increase speed without interfering with masts, yards, or sails, but they in their wisdom will not give it a trial, because it will bring into notice a power that will supersede spending so much of the public money, and being a novel idea, it is not attended to.—I am, Sir, your obedient servant,

NAUTICUS.

London, Dec. 31, 1844.

ESTIMATE FOR WORKS NOT TO BE EXECUTED.

SIR,—The exposure of injustice is a laudble undertaking, but he who attempts to make the exposure should assure himself that his accusation is correct, otherwise he may be inflicting a real injustice upon the party accused, while he is endeavouring to expose a fancied injustice, which, nevertheless, has not been committed. This, Sir, is often exemplified among those numerous (?) mis-statements which so much depreciate the value of your useful paper; and, at page 11 of your last number, there is one from a builder at Dartford, who, shielding himself behind an anonymous siguature, asserts a series of falsehoods. He does not venture to name the parties accused, one of whom is my client, residing near Dartford, and the other is myself. The accusation is, that we have, by a particular method, "victimized the builders," and have put them to the expense of making estimates for work not intended to be executed. He states that, "as the sanctity of my office could not be invaded, copies of the drawings and specification were to be furnished, upon each competitor paying down five guineas, and a copy of the quantities for four guineas more." The fact, however, is, that no copies nor any quantities were furnished by me, nor did I receive one shilling from either of the builders, but each competitor employed persons who were sent to my office for that purpose, and who, I assure you, invaded its sanctity much more than was agreeable. Your correspondent makes out, that I received forty-seven guineas from the builders, whereas I received nothing. He further states, that the estimates of the builders exceeded mine, but that was impossible, as no estimate was made by me. The lowest tender was Mr. Kirk's, and was not above what I expected the house would cost, but, to my surprise and disappointment, my client stated, after the tenders had been opened, that it was not prudent for him to spend so much, and, after a few days' consideration, he determined not to build, but to pay Mr. Kirk and myself for the labour and expense which had been incurred, and he thus most honourably sacrificed a certain sum of money rather than run the risk of spending too much. I would now ask your correspondent to point out the injustice, if he can; and would suggest that, on a future occasion, he should sign his statements with his own name, or that he should previously obtain correct information, which, in this case, might have been easily had from the successful competitor, Mr. Kirk.—I am, Sir, your most obedient servant,

EDWIN NASH, Architect.

53, Moorgate-street, London.

7th January, 1845.

[We readily give place to Mr. Nash's letter. The statement to which it refers did not mention the names of the parties, and was admitted into our pages as applying to a *class* of cases. Mr. N. will observe, by our note attached to it, that we had no confidence in its accuracy as applied to the case immediately in question. —ED.]

ARCHITECT'S COMMISSION.

SIR,—Will you be kind enough to inform an old subscriber what are the usual professional charges of an architect. As for "general drawings," "working ditto," and "specification," "superintendence," &c., I am aware that the charge, including every thing, is usually 5 per cent. on the outlay, but I wish to know how that is generally divided under the heads given above. Hoping you will oblige me, I am, Sir,

Yours respectfully,

H. G.

[There is no general rule for such a division. The charge for designing and superintending works is 5 per cent.; but it does not follow that if the various matters included in that charge are done for different persons, or at different times, that the separate charges should amount only to 5 per cent. 2½ per cent is an ordinary charge for plans and specifications when the building is not executed. 5 per cent. for designing and superintending does not pay for the time occupied and the responsibility incurred when the amount expended is small, and many architects charge more than this commission when the amount is under £500. An auctioneer is much better paid: he walks through a house full of furniture, jots down what he thinks the value of each item, and charges 5 per cent. on the gross amount.—ED.]

BRIDGE OVER THE LEA AT HACKNEY.

SIR,—I beg to inclose a notice, just issued, for tenders for building a bridge across the Lea. I should think that the persons about to tender for the same will take care to ascertain that the parties have made up their minds to have the bridge built, or, as in the last case, they may have the pleasure of making out the specifications for the trouble. At all events, they will not have among their victims

Your obedient servant,

A BUILDER.

"*To Bridge Builders, Carpenters, and Others.* —Notice is hereby given, that the Board of Surveyors of the Highways of the parish of Hackney have ordered to be built a new wooden foot-bridge, over the River Lea, near Temple Mills, in the Hackney Marshes. A plan of which, and specification of the works to be done, may be seen at the committee room in the parish house, in Church-street, Hackney any day (Sunday excepted) from January the 6th to January the 16th, between the hours of nine and three; and any further information may be had on application to Mr. Samuel Fox, jun., of Morning-lane, Hackney, surveyor. Sealed tenders, endorsed "Tender for Bridge," to be sent into the clerk before Thursday the 16th inst., on which day, at seven o'clock in the evening, the board will meet, at the place aforesaid, to open such tenders, and to contract. The board do not bind themselves to accept the lowest tender. The persons who Tender must attend the board personally, to answer when called for.

"By order of the board,

"CHAS. HORTON PULLEY, Clerk.

"28, Great Winchester-street, and Upper Hommerton. January 1st, 1845."

Obituary.

MR. ALFRED BARTHOLOMEW, F.S.A., the late Editor of this Journal, expired, after a severe illness, on the 2nd instant, at his residence in Gray's-Inn. We cannot now do more than express our sincere regret, but shall endeavour next week to furnish our readers with some particulars of his life and works.

MR. THOMAS WEBSTER, Professor of Geology in the London University, who died on the 26th of last month, was educated as an architect, and built the theatre and laboratory of the Royal Institution; but ultimately abandoned the profession for philosophical pursuits.

THE NEW FRENCH PROTESTANT CHURCH. —Last Thursday week the ceremony of laying the first stone of this church, situate in Bloomsbury-street, late Charlotte-street, was performed by the Bishop of London. It is to be built in the Elizabethan style, the front facing Bloomsbury-street. The dimensions are rather confined, being 68 feet 6 inches by 38 feet 7 inches, affording room for about five hundred persons. A gallery is to be erected in the west end. The architect is Mr. Amb. Poynter.

Miscellanea.

GIBBONS' WOOD CARVINGS AT CHATSWORTH.—A visitor, on viewing the suite of rooms of that magnificent mansion, Chatsworth, cannot fail in remarking the excellency of the carvings in wood, which adorn, in many instances, the interior of this truly termed "Palace of the Peak." They consist in representations of dead game, fish, flowers, shells, and trophies, variously composed and distributed, being the efforts of that celebrated artist, G. Gibbons, particularly in the chapel. In the great antechamber are several dead fowl over the chimney, finely executed, and over a closet-door a pen, not distinguishable from a real feather: the latter is considered his chef-d'œuvre. When Gibbons had finished his works in that palace, he presented the Duke of Devonshire with a point cravat, a woodcock, carved in wood, and likewise a model with his own head, all preserved in a glass-case in the gallery. Horace Walpole says, that "There is no instance of a man before Gibbons who gave to wood the loose and airy lightness of flowers, and chained together the various productions of the elements, with a free disorder natural to each species." In the "Family Library" we also find the claims of that artist strongly enforced. All the wood carvings in England fade away before that of Gibbons, at Chatsworth;—the birds seem to live, the foliage to shoot, the flowers to expand, before your eye. The most marvellous work of all is a net of game. You imagine, at the first glance, that the gamekeeper has hung up his day's sport on the wall, and that some of the birds are still in the death flutters. Gibbons' works chiefly are the carvings in St. Paul's choir, the wooden throne at Canterbury, the embellishments at Chatsworth, Petworth, Burleigh, Houghton, Southwick, in Hampshire, where the whole gallery is embroidered in pannels, by Gibbons' own hand, and the altar-piece of Trinity College, Oxford. This artist was appointed master carver in wood to George the First, with a salary of eighteenpence a day, which splendid allowance he enjoyed from 1714 to 1721, on the 3rd of August in which year he died.—*Doncaster Gazette.*

PROPOSED NEW CHURCH AT FERRIBY.—A meeting of ratepayers was lately held in the parish church of Ferriby, to consider the propriety of building another church. We understand that Joseph Robinson Pease, Esq., of Hessle Wood, who was present at the meeting, greatly to his honour, generously stated, that his tenants should not be called on to pay one farthing towards it, as he himself would pay their portion.—*Hull Packet.*

MR. COCKERELL'S LECTURES.—Mr. Cockerell commenced his course on architecture at the Royal Academy, on Thursday night. In the next and following Numbers we shall furnish our readers with a report of them

HORNSEY DISTRICT.—The death of Mr. Bartholomew has left this district vacant. *Seven* candidates have already declared themselves, namely, Mr. James Harrison, Mr. S. S. Teulon, Mr. Moon, Mr. Thomas Bird, Mr. Witherden Young, Mr. Herbert Williams, and Mr. John Dent. Some of these gentlemen have not yet passed the examiners, and will not be able to do so in time for this election, as will be seen, on comparing the two following notices:—

A notice has been issued by the Middlesex magistrates, signed "C. H. Ellis, Clerk of the Peace," to the effect, that the court will proceed, on Thursday, the 30th instant, to the election of a surveyor for the district of Hornsey. All candidates must, on or before Friday, the 17th instant, forward to the clerk of the peace a statement, in writing, of his name, residence, age, and qualification, and must also personally appear before the Committee for General Purposes, at 12 precisely, on Saturday, the 18th instant, at the Sessions House, Clerkenwell.

A notice has been issued by the Registrar of Metropolitan Buildings, "that the examiners will hold their next examination of persons desirous to obtain a certificate of qualification for the office of district surveyor, on Friday, the 24th instant. Persons desirous to be examined must apply on or before the 23rd instant, and their applications must be accompanied by a preliminary statement, according to the course of examination prescribed in the rules for that purpose."

INCRUSTATION IN BOILERS.—The incrustation formed by deposits from the water in steam-boilers is the cause of considerable inconvenience and loss. In some cases it is necessary to clear it away every three or four weeks, for which purpose the works must be stopped, unless there is a second boiler. In the operation too, the boiler is necessarily injured, and at all times it causes great waste of caloric. Any invention to prevent this is important. Letters patent have recently been granted to Mr. Francis Watteeu, for a material by which this desideratum is said to be attained. It is inexpensive and innocuous; is applicable to all sorts of boilers, and acts by preventing crystallization and attraction.

RESTORATION AND RE-OPENING OF SKERNE CHURCH.—Skerne Church was re-opened on the 22nd of December. This edifice has undergone a complete restoration; the roof is entirely new and a Gothic design; the pews are designed to resemble open seats and stall ends; they are of a simple character, and are also new; the pulpit, reading desk, altar rails, and table are exceedingly chaste specimens of ancient architecture. The stonework of the windows, &c., has been also restored to its original design, by Messrs. Simpson and Malone, of Hull. The church is heated by an ingenious hot-water apparatus, fixed by Atkinson, of Driffield. The roof and all other wood-work has been stained and varnished in imitation of old oak; the Commandments, Creed, and Lord's Prayer are upon four tablets of slate, in the ancient illuminated style; and these, in addition to the national arms, which have also been emblazoned, have all been executed by Messrs. Binks and Son, Hull. The whole of the works connected with the above restoration have been executed under the judicious management of Mr. C. Appleton of Aniaby, upon whom it reflects the highest possible credit as a builder. The whole of the restoration has been at the expense of Charles Arwright, Esq., of Dunstall, Burton-upon-Trent.—*Hull Packet.*

THE NEW BUILDING ACT.—On Thursday the district surveyor for the Strand district, accompanied by assistants, viewed the houses in the parishes of St. Mary-le-Strand, &c., in which persons resided in cellars or underground kitchens, in order to see whether they were fit for habitation. In New Church-court and other places the cellars were very confined, and in some places the landlords were called upon to give notice, under the New Building Act, for the occupiers to quit within a fortnight. In other cases, where the kitchens were dry and of sufficient size, the only other requisite being light and air, notice was given to the owners to increase the size of the windows, and to extend the gratings over the area in front.—*Young England.*

BATHS FOR THE WORKING CLASSES.—We are gratified to learn that the traders of this city continue steadily to subscribe to the erection fund of this institution, and are determined to do their utmost to carry out the scheme. As an instance of the spirit with which they subscribe, may be adduced that of the workmen at the Holyrood Glass-works, South Back of Canongate, who paid to the sub-treasurer the other day the sum of 20*l.* sterling, as their subscription. When the number of men employed at these works is taken into consideration, the average subscription of each will appear very large, and evinces how much self-denial the workmen are capable of to carry out a plan upon which they now set their hearts. —*Edinburgh Witness.*

IMPROVEMENTS AT WHITEHALL.—We are informed that Mr. Barry has been directed to examine the buildings now occupied by the Board of Trade, with a view to provide additional accommodation for the different departments now under the control of that board. Mr. Barry has determined upon a plan which will afford the required accommodation, and greatly improve the present appearance of the buildings, by raising the elevation, and thus afford an effectual screen to the ugly roofs and chimney-pots which are now visible above the present parapet. It is also in contemplation to pull down the old building at present occupied by the department of the Home Secretary of State, which has long disfigured that portion of Whitehall, and to erect a more sightly structure in conformity with the new front of the Board of Trade.—*Observer.*

HIGHGATE TUNNEL.—It will probably be in the recollection of many persons living, that early in the present century, an attempt was made to construct a tunnel through the London clay at Highgate Hill, for the purpose of making a more easy communication between Holloway and Finchley. The attempt, however, failed, and the result was the construction of the open cutting which forms the present Highgate Archway-road. The failure appears to have arisen, in a great measure, from the want of experience on the part of the engineers who had charge of the work, more especially as they had such very difficult and heavy ground to work in as the London clay. Those who have witnessed the trouble and difficulties that have been recently experienced in working in that treacherous soil will be less surprised at a failure in such a work thirty years ago. In the year 1811, while the works at Highgate were progressing, the committee of management thought it necessary to obtain the opinion of the late John Rennie, Esq., as to the correctness of their mode of proceeding, as difficulties began to appear. The report of that truly eminent engineer threw some light on the probable cause of the failure of the work, and at the same time led to the erroneous opinion that too generally prevails, namely, that Mr. Rennie was the engineer to the said work; whereas the fact was otherwise. The author believes that Mr. Nash, the architect, was the principal, and a Mr. Vazie the resident engineer. It may, at the present day, be a matter of surprise that an architect should undertake the construction of a tunnel; but so late as August 17th, 1812, there appeared in the *Star*, a London newspaper, an advertisement from the Regent's Canal Company, addressed to "architects and engineers," offering a premium of fifty guineas for the best design for a tunnel that was to be made (and afterwards was made) under the town of Islington; in which advertisement it was stated, that the company were "anxious to have the best information which science and practice can afford on the subject."—*Practical Tunnelling by F. W. Sims, C. E.*

WEIGHT OF BRICKWORK.—An experiment was tried on September the 3rd, 1842, to determine the weight of a cubic yard of brickwork. On the works at Saltwood there was an excellent weighing machine, by Pooley and Son, upon which the experiments were tried:—

BRICKWORK IN CEMENT.

	Ton	cwt.	qrs.	lb.
A cubic yard of dry bricks (384)	1	2	1	20
Sand, water, and cement for ditto		6	2	4
Total weight of a cubic yard of brickwork in cement	1	8	3	24

BRICKWORK IN MORTAR.

	Ton	cwt.	qrs.	lb.
Bricks, as above	1	2	1	20
Mortar for ditto		4	1	8
Total weight of one cubic yard of brickwork in mortar	1	6	3	0

—*Ibid.*

THE LATE MR. GEORGE MADDOX. — We direct our readers' attention to an effort now making to obtain a fund for the widow of the late George Maddox, an able man, to whom many members of the profession are indebted.

LABOURERS' COTTAGES.—In the course of an inquiry before the coroner for Oxfordshire, touching the death of a poor girl at Hampton Poyle, a village within six miles of Oxford, it came out that the cottage of the family contained only one sleeping room, and that of the most miserable description, being near the thatched roof, and being barely high enough to stand upright in the middle. There were three beds in this room, and eight persons (comprising the father, mother, a grown-up daughter and son, and four young children) occupying it as a dormitory. This is not at all an isolated case in the neighbourhood of Oxford, where, with the exception of a few villages, the labourers' cottages are wretched in the extreme.

THE COLLINGWOOD MONUMENT. — This edifice has risen to the height of 18 feet above the ground. It stands at the entrance of the Tyne, a little to the west of the Spanish Battery, and will form a conspicuous landmark for seamen, easily distinguishable from all others. In consideration of this circumstance, a subscription of 100 guineas has been made by the Trinity House of London. The height of the erection, including Mr. Lough's statue (21 feet high), will be 80, 90, or 100 feet, just as the countrymen of Collingwood, and more especially his townsmen, may decide.—*Durham Advertiser.*

Tenders.

TENDERS delivered for Erecting the New Pheasant Public-house, at the corner of the Palace New-road, Stangate.—Messrs. Willshire and Parris, Architects. Lambeth.

Mr. Samuel Mason	£1,248
Messrs. Plaskett and Shelton ..	1,230
Mr. Robert Hicks	1,210
Mr. John Willson	1,188

The quantities taken out and supplied to the builders, and the tenders opened in their presence.

TENDERS delivered for the Erection of Two Cottages, Cow-shed, and Stabling, at Chiswick, for Mr. Pits.—Mr. Welsted, Clerk of the Works, St. John's-wood.

Fitswater, Hammersmith	£642 10
Langwith	610 10
James Slade	590 10

The tenders opened in the presence of the parties.

NOTICES OF CONTRACTS.

For building a Sewer in Vine-street, Minories.—Joseph Daw, Sewers' Office, Guildhall. January 14.

For the erection of a Wesleyan Chapel at Hythe.—Mr. T. Pilcher, Stationer, &c., Hythe. January 21.

For making a Sewer in the town of Cambridge. The sewer to be cylindrical, and 2 feet diameter in the clear, the length will be about 385 yards, and the average depth about 9 feet.—Frederick Randall, Town Hall, Cambridge. January 21.

For Warming and Ventilating the new Buildings of the Suffolk Lunatic Asylum; and for fitting up the laundry with Drying Apparatus, upon the most approved plans.—John Henry Borton, Milton, Suffolk. January 21.

For the Erection of Stone Booking-offices at Ashton and Stalybridge Stations; and for the Erection of a Station at Sheffield for the Sheffield and Manchester Railway Company. January 21.

For the erection of the Railway Works between Leeds and Bradford, including fencing, earthwork, masonry, roads, and permanent way.—William Clarke, Secretary, Hunslet-lane Station, Leeds. January 27, 1845.

For the execution of Works on the Chester and Holyhead Railway.—1st. A distance of eight miles, or thereabouts. 2nd. A distance of twenty-two miles, or thereabouts. 3rd. A Tunnel through the promontory of Penmaen Back, near Conway.—George King, Secretary, 62, Moorgate-street. January 29, 1845.

For the Execution of Works on that part of the Blackburn and Preston Railway extending from Blackburn to Pleasington, being about 3¼ miles in length.—Peter Sinclair, Secretary, Blackburn. January 29.

For the supply of Wrought Iron Rails and the requisite number of Chairs for about 15 miles of the Southport and Euxton Junction Railway. The weight of rails to be from 60lb. to 70lb. per lineal 2 yards and 15 feet lengths, equal to from 1,500 to 1,800 tons of wrought iron, and about one-third of that quantity of cast iron.—Woodcock and Part, Solicitors, Wigan. January 31.

For erecting the Works of the third division of the Main Line of the Great Southern and Western Railway, being 11 miles, 6 furlongs, and 75 yards in length. Also for the first division of the Carlow branch, being 10 miles, 7 furlongs, and 160 yards; comprising excavation, embankments, bridges, culverts, &c.—William Taylor, Secretary, 3, College Green, Dublin. February 1.

For the supply of 11,000 feet of nine-inch cast-iron Pipes for a new line of Aqueduct to be laid in the Island of Malta.—Vin. Casolani, Collector of Land Revenue, Office of Land Revenue and Public Works, Valletta, Malta. March 31, 1845.

COMPETITIONS.

Plans and estimates are required for a Pauper Lunatic Asylum for the County of Somerset; the building to accommodate 300 patients, and to contain two Stories. The Committee of Visiting Magistrates wish it to be of a plain, cheerful character, but will not further fetter the architect by suggesting any particular arrangement as to the interior, its ventilation, warming, or otherwise. The ground selected contains 36 acres.—The Clerk of the Peace, Taunton. A Premium of 100*l.* will be adjudged for the best plan, and 50*l.* for the next best. January 22.

Plans and estimates are required for a Workhouse, to contain about 1,180 persons. The whole to be done in a plain and substantial manner, without any expensive embellishments. The plans and architects' estimates to be sent to Robert Mercer, the Clerk of the Clifton Union, Pennywell Road, Bristol, on or before the 17th of February next, and

The Builder.

No. CXI.

SATURDAY, JANUARY 18, 1845.

THE society for obtaining baths and wash-houses for the labouring classes advertised, some time ago, for plans and estimates for erecting and fitting up the rst establishment in London. Nearly a undred architects, it is said, applied for ie particulars; and the designs were sent on Saturday last. It is unnecessary to y we shall look anxiously for the deciion of the committee. We beseech them reflect on the time and thought which have een expended on the production of these esigns, and to decide fairly and honestly, *ith especial reference to the instructions that ere given to the competitors.* These instrucons must be constantly before the committee uring their examination. The plans in which ey are complied with in the most perfect id satisfactory manner, should unquestionably selected. We are so accustomed to find mpetitions managed badly and decided unstly, that we can hardly bring ourselves to ticipate a better result in the present case. eeling very strongly, however, on the subject, e call earnestly on each member of the mmittee to act as if the whole responsibility sted on himself. If they will do this—if ey will decide as individuals open to question, d not with the feeling that they merge in the dy, there will be little reason to cavil at their cision. As an incentive to such a course, ey may be reminded that many eyes are on them; and that by exciting an ill feelg against themselves in this respect, they ould greatly injure the important object they ve in view. Our readers may rest assured at we shall return to this subject when the ans are fairly before the public.

In the meantime we would make a few servations on the general question of baths d wash-houses, and urge the public to ovide funds suitable to the greatness of the casion.

The committee are anxious to carry out the an on an extensive scale. They wish to gin with four model establishments in popuis districts—three on the Middlesex side, d one on the Surrey side of the river, and ey have advertised their desire to purchase id for sites. As yet, however, they have t received sufficient money to do all that is quired, and we would gladly aid in obtaining for them.

Assertions have been made that our poorer ethren will not avail themselves of the ntemplated advantages when they are offered them; that they prefer dirt to cleanliness; d various others equally unjust and libellous. ne baths and wash-houses at Liverpool will themselves afford sufficient answer to such ctements. We can from them set facts ainst conjectures, and render unnecessary querulous suppositions of what *may* take ce by shewing positively what has occurred. e have recently visited the Liverpool estalishment (in Frederick-street), in order to dge for ourselves, and were thoroughly sisfied with the result. It was there a mere periment, and the establishment is very all. They have eighteen baths in three classes, for which the charge is respectively 1s., including the use of two towels, 6d. and 3d. with use of one towel. For cold baths the charge is 6d., 3d., and 2d., formerly 1d. In the first year 11,661 baths were taken, and in the second, 16,323; the majority being warm. The keeper informed us, that the average number of bathers in summer was from 100 to 150 each day. In winter the number is small. There is a vapour bath,—for which, with the use of three towels, 1s. is charged, but no plunging bath. The revenue last year, including the wash-houses, equalled the expenditure within 1*l.*, and this year will probably exceed it! In consequence of which and of the advantages found to result, Mr. Franklin, the town surveyor, has prepared plans for a second and more extensive establishment (including two plunging baths), which will be carried out immediately.*

The baths are open till 9 o'clock every evening in the week but Sunday; and on Saturday till an hour later. They are also open on Sunday morning from 6 till 8 o'clock in the summer, and from 7 till 9 in the winter. In these two hours on a fine morning, 50 or 60 persons usually avail themselves of the baths. In the London establishments there should be a proper place for the applicants to wait their turn, and it would be desirable if arrangements were made so that those persons who wished it might be shaved cheaply. There are many additional comforts that working classes might enjoy by co-operation, and gladly would we see them in the way of obtaining them. The labourer pays more for his cup of bad tea (when he gets it) than his more wealthy brethren do for good. With this, however, it is hardly our province to deal. The waiting-place should be decently fitted up, and if it were adorned with good prints, now so cheaply obtainable, might aid in improving the character of the visitants more powerfully than at first sight seems likely. Let us take them away for a time from their "coals and potatoes," hold up virtuous actions and heroic deeds for admiration, give them something to think about and talk about, and increase their self-respect.

Turning for an instant to the wash-houses: we found that the desire to avail themselves of these is even greater than of the baths, and that, although the establishment is not so extensively known in Liverpool as it ought to be, there were often more applicants than could be accommodated. There is room in the whole for twenty-six tubs, and these are usually all occupied. Each tub is furnished by pipes with hot and cold water, and has a plug by which it can be speedily emptied. There are two coppers to boil the linen, and a room heated by steam and fitted up with iron slides, termed there "maidens," to dry the clothes. The charge for the use of one tub from six till twelve o'clock is a penny, and for the whole day two-pence.

To those who have visited the abodes of the poor, the courts and alleys of great towns,—who have found a father, mother, and seven or eight children of different ages with only one small room for all purposes,—with, perhaps, a bed-ridden grandmother or sick child—it is unnecessary to point out the important boon which will be afforded to that class by the establishment of public wash-houses. In such a position cleanliness is out of the question; and moral degradation *must* follow its abandonment. To those who have not seen it we would say, think on the fact that *thousands* of families are in this state, and worse, and you must recognize the value of the endeavours now being made, and will feel disposed to assist them. The establishment of public wash-houses will at once improve considerably the dwellings of a very numerous class.

In the arrangement of the plans about to be submitted much attention must be given to questions extra-architectural; such as the supply of water to the baths and mode of heating it, construction of the drying-rooms, heating and ventilating the apartments, &c. To these we shall recur anon.

* The site chosen is in Paul-street, a poor and crowded part of Liverpool.

DOINGS UNDER THE METROPOLITAN BUILDINGS ACT.

THE official referees are active in their vocation. The subject of buildings commenced before the 1st of the present month, particularly alluded to in our leading article last week, is receiving special consideration. On the 19th of December last they issued a circular to the district surveyors, requesting them to make a return, as early as possible after the 1st inst., of all buildings commenced before that day and then unfinished, distinguishing the classes and rates and the respective situations of such buildings. On the 3rd inst. they sent out another circular with reference to the last, wishing to know to what height from the base of the footings such buildings had been carried on the 1st, and asking information of any circumstances respecting them which the surveyors might think necessary. It had been represented to them, the letter stated (and it is true enough), that, "in some cases, mere trenches have been excavated with nothing in them; in others, a skimming of concrete is laid in the trench; in some, a course of clinkers merely, and in others, a single course of bricks. In others, again, a foundation is put in to only part of the walls, without its being continued so as to be united at the back or ends;" and they wished to know, as early as possible, the number of buildings in such or similar circumstances. How they will decide in such cases, should the question of exemption or otherwise come before them, remains to be seen, but is not very doubtful.

One of the earliest, if not the first, application to a magistrate under the new Act, was made at Lambeth, on the 10th inst., when Mr. Southby, firework-manufacturer, applied to the Hon. Mr. Norton, to solicit his interference to prevent the erection of a varnish-manufactory near his premises. Mr. Southby said if the building were permitted it would be highly dangerous, and a serious loss of life might ensue from the combustible materials. The building was within 50 feet of his premises. There was also a great deal of timber in an adjoining yard, and should an explosion take place the consequences would be frightful.

Mr. Norton said the person had clearly no right to erect such a building, and asked if there was a public way?

Mr. Southby stated there was.

Mr. Norton immediately sent an officer of the court, with the applicant, to inform the person that he must discontinue the building, and that, under the 54th clause of the new Building Act, he was liable to a penalty of 50*l.* per day, every day the business was carried on, and, in default of payment, was liable to be sent to the House of Correction for six calendar months, with hard labour.

The official referees have adopted a measure which is likely to be exceedingly useful, namely, lithographing the correspondence from and to certain surveyors on matters connected with the new Act, and transmitting a copy to each district surveyor, for his instruction and guidance. The Act, from its complicated nature, is as yet but little understood by either surveyors or builders,* and, in order to spread information on the subject, we propose to give our readers the substance of each case as it occurs.

* Many of the builders and zinc-workers have been astonished at the interference of the district surveyor when erecting a funnel or smoke-pipe on a chimney-shaft! Nevertheless, he would seem to be justified; if it be 4ft. above the brickwork, notice must be given of such work, and the fee paid, or the penalty may be incurred. See Sect. 13, and Sched. F, Art. Chimney-pots, tubes, &c.

Mr. Browne, surveyor of the Greenwich district, made a complaint against Mr. James Williams for a certain alleged illegal "projection of a shop-front, and cellar-flap and way," but having omitted to state all the grounds and particulars of his objection, and the particular parts of the new Act to which the said works were not conformable, he was advised, by the official referees, to do this, "by means of a drawing, sketch, or outline, with explanatory observations." The following is then added, and as it is highly important to all classes to know that the referees never intend to make a survey, *without charging for it*, we reprint it at length:—

"You will at once perceive, that it is of importance that the parties who make a complaint, or refer a matter to the official referees for their determination, should state the complaint, or the matter referred, with a fair degree of certainty, in order that they may be enabled to judge of it without the expense of a personal survey, which may be avoided, and in order that the opposing party may be fairly informed of the subject-matter of the complaint or reference." The letter concludes with a little wholesome advice to Mr. Browne not to interfere in an irregular manner.

The same gentleman also made a complaint against Mr. John Hiscock, for an irregular projection before a line of houses, but it was referred back to him for the "grounds and particulars of his objection," as in the last case.

Mr. Badger, of Lewisham, complained of Mr. John Godwin, for erecting some cottages contrary to the Act, but as the buildings in question were carried up to aconsiderable height before the 1st inst., they were deemed by the official referees to be "already built," and not within the operation of the Act. Mr. Badger imagined that as they were being built by contract they came within the meaning of the 9th section, which directs such contracts to be so modified that all buildings may be erected according to the provisions of the Act, but this of course only applies to buildings commenced *since* the 1st of January.

Mr. Sibley, of Clerkenwell, having mixed up with his return of buildings in progress on the 1st inst., an allusion to the dangerous state of St. John's Gate, erected several hundred years ago, representing that the decaying stone fell on the public way, received a request that his communications might be made "formally in future," and directions that he would make a survey of the building, with a view to its repair, under the 40th section. Mr. Sibley, we believe, has not yet made his report, and until then the official referees cannot take any steps for the abatement of the danger.

Mr. Baker, of St. Pancras, likewise received authority from the official referees to survey the scene of the late calamitous fire in Guildford-street, they having received information from another party that the walls were in a dangerous state. The case being urgent, Mr. Baker lost no time in serving the notice required by the 24th section upon Mr. Farey, the lease-holder; he was accompanied in his survey by that gentleman's son, who so narrowly escaped from the fire, and the report and certificate were at once drawn up and transmitted to the registrar. The purport was, that a hoard would be useless, as the front of the house might be blown down right across the street, but that it was necessary, for the safety of the public, immediately to pull down the front as low as the stone balcony, inclusive, and also the rear-front to the level of the ground-floor, shoring up the walls which would be left standing. The official referees have to send a copy of such certificate to the overseers of the poor, and the latter again have to write to the owner of the building to repair or pull down "within fourteen days."

The whole regulations respecting ruinous buildings seem rather complicated. The 40th section takes the matter in hand, but instead of giving some simple directions, refers to the 24th section, which is a mass of regulations about the survey and condemnation of party-walls, and contains a form of notice which is not strictly applicable in both cases. Time will, however, simplify these points.

In another part of the journal we present in a tabular form a list of all the district surveyors and their offices, the names and address of the official referees and registrar, and an abstract of those portions of the Act which relate to the notices required from builders.

INSTITUTION OF CIVIL ENGINEERS.

January 14, 1845.—The President in the chair.

The first meeting of the session of 1845 took place on Tuesday evening, the 14th inst. We noticed that some further improvements had been effected in the comfort and decorations of the rooms of the society. The collection of portraits has been augmented by that of Mr. Walker (the president), which was painted by J. P. Knight, R.A., last year for the members of the institution. The model gallery has also received some interesting additions.

The first paper read was on the different modes of confining railway bars in their chairs, by Mr. W. H. Barlow, resident engineer on the Midland Counties Railway. Of the numerous methods which have been tried for keying the rails in the chairs, it would appear that the one now most generally practised is that of parallel compressed wooden keys, but even to these Mr. Barlow states several objections, which, in his opinion, counterbalance the advantage of their elasticity and tendency to assume their original dimensions when exposed in a damp atmosphere. Being of small dimensions and placed just at the surface of the ballast, they decay rapidly; they swell and shrink with every change of temperature, thus becoming loose in dry weather, and requiring constant driving up, which soon destroys them. On the Midland Counties Railway the duration of the wooden joint keys has not exceeded five years, and at the present price of compressed keys, which varies from 8*l.* to 12*l.* per thousand, the expense of renewal of keys per mile per annum at the latter rate would be 10*l.* 2*s.* 6*d.* for a line with 3 feet bearings, and 8*l.* 9*s.* with 3 feet 9 inches bearings. This induced Mr. Barlow to try hollow wrought-iron keys made like the Russel gas-tube, but of such a form as to bear equally against the jaw of the chair, the middle web of the rail, and the top and bottom flanches. This form and substance it has been found gave great stability, held the rails firmly in their places, and yet possessed such elasticity as to neutralize the effect of the travelling of the wheels over the chairs, and rendered the motion of the carriages peculiarly smooth and agreeable. A number of experiments were given, wherein the great superiority of these keys, in their inherent qualities and their cost, over all other kinds was satisfactorily shewn. They have now been used for a considerable period on the Midland Counties, the South-Eastern, the Warwick and Leamington, and other railways; and in the discussion which ensued, several engineers expressed themselves so well pleased with them, that they intended to introduce them in all their new works.

A paper, by Mr. John Storey, described an oblique bridge of freestone over the river Gaunless, on the Hagger Leases Branch Railway. This bridge is remarkable for the acute angle (27°) which it forms with the line of the river it spans; and from its having been built so long ago as the year 1830, when that kind of construction was but imperfectly understood and but little practised in England, the square section of the arch is 19 feet, while the length of the face of the arch, in consequence of its extreme obliquity, is 42 feet. The paper described the mode of setting out the work and of executing the masonry; they were not so theoretically correct as the methods now practised, but the practical effects were stated to be good, as after the centres were struck, the crown of the arch did not drop half an inch, and no subsidence has been since observed in any part of the work.

The meeting was adjourned until the 21st instant, when the annual general meeting will be held for the election of the council and officers for the ensuing session. A considerable change is contemplated.

Pure Oil for Machinery.—Owing to the impurities which oils contain in their natural state, such as mucus, or albumen, and which act like yeast in promoting chemical action, most of them, when kept, become rancid. To obviate the difficulty this causes to philosophical instrument-makers and engineers, Messrs. Lundholm and Co. have produced a new oil, called pure Elaine, which seems worthy of trial.

ROYAL INSTITUTE OF ARCHITECTS.

On Monday evening, the 13th instant, the Institute met in their new rooms for the first time, George Smith, Esq., vice-president, in the chair. Thanks were voted to Messrs. Mair, Scoles, and Thompson, and to the honorary secretaries, for their services in effecting the removal. Mr. C. N. Cumberlege was elected a fellow, and Messrs. Henry Peet and Edward F. Hutchins associates. The foreign secretary read an extract from a letter stating that the King of Prussia had purchased all the drawings and papers left by Schinkel, in order to preserve them intact.

Mr. Donaldson then laid before the meeting a brief view of the history of architecture, from the building of Babel, assumed to be 2249 years B.C., to the revival of Italian architecture in the 16th century, illustrated by a beautiful series of drawings. The chief object of the lecture was to point out the connection which existed between the architecture of the various countries of antiquity. Egypt, Greece, Italy, and Byzantium were each alluded to, and the rise of Christian architecture pointed out. The lecturer considered that the pointed arch came to us from the Saracens, and read some extracts from M. Guizot's "History of Civilization in Europe," to shew the effect of the crusades on arts and manners in this quarter of the globe.

Some clever sketches of Athenian and other Greek monuments, recently made by Mr. George Knowles, were exhibited; and a coloured copy of Mr. Lewis Gruner's elaborate work on the fresco decorations and stuccoes of buildings in Italy.

SOCIETY OF ANTIQUARIES.

At a meeting of this society, held on Thursday, the 9th instant, Mr. Henry Hallam, the historian, in the chair, Mr. Albert Way exhibited an ancient altar-cloth from Steeple Aston Church, Oxon. A letter from M. de Caumont, of Normandy, was read, soliciting subscriptions for a statue of William the Conqueror, proposed to be erected at Falaise, the place of his birth. The letter also stated that the French antiquaries would hold their annual congress at Lille in July next, and expressed a hope that they might be favoured with the presence of some members of the society.

A communication from Mr. Edward Richardson was read, describing a number of coffins, stone and lead, found in the circular part of the Temple Church, London. The lead coffins were attributed to the time of Henry III., the stone coffins might be earlier. An account of Old Sarum, by Mr. Hatcher, illustrated by a model, was also read.

We have received several communications complaining of the apathy which prevails in this ancient and respected society, and the little good it effects as compared with its powerful means and influential position. The chief cause of the evil seems to be, that its management is allowed to rest exclusively with a few individuals (excellent though they may be), and has become a mere matter of routine.

The "Statue of William IV."—The commemoration of the erection and inauguration of the statue of the "Sailor King," which has just been completed by Mr. Samuel Nixon, and is now placed on a pedestal at the termination of King William-street, at the point which faces London-bridge, was celebrated a few evenings since at the Adelaide Tavern, at the foot of the bridge, where, at six o'clock, a numerous assembly of the influential gentlemen of the wards of Bridge and Candlewick sat down to an excellent dinner. The chair was filled by Sir Chapman Marshall, who was supported on the right hand by Sir George Carroll (these two gentlemen being the aldermen of the respective wards), and on his left by Mr. Nixon. We are sorry that we cannot coincide in the flattering opinions of the statue which have been expressed. It is, to us, coarse and clumsy, and not likely to advance the reputation of the sculptor.

Royal Academy.—Every academician was entitled to exhibit eight pictures each season and for which, of course, the best places were retained. By a recent resolution they have now limited themselves to *six*. This alteration cannot fail to be gratefully received by the profession generally.

TABLE OF METROPOLITAN DISTRICT SURVEYORS.

Official Referees, JAMES WHITE HIGGINS, Esq., and WILLIAM HOSKING, Esq.—*Registrar*, ARTHUR SYMONDS, Esq.

Board of Examiners appointed to assist the Official Referees in the Examination of Candidates for the Office of District Surveyor, SIR ROBERT SMIRKE, JAMES PENNETHORNE, Esq., and THOMAS CUBITT, Esq.

All Communications are to be addressed under cover to the "Registrar of Metropolitan Buildings," 3, Trafalgar-square.

LIST OF SURVEYORS' DISTRICTS (OLD AND NEW) APPOINTED BY THE JUSTICES OF THE PEACE OF THE RESPECTIVE COUNTIES, PURSUANT TO THE ACT 7 & 8 VICT., c. 84, WITH THE NAMES OF THE SURVEYORS, THEIR RESIDENCES, AND OFFICES.

DISTRICT.	SURVEYOR.	RESIDENCE.	OFFICE.
MIDDLESEX.			
CITY OF LONDON.			
EASTERN DISTRICT, containing the wards of Lime-street, Tower, Aldgate, Portsoken, Billingsgate, and Langbourne	Edmund Woodthorpe	30, Jewin-street, Cripplegate	30, Jewin-street, Cripplegate.
SOUTHERN DISTRICT, containing the wards of Bread-street, Bridge, Candlewick, Castle Baynard, Cordwainers, Dowgate, Farringdon Within, Queenhithe, Vintry, Walbrook, and Bridewell Precinct	George Smith		Frederick-place, Old Jewry.
WESTERN DISTRICT, containing the wards of Aldersgate Within and Without, Cheap, and Farringdon Without, St. Martin's-le-Grand, St. Bartholomew the Greater and Less, the Inner Temple, and that part of the Middle Temple within the City, the Serjeants' Inns, Fleet-street, and Chancery-lane, Clifford's-inn, Barnard's-inn, Thavies'-inn, and those parts of Furnival's-inn and Staples'-inn which are within the City	John Stevens	6, Clement's-inn, Strand	6, Clement's-inn, Strand.
NORTHERN DISTRICT, containing the wards of Bassishaw, Bishopsgate Within, Bishopsgate Without, Broad-street, Coleman-street, Cornhill, Cripplegate Within, Cripplegate Without	James Mountague	Upper Clapton, Middlesex.	Office of Works, Guildhall.
TOWER HAMLETS.			
Tower Liberty	J. B. Redman	11, Canton-place, East-India-road, Limehouse	48, Lime-street.
Stratford-le-Bow (St. Mary), and Poplar (All Saints)	J. H. Good, jun.	75, Hatton-garden	High-street, Bow.
St. George-in-the-East and St. Botolph Without, Aldgate	Henry Flower	14, North-buildings, Finsbury-circus	23, Prince's-square, St. George's East.
Limehouse (St. Anne), Wapping (St. John), St. Catherine, and the Hamlet of Ratcliff	Edmund Woodthorpe	30, Jewin-street, Cripplegate	London-street, corner of Pump-yard, Ratcliff.
Mile End, Old Town	John Davis	Devonshire-square, Bishopsgate-street	1, Stepney-green, Mile-End-road.
Bromley (New)	John Blyth	113, Aldersgate-street	Bromley-house, near the Church, Bromley, Middlesex.
Hackney (St. John)	Thos. Henry Wyatt	75, Great Russell-street, Bloomsbury-square	Church-street, Hackney, corner of Baxter's court.
Bethnal Green (St. Matthew)	Edward N. Clifton	36, Cross-street, Islington	9, Tokenhouse-yard, Lothbury.
Spitalfields (Christchurch), Shadwell, and Hamlet of Mile End, New Town	Charles Hamor Hill	Canonbury-terrace, Islington	4, Brick-lane, Spitalfields.
Whitechapel (St. Mary)	William Grellier	20, Wormwood-street, Bishopsgate-st	26, Wormwood-street, Bishopsgate-st.
Shoreditch (St. Leonard), and Norton Folgate Liberty	Robt. Warton, *Dep. Sur.* for Matthew Warton	Collingwood-place, Ratcliff	64, Old-street-road.
EDMONTON HUNDRED.			
Tottenham (New)	John Henry Taylor	22, Parliament-street	Warner's-terrace, Tottenham-high-cross.
FINSBURY DIVISION.			
St. Luke's, Finsbury, (Old-street), and Glass-House-yard	Richard C. Carpenter	99, Guildford-street, Russell-square	85, Goswell-street.
Islington (St. Mary), and St. Sepulchre Without	George Edwards	Duncan-place, City-road	3, Montague-place, Islington.
Stoke Newington	William Lovell	20, Swinton-street, Gray's-inn-road	45, Church-street, Stoke Newington.
Hornsey (New)	George Legg, (Sur. *pro. temp.*)	239, Maida-vale, Paddington	10, South-square, Gray's-inn.
Clerkenwell (St. James and St. John)	Robert Sibley	39, Great Ormond-street, Foundling	7, Penton-grove, Pentonville, and at res.
HOLBORN DIVISION.			
Saffron-hill Liberty, Hatton-garden, and Ely Rents; St. Clement Danes, and St. Mary-le-Strand, within the Duchy of Lancaster, and the Savoy precinct	Samuel Angell	18, Gower-street, Bedford-square	5, Hatton-garden.
Holborn-above-the-Bars (St. Andrew) and St. George the Martyr, and Liberty of the Rolls	George Legg	239, Maida-vale, Paddington	10, South-square, Gray's-inn.
St. Giles-in-the-Fields, and St. George, Bloomsbury	George Pownall	5, Gordon-square	14, Upper King-street, Holborn.
St. Pancras	Henry Baker	11, Upper Gower-street, New-road	11, Upper Gower-street, New-road.
St. Marylebone	John White	Westbourne-green, Paddington	Devonshire-place, north, New-road, Regent's-park.
Paddington	George Gutch	Bridge-house, Harrow-road	Bridge-house, Harrow-road.
Hampstead (New)	Henry Edw. Kendall, jun.	33, Brunswick-square	Crown-cottage, Haverstock-hill.
KENSINGTON DIVISION.			
Chelsea (St. Luke)	Samuel Beachcroft	83, Cadogan-place, Sloane-street	83, Cadogan-place, Sloane-street.
North Kensington (New)	Charles Beachcroft	11, Westbourne-st., Hyde-park-gardens	48, High-street, Notting-hill.
South Kensington (New)	Thos. Leverton Donaldson	7, Hart-street, Bloomsbury-square	3, Pelham-terrace, Pelham-road, Brompton.
Fulham (New)	Andrew Moseley	19, Keppel-street, Russell-square	High-street, Fulham.
Hammersmith (New)	James Charles Christopher	5, Serampore-terrace, Hammersmith	5, Serampore-terrace, Hammersmith.
WESTMINSTER CITY AND LIBERTY.			
St. Margaret and St. John, Westminster, and the extra parochial parts thereof	Jas. Howell, *Dep. sur.* for William Pilkington	1, Vincent-square, Westminster	1, Vincent-square, Westminster.
St. Martin-in-the-Fields, and St. Anne, Soho	Henry Edward Kendall	17, Suffolk-street, Pall Mall East	17, Suffolk-street, Pall Mall East.
St. George, Hanover-square	Edward Martin Foxhall	18, South Audley-street, Grosvenor-sq.	14B, South-street, Grosvenor-square.
St. James	James Gray Mayhew	35, Cambridge-terrace, Hyde-park	14, Argyll-st., St. James's, Westminster.
St. Paul, Covent Garden, St. Clement Danes, and St. Mary-le-Strand	Edward Chas. Hakewill	8, Thurloe-square, Brompton	8, Craig's-court, Charing-cross.
SURREY.			
Rotherhithe (St. Mary), and Hatcham, or the portion of St. Paul, Deptford, in Surrey	George Allen	69, Tooley-street, Borough	2, Monmouth-place, New-cross, Hatcham.
Bermondsey (St. Mary Magdalen), and St. John, St. Olave, and St. Thomas, Southwark	Robert Hesketh	13, Arundel-street, Strand	12, Bermondsey-square.
Lambeth (northern portion of), St. George, St. Saviour, and Christ-church, Southwark	David Roper	Great Coram-street, Russell-square	11, Stamford-street, Blackfriars-road.
Battersea (part of, lying north-west of South-western Railway), Lambeth (central division of), and Newington (St. Mary)	George Porter	Fort-place, Bermondsey	11, Kennington-row, opposite Kennington-common.
Lambeth (southern portion), and detached part of Streatham	William Rogers	St. Ann's-road, Brixton	St. Ann's-road, Brixton.
Peckham (New)	William Crawford Stow	122, Long-lane, Bermondsey	1, Camden-place, near Camden-chapel, Camberwell.
Streatham (New), and Battersea, part of, lying southward of the South-western railway	John Mullins	5, St. John's-grove, Brixton-road	5, St. John's-grove, Brixton-road, and Streatham-place, Brixton-hill.
Wandsworth, and Tooting Graveny	Edward I'Anson, jun.	3, Church-buildings, Clapham-common	3, Church-buildings, Clapham-common.
	Alfred James Hiscocks	Cornbury-place, Kent-road	High-street, Wandsworth.
KENT.			
Deptford (St. Paul, in Kent, and St. Nicholas), (New)	Robt. Smirke Martyr	George-street, Greenwich	23, Broomfields, Deptford.
Greenwich (New)	Robt. Palmer Browne	Royal-place, Royal-hill, Greenwich	Royal-place, Royal-hill, Greenwich.
Lewisham (New)	George Aitchison	Muscovy-court, Trinity-sq., Tower-hill	Medical-hall, adjoining Roff-wharf, High-street, Woolwich.
Lee, Kidbrooke (New), Eltham (New), and Charlton	Charles Robt. Badger	Blackheath-road, Greenwich	At Mr. Harris's (Parochial Tax-collector's), Lewisham-road, opposite the Anchor brewery.
Hackington, Lee, and Kidbrooke (New)	James Collis	2, Shaftesbury-terrace, Pimlico	Frederick-place, Tranquil-vale, Blackheath.

The Metropolitan Buildings Act provides, that it shall be the duty of the Builder to two days' notice to the District Surveyor at his office, in the terms specified in the contained in the schedule to the Act, under a penalty of 20*l.* and treble fees in each or case, before the following acts or events, that is to say—Before any building shall be to be built; and also before any addition or alteration, which by this Act is placed the supervision of the Surveyor, shall be made to any building; and also before any wall, external-wall, chimney-stack, or flues, shall be begun to be built, pulled down, so before any other matter or thing shall be done, which by this Act is placed under pervision of the Surveyor, except as thereinafter is provided.

a building be suspended for any period exceeding three months, or if during the pro- of a building the Builder be changed, then two days before entering on the perform- the work, such Builder must give notice to the Surveyor, under a penalty of 20*l.* §13.

If by reason of any emergency, any act, matter, or thing, placed under the supervision of the Surveyor, be required to be done immediately, or before notice can be given to the Surveyor, then it shall be lawful for the Builder or any person to do such act, matter, or thing so requisite, but upon this condition, that within forty-eight hours after beginning to execute such work, notice thereof be given to the Surveyor § 13.

With regard to buildings of the first-rate of the warehouse class, and of all buildings of the public building class (except those especially exempted by the Act), notice must be given to the Official Referees by the Architect or Builder, when the walls of any such building have been built to their full height, and all the timbers of the floors, roofs, and partitions, have been fixed. § 15.

With regard to buildings specially named in the Act (schedule B.), the Architect or the Builder must give notice to the Official Referees before the building be commenced, and must transmit the plans and other drawings for their inspection. § 16.

LONDON AS IT WAS, AND IS.*

We commence our present narrative at that period when London was threefold afflicted with the terrible calamities of famine, pestilence, and fire. In 1663, and for some years previous, there was a general dearth throughout England, wheat being sold at the enormous price of 3*l.* 14*s.* per quarter, and malt at 2*l.* 2*s.* This was succeeded by the plague in 1665, by whose direful ravages 68,596 persons were swept away, which, together with the number of those that died of other distempers, made the bill of mortality of this year amount to 97,306 souls. The recurrence of this dreadful calamity, after an interval of forty years, worked upon the superstition of the age, and many began to impute the fatality to that number, as if in that sense the land was to have rest only forty years. Many ingenious conjectures have been made concerning the origin of this scourge, and from all the facts that can be collected in modern times, there is every reason to believe that it originated with the hot, poisonous blasts of the deserts of Persia, Arabia, and Egypt, and travelling into Europe, it occasionally committed great ravages in the chief cities, and was never wholly eradicated therefrom. During the calamitous period we are now speaking of, it was observed by Dr. Baynard, a very intelligent physician, that there was a general calm and serenity of weather, as though both wind and rain had been expelled the kingdom, and that for many weeks together he could not discover the least breath of wind, not even so much as to move a weathercock, and the fires in the streets were made to burn with great difficulty; the birds too, as in tropical regions, flew heavily on the wing, panting for breath.

In the history of nations we find very often a singular coincidence of events, surpassing human comprehension, and appearing almost miraculous: London furnishes a remarkable illustration of this; a few months only had elapsed, the houses untenanted by the plague had scarcely been opened to the new comers from the country, than they were turned out again by a disaster more sudden than the former. The great fire of London, which happened in the year 1666, broke out Sept. 2nd, at one o'clock in the morning, in Pudding-lane (near now Fish-street), in a quarter of the town closely built with wooden, pitched houses, and made such rapid headway under a strong easterly wind then blowing, that before daylight it became too great for any hopes of mastering it by the engines, or even for approaching within any reasonable distance. Many attempts were made to prevent the spreading of it by pulling down houses and making great intervals; but the fire, seizing upon the timbers and rubbish, soon passed the spaces, and continued its devastating progress the whole of Monday and Tuesday. On Tuesday night the wind slackened a little, and the flames meeting with brick buildings at the Temple, began to lose their force gradually on that side, and on Wednesday a stop was put to it at the Temple Church, near Holborn-bridge, Pye-corner, Aldersgate, Cripplegate, near the end of Coleman-street, at the end of Basinghall-street, by the postern at the upper end of Bishopsgate-street and Leadenhall-street, at the Standard in Cornhill, at the Church in Fenchurch-street, near Clothworkers' Hall in Mincing-lane, at the middle of Mark-lane, and at the Tower Dock.

Thus, after raging three days with the utmost violence, and in despite of the feeble efforts of the inhabitants to check its progress, it gradually ceased, after laying waste and consuming the buildings on 436 acres of ground, 400 streets, lanes, &c., 13,200 houses, the cathedral church of St. Paul, 86 parish churches, 6 chapels, the magnificent buildings of Guildhall, the Royal Exchange, Custom-house, and Blackwell Hall, several hospitals and libraries, 52 of the companies' halls, and a vast number of other noble edifices, 3 of the city gates, 4 stone bridges, and the prisons of Newgate, the Fleet, the Poultry and Wood-street Compters, the loss of which, together with that of merchandize and household furniture, by the best calculation amounting to ten millions seven hundred and thirty thousand pounds.

Without staying to inquire into the validity of the numerous reports handed down to us concerning the origin of the fire, which in these days are truly placed to the prejudices and bigotry of the age, we will proceed at once to notice the permanent benefits derived by the inhabitants of London from what was then considered by them an irreparable calamity. Instead of very narrow, crooked, and incommodious streets; dark, irregular, and ill-contrived wooden houses, with their several stories jutting out, or hanging over each other, whereby the circulation of the air was obstructed, noisome vapours produced, and destructive and obnoxious vermin harboured, the order of the King in Council declares that no man shall henceforth presume to erect any house or building, great or small, but of brick or stone, under penalty of having it pulled down; the cellars to be well arched. That Fleet-street, Cheapside, Cornhill, and all other eminent and notorious streets shall be of sufficient breadth; that no lanes or alleys shall be erected but where absolutely necessary; that keys or wharfs be formed, and no house to be erected within so many feet of the river. Many superb edifices were erected; greater attention was paid to paving and lighting the streets, and had the plan of Sir Christopher Wren been carried out, many of our modern improvements would have followed.

The Building Act of 19 Car. II. determined that there be only four sorts of buildings, defined by the Act, the largest embracing noblemen's mansions, not to exceed four stories high; that all new buildings be built with stone or brick, with party-walls; and three years were allowed, from the time of the conflagration, to rebuild the houses destroyed. All bricklayers, masons, plasterers, and joiners were to enjoy the privileges of freemen for seven years, or so long as the building was completing, and any exaction by them for material or labour was punished by fine or imprisonment. A spacious wharf 40 feet in breadth was also ordered to be erected from Tower-wharf to Temple-stairs, clear of all buildings other than cranes and sheds for the convenience of landing and preservation of merchandize; and for the more effectual preventing inundations, Thames-street and the ground between it and the river Thames to be raised 3 feet. And to enable the lord mayor and citizens to perform the stipulations of the Act, they were permitted to exact 1*s.* for every chaldron or ton of coals imported into the port of London. The exact width of many of the streets was defined by this Act.

Another order of council was shortly after issued to regulate the duty of surveyors, that special care be taken to preserve as far as possible uniformity in the lines of houses, the breast-summers ranging an equal height house with house; that encouragement be given to builders for ornament sake, the ornaments and projections of the front buildings to be of rubbed brick; that the signs be fixed against the balconies, instead of across the street as heretofore, &c. A tax of 6*s.* 8*d.* for every foundation was also levied for the surveyor. Rules and regulations were also laid down for paving and levelling the streets. Many other local acts followed for improving and beautifying the city. Sir John Evelyn's plan, as given in Maitland's History of London, would have greatly added to the beauty of the city.

From this time nothing of interest to the "builder" can be said to have taken place until 1703, when the metropolis was visited by a terrible tempest, which, lasting for eight hours, committed great devastation, destroying many spires and turrets, overturning houses, blowing down a vast number of trees and houses, and killing many people. The city was particularly afflicted by this visitation, scarcely a house escaping without damage, and the streets being literally filled with bricks, tiles, signs, bulks, and pent-houses, and many of the houses were wholly stripped of their roofs; some idea of the immense damage may be formed by the rise of tiles from one guinea to six pounds the thousand. The damage at sea exceeded that on land. Twelve men-of-war were lost, with above 800 men on board, and an immense number of merchant-ships, the Thames and sea-coasts being covered with wrecks. In 1709, in consequence of the vast increase of the city and suburbs, fifty new churches were ordered to be built, in or near the cities of London and Westminster, an additional duty of 2*s.* per chaldron being laid upon all coals and culm brought into the port of London for the space of 137 days, and 3*s.* per ton for eight years afterwards. By the Act 2 Geo. I, cap. 28, in consequence of many contentions having arisen among neighbours concerning rebuilding their houses within the city and liberties, it was ordained, that if any person refused or neglected to build his share of a party-wall after due notice was given him, his next neighbour may build it for him, and oblige the person so neglecting it to pay the charges of rebuilding it; and that the water falling from the tops of houses, &c., should be conveyed into channels or kennels by pipes in the front or sides of the houses, on pain of twenty pounds penalty. In 1734, the city of London was lighted by 1,000 lamps only, the contractors paying the city the sum of 600*l.* annually for lighting the same. Every householder paying poor's-rates being taxed 6*s.* per annum by the contractors, who were compelled to light only on dark nights till twelve o'clock from Michaelmas to Lady-day, excluding moonlight, or ten nights in every moon. In this year an alteration took place, a more equitable mode of lighting and taxing was imposed, and the number of lights were increased to 4,679. About this time the Fleet-ditch was covered in, and converted into a market. In 1738 the Mansion-house was built on the site of Stock's-markets, the first pile was driven at Westminster-bridge, and the foundations of the Foundling Hospital were laid. In 1747 a great fire happened in Cornhill, by which 100 houses were burnt down, which had the usual effect of improving the appearance of the city. In 1750 the city was visited by an earthquake, but without any damage being done; it was sensibly felt in the cities of London and Westminster, Highgate, Hampstead, Greenwich, Richmond, &c.

In 1739 London within the Bills of Mortality consisted of 5,099 streets and 95,968 houses; of which 42,676 houses were insured in the Hand-in-Hand Fire-office, at 9,231,400*l.*, and 7,852 in the Westminster Fire-office, at 2,059,121*l.* The rents of the houses at a medium within the city and suburbs were estimated at 26*l.* 2*s.* 11*d.* each, or 2,509,160*l.* 3*s.* 7*d.* for the whole.

Having thus noticed every matter of interest to the builder connected with the vicissitudes and progressive improvements of London up to the present time, we shall conclude with a few remarks on its present condition. London now stands pre-eminent among nations; its progress in architectural improvements since 1814 is acknowledged even by foreigners to be marvellous; and the piles of buildings meeting the eye at every turn in the West-end, are unerring testimonials of the increasing wealth of its inhabitants, comparatively little affected by an enormous taxation, the result of a long-protracted war. Its proudest edifices are the results of individual enterprise, unaided by the government; for though the latter affects rivalry, it cannot hope to surpass the numerous monuments of individual enterprise with which this great metropolis is adorned: its docks, bridges, canals, the colleges and hospitals, theatres, clubs, palaces, picture-galleries, breweries, distilleries, and other public works. The inhabitants walk with pleasure the carefully-paved and well-regulated streets by day, and the illuminated streets by night, secured from violence by a well-regulated police and an endless stream of wealth flowing in from all quarters of the globe, however unequally distributed, is still in some degree shared by all. "When," says the Marquis de Vermon "I reflect on the variegated scenes which hourly draw my notice; when I add to my own observation those of others, on whose judgment I can rely; when I gaze upon this mighty metropolis, so rapidly augmenting in size and grandeur; when I recollect the high moral and military character which your arms attained in the last war; when, extending my views to literary and scientific subjects, I find that while the Duke of Wellington triumphed in the field, Dr. Jenner and Sir H. Davy were immortalizing both themselves and Great Britain by discoveries for which they will receive the blessings of ages yet unborn; and that Crabb, Moore, Scott, and Byron, after raising the poetical fame of the country, still live, and still promise to carry higher the own and England's reputation; when I put all these contemporary circumstances together I am compelled, in spite of early prepossession to acknowledge that you are rapidly approac

* See vol. ii. page 528.

ing the goal of national greatness." Twenty years have passed since the above was written, and since then improvement has marched through the metropolis with giant strides, swelling her dimensions and multiplying her inhabitants, and still we appear as far as ever from the goal of our greatness. West, north, east, and south, we see London still stretching forth its thousand arms, swallowing up every villa in its environs, and compassing every obstacle which it cannot overcome; and railways, as so many main arteries, diverging on every side from the great seat of life, must and will give additional impetus to its trade and commerce, and contribute to swell out still further its extent and population. As the powers of the human mind become developed, as improvement keeps pace with invention, as wealth increases with the increase of our wants and requirements, so we find the sting of pestilence and disease lose its force. Time and space annihilated, and apparent impossibilities accomplished, we find the means of national, intellectual, and physical enjoyment awaiting our disposal.

In the midst of increasing prosperity and the almost universal pursuit of wealth by the shortest possible road, it is gratifying to find that in the rage for improvement, the poor are not quite forgotten; that the most considerate attention is being paid to the drainage and ventilation of this and other large cities, and the dwellings of the poor are not altogether overlooked: the new Buildings Act will go far to mitigate the sufferings of the labouring classes by disposing them in healthy and commodious dwellings, and ere long the exertions of philanthropy will go much further in removing those moral plague-spots wherein poverty and crime are necessarily associated, cursed with a tainted atmospbere and the society of each other. St. Giles's, once the impenetrable sanctuary for the Alsatian, the highwayman, and the street brawler, noted for its filth and squalid wretchedness, is gradually disappearing; but, unless timely means are taken, the evil is only removed to another quarter of the metropolis, not eradicated; it is therefore the bounden duty of the legislature to apply more effectual measures for enforcing cleanliness, ventilation, and drainage in all crowded places. Private benevolence may mitigate, but it cannot eradicate the evil. Baths and wash-houses will do much towards purifying these abodes of vice and wretchedness, education will do much more, but nothing permanent can be expected until the means of an honest living are placed at every man's disposal. Many means to attain ends so truly desirable are devised in the present day, but political quackery is too apt to usurp the seat of Christian benevolence, and the millions must still suffer on until property, under its various forms, awakens to a sense of its duties; then, indeed, London will have reached the goal of its greatness and prosperity.

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IMPROVED DWELLINGS FOR THE WORKING CLASSES IN EDINBURGH.

The public will be gratified to learn that the preliminary measures are in progress for calling a public meeting with the design of instituting a sanatory council, or association for the promotion of public health in our city. The state of the Old Town is now such that some vigorous effort is certainly necessary, in order to render it a more fitting residence for each of the middle and working classes as have their abode in it. There is a clamant need for particular for improved dwellings for the working classes, and, indeed, for an extension of the number of houses devoted to their accommodation, as it is found at present nearly impossible for a working man to obtain such a dwelling as he requires, and could well pay for. The first object now in view is to form a leading council of gentlemen competent to certain and judge of measures desirable for the public health, which they shall endeavour to promote by all means within their power. Amongst their duties will be that of dealing with private parties, individually, or joint-stock companies, who may be disposed to build houses for the working classes, on improved principles, giving to such parties the benefit of their authority and sanction, provided they follow the proper rules as to the local arrangement of their buildings, the needful accommodations, drainage, sewerage, and other requisites. It is conceived that speculations of this kind may obtain favour amongst capitalists, as it can be shewn that the required outlay may make a good return, even while tenants are better and more cheaply accommodated than at present, if only care be taken to keep up the character of the new buildings in moral and physical respects, which it is by no means beyond the power of prudent regulation to accomplish. The gentlemen, with whom this movement originates, contemplate both the erection of buildings in open suburban situations, and the substitution of improved dwellings for masses of the older and more ruinous parts of the city. In every case there will be due care taken to provide open-air spaces for the recreation of children, apart from contaminating street influences; general accommodation for washing may also be furnished, if, upon due deliberation, thought advisable; ventilation, the supply of water, and arrangements for the removal of all kinds of refuse, will be special objects; in short, while no extravagant views of any kind are entertained, it is believed, that, by good practical arrangements, and working upon a large instead of a narrow scale, the working classes may be supplied with domestic accommodations, comprehending a large amount of comfort, favourable to, instead of destructive of health; and lastly, but not least, promotive of their moral interests, seeing that a home which we can love and delight in is, by universal acknowledgment, the first requisite to the virtues.—*Scotsman.*

Obituary.

THE LATE ALFRED BARTHOLOMEW, ESQ., F.S.A.

In accordance with the promise contained in our last number, we now proceed to lay before our readers some notice of the life and works of this gentleman, whose death took place on the 2nd day of the present month, in the midst of a career of usefulness, and at the very time that a life of untiring zeal, self-denial, and study, had apparently placed within his grasp, at no distant period, complete success in this world; which, however, it has pleased the all-wise Arbiter of our fates he should never enjoy.

Mr. Bartholomew was born in London on the 28th of March, 1801, and although he had acquired at school only that moderate degree of education which usually falls to the lot of those amongst the middle ranks of society who are not destined for one of the learned professions, his early-developed devotion to geometry and science in general determined his father to bring him up to the profession of an architect, and he was therefore articled to Mr. J. H. Good, then of Hatton Garden (a former pupil of Sir John Soane), now the surveyor to some of her Majesty's palaces, and to the Commissioners for Building New Churches, &c.

Mr. Bartholomew's destiny being thus fixed, he applied himself to the study of his profession, as well as to other congenial pursuits, with all the energy that was inseparable from his character: up early in the morning during his pupilage, he employed himself in carefully measuring and delineating, amongst other buildings, the most beautiful parts of the Bank of England, with a reverence for Soane, to whom, by his connection with Mr. Good, he seemed in some sort to claim kindred.

Perspective, whilst he was under articles, received, as it always should do, the careful study of the aspirant; and having in this respect acquired the requisite proficiency, he was called upon to communicate it to the younger branches of a noble family, where he received the first pecuniary gratification that resulted to him from the studies to which he had devoted himself.

Architecture, however, although apparently the *all-absorbing* subject, did not entirely engross him; amidst an attention to it which appeared to be undivided, he yet found time for the acquisition of several languages, and compiled, unknown to any, a new version of the Psalms, which was published in the year 1831, under the title of "Sacred Lyrics, being an attempt to render the psalms of David more applicable to parochial psalmody."

This work, a labour of love, contains strains of the sweetest character, and occasionally the sublime pathos of the original appears through its English dress with a force and beauty but little diminished (and this is saying *much*) by the change into our own language; and although containing some inequalities, yet, on the whole, as far exceeds the general tameness of Nicholas Brady and Nahum Tate as their version stood above the antiquated dulness of Sternhold and Hopkins. Still, and though warmly praised by nearly the whole bench of bishops, in complimentary letters to the author, it has yet made no way in public use.

After the publication of the Psalms, Mr. Bartholomew's literary labours appear to have been more peculiarly devoted to his profession, and particularly to recording from time to time the thoughts ultimately embodied by him in his "Specifications for Practical Architecture," which work, displaying, as it does, some singularities and blemishes, perhaps the too common accompaniment of genius, may be studied with advantage by every member of the profession, and is calculated to effect much good. It cannot fail to become a standard book.

Besides the "Specifications," Mr. Bartholomew is the author of "Hints relative to the Construction of Fire-proof Buildings" (very favourably reviewed in the *Gentleman's Magazine*), and of various fugitive papers that have from time to time appeared before the public, as well of a professional as of a non-professional character. He has left uncompleted numerous sketches of a miscellaneous nature, full of ability, but not fitted for publication. His leading articles as editor of this journal during the past year are before the public, and have received favourable judgment, as evinced by the increased circulation of the periodical during his connection with it.

Amongst the most prominent objects of Mr. Bartholomew's thoughts was Gothic Architecture, in the study of which he was enthusiastic; and hence in a great measure (prompted by his veneration for those itinerant architects, to whose genius we owe the magnificence and beauty of our Gothic cathedrals) arose his zeal in favour of the society known as "Freemasons of the Church, for the recovery, maintenance, and furtherance of the true principles and practice of architecture," which was commenced by him.

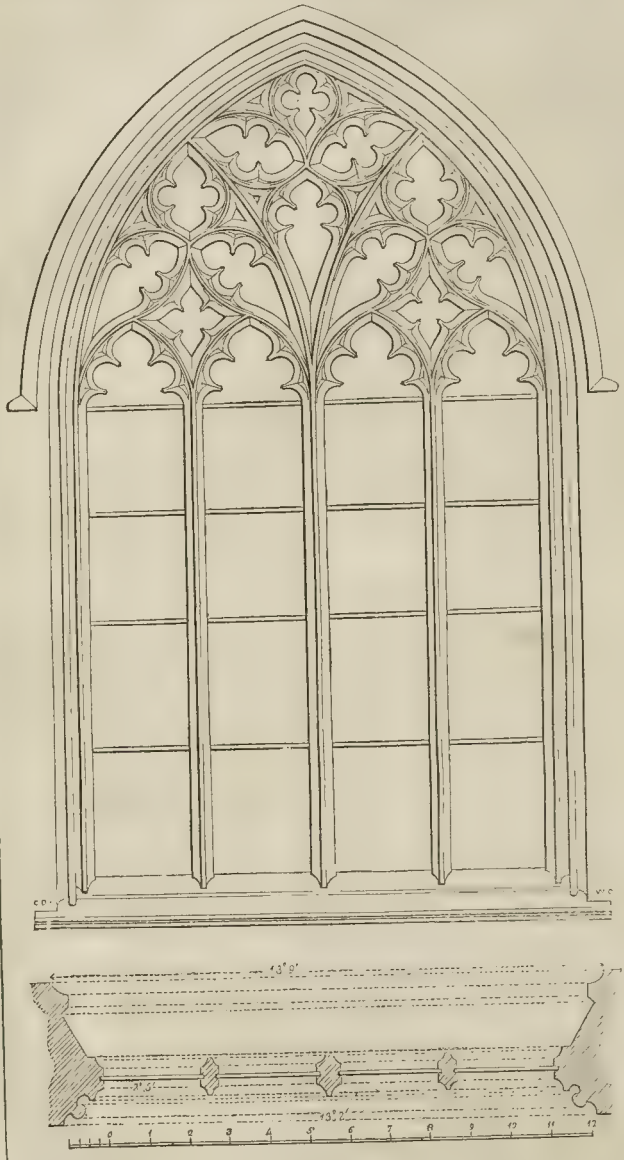
Few men are better acquainted than he was with either the old or the new Building Act, and with regard to the latter, he had frequent correspondence with the Earl of Lincoln whilst it was being framed and carried through Parliament; his last work was to correct the proofs of his "Cyclopædia of the New Metropolitan Building Act," upon which he bestowed the utmost labour and attention. His canvass for the district surveyorship of Hornsey, to which he was elected by a very large majority only a few weeks ago, appears to have brought upon him an attack of rheumatic gout and fever, but through this his physicians fully expected him to struggle; taking cold, however, bronchitis resulted, which unhappily proved but too fatal.

His brother, Mr. Valentine Bartholomew, holds the appointment of Flower Painter to her Majesty, and is well known as a most able artist in his particular department.

New Church at South Shields.—The foundation-stone of this church was laid by Robert Ingham, Esq., of Weston, on the 26th ult. It is arranged to receive a congregation of 800, and the plans have been so skilfully designed by Mr. Salvin, the architect, and the execution of the work by Mr. Alderson is to be of so substantial a character, that accommodation may be added for a larger number when required. The church is intended to be ready for divine service on the 1st of June next.—*Newcastle Journal.*

Keswick Church.—This church is about to undergo a general alteration and repair at the estimated cost of upwards of 3,000*l.*, which will be laid out for that purpose by a private gentleman, J. Stranger, Esq., of the Dovecot, Keswick. The same gentleman some time ago built a new school for the benefit of the town which cost upwards of 1,000*l.* In Keswick church-yard lie the remains of the late Dr. Southey, poet-laureate. —*Westmoreland Gazette.*

WINDOW IN AISLE, DUTCH CHURCH, AUSTIN FRIARS.



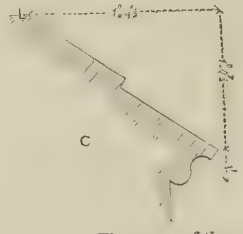
Plan of Window.

GOTHIC DETAILS FROM THE DUTCH CHURCH, AUSTIN FRIARS.

In the second volume of The Builder, at page 6 and page 348, there is a general account of the Dutch Church in Austin Friars, so far as relates to its history, with views of the west end and interior. It is a part of the ancient Priory of St. Augustine, the chief residence of the friars of that order in England,* whence the name of the place. After the dissolution of the monastic orders, the Priory of St. Augustine fell into various hands: the west end of the conventual church was granted for the use of the Germans and other fugitive Protestants, and the remainder was appropriated to meaner purposes. The steeple was standing in the year 1609, and seems to have been held in great esteem, if we may judge from the words of a memorial from the lord mayor and citizens, praying the Marquis of Winchester, the owner, to repair it.† The memorial said: "The fall of it, which without speedy prevention is near at hand, must needs bring with it not only a great deformitie to the whole city, it being for architecture one of the beautifullest and rarest spectacles thereof, but also a fearful eminent danger to all the inhabitants next adjoining." Fifty or sixty pounds, it was shewn, would have preserved the structure, but the request was refused, and as the citizens had not the spirit to repair it themselves, the steeple was demolished.

The present church is a spacious structure divided into three compartments (nave and aisles) by two ranges of pillars and pointed arches, as stated more at length in page 348, and is lighted by a series of large windows on each side: one of which, and they are all alike, is represented by the accompanying plan, elevation, and sections, carefully measured and drawn by Mr. Caveler. A is a section of the reveal, B of the label-moulding, and C of the cill. The tracery of the window is not uncommon in works of the 14th century; one example may be seen in Worstead Church, Norfolk, figured in the "Oxford Glossary."





In the following number we shall give similar drawings of the large west window. We propose to refer hereafter to these and other details (which we shall furnish from time to time) in illustration of a connected series of papers on the history of Gothic architecture and the characteristics of works of different periods.

TABLE OF CREDENCE.

The credence was a small table by the side of the altar on which the bread and wine were placed before consecration. There is a good specimen in the church of St. Cross, near Winchester. Sometimes its place was supplied by a shelf in the niche above the piscina. In reply to a correspondent, who inquires the origin of the term, we give the following:—

It was once the office of a servant called the prægustator, to taste every dish before it was placed on the dinner-table, in order both that the cookery might be tested, and all fear of poison removed from the guests. (See "Facciolati's Lexicon,"—Prægustator.) He who did this was said by the Italians *far 'la credenza*, and thus credenza or credentia, came in time to mean the side table on which this process was performed, and afterwards was applied to any side table, such as were those on which the elements were placed previous to their being carried to the altar. (See Ducange, ver. "Credentia.")

* Founded by Humfrey de Bohun, Earl of Hereford and Essex, 1252, and re-edified in the year 1351, by his descendant of the same name.

† The previous Marquis of Winchester built a mansion on the site of the monastery called Winchester-place. In Winchester-street there are still many of the overhanging houses with gables towards the road, which were at one time general, but are now hardly to be found in London.

MR. COCKERELL'S LECTURES ON ARCHITECTURE.

On Thursday, the 9th instant, Professor Cockerell delivered the introductory lecture of his course on Architecture at the Royal Academy. He pointed out the insufficiency of six lectures to convey any adequate knowledge of the principles of architecture, and that all the professor could do was to give the proper bent to the studies of his hearers. Himself risen from the ranks of the profession, he could better enforce the dictum of Vitruvius, that it was the union of theory and practice which made the skilful architect. He strongly urged the importance of present studies, for which every encouragement and great facilities were afforded by the Institute of British Architects, and by the courses at King's College and the London University.

There was a distinction between genius and taste; one was the gift of Nature, but taste was to be acquired by learning and by examination of the history of past times. The lecturer was limited to uphold the authority of former times. The difficulty to define taste was great, yet all men would confess ignorance, but never want of taste. It had been perhaps best explained as "that sensitive rectitude or refinement of judgment which we call taste." Genius was essential to success in the arts, but taste, or learning, was demanded of the architect, and it did seem that a certain respect for the practice of former times was desirable and necessary in him. There was great contention in the present day about styles; one cried out for something suited to the climate, another for a style nurtured in the country. The Germans, who had not long ago emerged from semi-barbarism, had sought in the stories of Wodin for a mythology to supplant the old; but the respect of ages was not yet to be set at naught, and the love of classic art would again prevail, let present opinion say what it would. In architecture, learning was essential, and the only safe course was, not by acting counter to, but in the spirit of those rules which ages had registered. The art was built on the accumulated evidence of former times; that calculated to satisfy the future must be founded upon the preceding. Pope had well said:—

"When first young Maro, in his boundless mind,
A work to outlast immortal Rome design'd,
Perhaps he seem'd above the critic's law,
And but from Nature's fountains scorned to draw:
But when to examine every part he came,
Nature and Homer were, he found, the same.
Convinced, amazed, he checks the bold design,
And rules as strict his labour'd work confine,
As if the Stagyrite o'erlooked each line.
Learn hence for ancient rules a just esteem,—
To copy nature is to copy them."

In the present day all styles were in request; the scholar desired to be reminded in his residence of the people the first in learning and in art; the titled possessor of broad lands erected the donjon keep in the pride of feudal times: each class had its particular association. The absurd turns which style had taken in our own recollection, were almost beyond our own powers of belief. The accident that made Sir Wm. Chambers a supercargo, first gave us the Chinese style; the work of Denon flooded us with the Egyptian; had Algiers or Mogador presented the least thing available, our neighbours, more susceptible than we are, would have taken it up. Fashion would have its day; it warped our taste; and the architect's only proper course was to have his buildings constructed upon permanent principles, recurring to history, and regardless of the fashion of the day. Pope said:—

"Something there is more needful than expense,
And something previous e'en to taste—'tis sense;
Good sense, which only is the gift of Heaven,
And, though no science, fairly worth the seven."

The efforts of professors were now more than ever necessary, as, without unwarrantable complaining, it must be said that the present state of taste was bad. He considered so from the absence of all originality, the complete indifference of the public to style, and the indiscriminate practice of all styles. Competition, in which the old and young were mixed up together, was also injurious to the interests of art. The art likewise suffered greatly from the undue influence of engineers, who were entirely utilitarian in art, caring nothing for taste, and absolutely riding over the architect. The beautiful balustrade of a bridge had been swept away entire by an engineer, and replaced with an unsightly wall, and *without a remonstrance*. The buildings of our greatest architect did not escape. Nevertheless, there was all to hope from the future, and Barry's prediction might be held as true, that "he had lived a hundred years too soon." Great works *had* been impossible, and in one "glorious" war was spent as much as would have raised 800 public buildings. Royal patronage had done every thing for art abroad; it would be seen what public patronage could do in England, and it behoved the students to employ their time in such manner as to benefit the art.

The lecture concluded shortly after nine o'clock, amidst the general applause of an attentive audience. We did not notice many of our older professional brethren amongst the professor's auditors; we trust they will attend his succeeding lectures, as their presence is a compliment which his services merit.

* *

New Books.

Old England. Edited and Published by Chas. Knight. London, 1844. Vol. I.

The first volume of this extraordinary work, which is literally what it professes to be, a pictorial museum of regal, ecclesiastical, baronial, municipal, and popular antiquities, is now completed, and includes the British period, Roman period, Anglo-Saxon period, and the period from the Norman conquest to the end of the reign of Richard III., A.D. 1485. It contains no less than 1,390 illustrations, twelve of which are illuminated engravings, folio size, for a sum which is so small, as to put the book within the reach of all classes. Unlike what were called cheap books formerly, it may be depended on too, and we again say, conscientiously, that it is an extraordinary work. Amongst the illuminated illustrations are views of the interior of the Temple Church, Edward the Confessor's Chapel, at Westminster, Henry the Seventh's Chapel, and the Oratory of the Beauchamp Chapel, Warwick.

The subjoined specimen of the wood engravings, representing the middle quadrangle of Hampton Court Palace, is not by any means one of the best, but was selected by us that we might remind our readers of the proximity of this interesting structure to the metropolis, and induce those who have not been there to visit it. The chapel, the great hall, and various offices, remain as they were built by Wolsey and King Henry VIII.

The collection of pictures is full of interest, especially as historical illustrations, and, to crown all, there are Raphael's cartoons for our study and admiration.



VIEW OF THE MIDDLE QUADRANGLE, HAMPTON COURT PALACE.

DRY ROT.

Damp is not only a cause of decay, but essential to it; while, on the other hand, absolute wet, especially at a low temperature, prevents it. This latter must be understood to imply more than the partial immersion to which log-rafts are usually subject; for that is a practice unquestionably injurious to the timber. Piling and planking under damp foundations, notwithstanding the incontrovertible instances which can be adduced of their long endurance, are practices decidedly bad; for the decay of the timber is little less than certain: the sinking of the superstructure must obviously keep pace with it, and the settlement being irregular, must produce fractures in the edifice. Again we say, if the wet is perfect, the result is otherwise. Old refuse-wood that has been lying about in timber yards, imbibing moisture from the earth, makes bad bearers for logs; for it is more or less decayed, and therefore infectious. To bed timbers in mortar, which is liable to continue long in a humid state, is bad; under such circumstances decay may be expected: to prevent this chance, it was enacted by the 19th Car. 2, cap. 3, that bond and plates, the ends of girders, &c., should be bedded in loam instead of mortar: it may be here remarked that sawn timbers are, in their sides, more subject to the influence of moisture than such as have been split; for, as the saw cuts through the fibres, the moisture is afforded more ready access; for this reason cleft pales are the most durable. Hasty finishing on damp walls delays drying, and must induce premature decay where timbers are confined: drying therefore should, in favourable weather, be accelerated by a free admission of air, and in the night by fires, but not too strong, for that would cause the wood-work to shrink and crack.

The confinement of timbers under most circumstances is attended with the worst consequences; yet a partial ventilation tends, as an able writer has expressed it, to "fan the flame" of decay, and hasten rather than prevent it: floors in general do not afford good facilities for ventilation, and are therefore very liable to decay: the joints of even well-ventilated framing frequently afford illustration of this; for when the timber has not been thoroughly seasoned, the moisture which there seeks escape, and (from the parts being neither perfectly close nor yet sufficiently open to allow dampness to evaporate) is confined, invariably induces decay. Timbering to basement floors, and in close cellars, is destroyed in a very short time.

Damp combined with warmth is, as a destroying agent, still more active than simple damp alone—the heat being understood as insufficient to carry off the moisture by evaporation; and the higher the temperature, with a corresponding degree of moisture, the more rapid the decay. The kind of composition produced in this way is called rot, and is of two kinds, distinguished as *wet rot* and *dry rot*: these proceed from the same primary causes, the difference between them being constituted by the disparity in the evaporation; where that is free, and disperses the gaseous products of the putrefaction, we have wet rot; where there is not a free circulation of pure atmospheric air, to absorb all the moisture and carry off these products, they combine in the formation of a parasitical fungus called *boletus lachrymans*, belonging to the botanical class *cryptogamia*, and thus we have dry rot: of this serious evil it is important to be well aware:—

Dry rot, externally, first makes its appearance as a mildew, or rather a delicate white vegetation, that looks like such. This stage of the disease, if not one more advanced, is almost invariably found to be arrived at in the American timber brought over to this country in the confined and heated holds of ships; its next step is a collecting together of the fibres of the vegetation into a more decided form, somewhat like hoar-frost; after which it speedily assumes the leathery, compact character of the fungus, forming into leaves, spreading rapidly in all directions and over all materials, and frequently ascending the walls to a considerable height, the colour variable—white, greyish white, and violet, light or decided brown, &c. To give a forcible idea of the serious extent to which this disease will attain when once it takes root and is left unarrested, we shall collect some scattered cases. In the memoirs of Pepys, who was secretary to the Admiralty during the reigns of Charles II. and James II., reference is made to a commission which was appointed to inquire into the state of the navy, and from which it appears that thirty ships, called new ships, "for want of proper care and attention, had toadstools growing in their holds as big as one's fists, and were in so complete a state of decay, that some of the planks had dropped from their sides." In the *European Magazine* for Dec., 1811, it is stated that, "about 1798, there was, at Woolwich, a ship in so bad a state, that the deck sunk with a man's weight, and the orange and brown-coloured fungi were hanging, in the shape of inverted cones, from deck to deck." In the *Transactions of the Society of Arts*, vol. xxi. p. 294, we find that "an oak barn floor, which had been laid twelve years, began to shake upon the joists, and, on examination, was found to be quite rotten in various parts; the planks, 2½ inches in thickness, were nearly eaten through, except the outside, which was glossy, and apparently without blemish. The rotten wood was partly in the state of an impalpable powder, of a snuff-colour, other parts were black, and the rest clearly fungus. No earth was near the wood."

In timber which has been only superficially seasoned, and the heartward sap of which has never been discharged, this disease is produced internally, and has been known to convert the entire substance of a beam, excepting only the external inch or two of thickness to which the seasoning had penetrated, into a fine, white, and thread like vegetation, uniting in a thick fungous coat at the ends, the semblance being that of a perfectly sound beam, thus serving as a mask to mislead the inexperienced. In this internal rot, a spongy or fungous substance is formed between the fibres.

The first symptoms of rottenness in timber are swelling, discoloration, and mouldiness, accompanied with a musty smell; in its greater advance the fibres are found to shrink lengthways and break, presenting many deep fissures across the wood; the fibres crumble readily to a fine snuff-like powder, but retain, when undisturbed, much of their natural appearance.

The prevention of dry rot, or growth of fungus, has engaged the attention of scientific men for a very long period; and much floundering has there been in their meritorious endeavours towards accomplishing this desirable object. Some of the means tried, while calculated to prevent vegetation, were found to introduce evils as great as those they were intended to obviate; even now, although much has been achieved, it is to be feared it remains, in a great measure, a *vexata quæstio*. The most favourite theory has been that of impregnating the pores of the wood with some such substance as should arrest putrefaction, and materials have sometimes been introduced for this purpose which produced an effect just the opposite of what was anticipated. About 1670 a Mr. Jackson, with a view to the prevention of decay, obtained permission to prepare some timber to be used in the national yards, by immersing it in a solution of salt water, lime, muriate of soda, potash, Epsom salts, &c., the result of which dose was, that the vessels built with it were rendered more perishable than if they had been constructed of unprepared timber. Between 1768 and 1773, a practice prevailed of saturating the timbers of ships with common salt, but this was found to cause a rapid corrosion of the iron fastenings, and to fill the vessels between decks with a continual damp vapour. Subsequently, muridic, found in the mines in Devonshire, was employed, in a state of fusion, to eradicate present, and prevent future growth; but whether its efficacy was proved by time, we have not been able to ascertain.

Quick-lime, with damp, has been found to accelerate putrefaction; but when dry, and in such large quantity as to absorb all moisture from the wood, the latter is hardened and rendered durable; vessels long in the lime trade have afforded proof of this fact. White-wash or lime-water has been strongly recommended for use between the decks of ships, as being unfavourable to vegetation. Smoke-drying, oven-drying, scorching, and charring, have the effect of hardening wood, contributing to its durability, and preventing and destroying infection; but they may only be adopted with timber which has previously undergone a thorough seasoning. Steaming is also understood to prevent dry-rot. The piles supposed to have been driven by order of Julius Cæsar, when he forded the Thames at Cowey Stakes, near Shepperton, were charred; and when taken up some five-and-thirty years ago, were found in a complete state, free from decay. The incorruptibility of charcoal is well known, whether it be buried in the earth, exposed to the atmospheric action, or to that of water; the beams of the theatre of Herculaneum, which were reduced to that state by lava, were, after a period of nearly eighteen centuries, found to be perfect; the charred feet of posts which are put into the ground afford proof of its efficacy; the flag-ship, *Royal William*, at Spithead, built in 1719, the inner surface of the planks of which only were charred, was an example of great durability. Amongst other advantages, rats will not touch charcoal, neither will the white ants and cock-roaches, so common in the Indies, commit their depredations where charring has been employed.

But the methods which have most engrossed the public attention of late years are those respectively distinguished as Kyan's, Payne's, Burnett's, patents, &c. In the years 1833 to 1836, at the Arsenal, Woolwich, experiments were instituted, having for their object the establishing or otherwise the claims of that first mentioned, and the results of which were of a very satisfactory nature: the Kyanised specimens generally, which were submitted to the fungus-pit, when taken out at the end of three years, being sound, while duplicate pieces, unprepared, were found in various stages of decay. Certain questions, however, presented themselves:—1st, Whether the impregnation to which the timber had been subjected might not be removable by some cause, and perhaps generate an atmosphere noxious and injurious to health. 2nd, Whether the strength of the timber were impaired or otherwise. The first was satisfactorily determined by Dr. Faraday, who proved by experiment that the combination was not simply mechanical but chemical, and that a permanently compound material was formed; the second was solved by experiments made by Capt. Alderson, C.E., upon ash and Christiania deal, and which shewed that the rigidity of the timber was enhanced, but its strength in some measure impaired; its specific gravity being also somewhat diminished. Another question yet remains open:—how far, since the impregnation has not been traced to a depth greater than half an inch, does this process meet our requirements? and, after the satisfactory conclusion arrived at, as above related, and the evidence of the facts upon which it was so reasonably founded, how are we to meet the assertion of Mr. Pritchard, C.E., of Shoreham, made in 1842?—"The sleepers Kyanised five years ago, and in use at the W. I. Dock warehouses, have been discovered to decay rapidly; and the wooden tanks at the Anti-Dry-Rot Company's principal yard are decayed:" but more from this gentleman hereafter. Mr. Kyan's infusion is corrosive sublimate, and the process consists in submersing the timber in tanks for about a week, then taking it out and drying: Sir Humphey Davy had previously recommended a weak solution of the same thing, to be used as a wash where rot had made its appearance. Dr. Birkbeck made a favourable exposition of the process as pursued by Mr. Kyan; Sir John Barrow and the Duke of Portland impugn it; and Lord Manners and Dr. Moore follow on the same side. The Paynising process, besides professing to preserve timber from dry-rot and the ravages of insects, is said to render it uninflammable, or at least to deprive it in a great measure of combustibility.

James Wylson.

Altar-piece, St. James's Church, Bermondsey.—About seventy sketches, it is said, were submitted to the committee in reply to their advertisement. The successful competitor is Mr. John Wood, of Charlotte-street, Fitzroy-square. After the picture is painted, however, the premium will not be paid, unless referees, to be appointed, shall pronounce it worth the sum offered, 500*l*.

Statue of Prince Albert.—A committee of the most influential merchants of the city, in course of formation to erect by subscription a full-length marble statue of Prince Albert in the Royal Exchange, in commemoration of his having laid the first stone.

ON TIMBER SCAFFOLDING FOR BUILDINGS.

By Thomas Grissell, Assoc. Inst., C.E.

From the Proceedings of the Institution of Civil Engineers.)

In adopting the principle of timber scaffolding for buildings, in preference to poles and ropes, Messrs. Grissell and Peto, the contractors, were influenced by considerations of saving both time and expense. They had long been impressed with the want of scientific principle exhibited in the ordinary scaffolding, and were more readily induced to turn their attention to that now referred to, which they believe to be an essential improvement, and calculated to be of considerable advantage to contractors on large works.

The author is well aware of the progress which has recently been made by the civil engineers and architects of this country, but he ventures to claim some share of merit for the practical builders, to whom is committed the execution of the works designed by the engineer and architect; and when a review is taken of the stupendous public works which have been executed within the last few years, it is evident, that without the exercise of great skill, and the introduction of new modes of reducing labour, the amount of work could not have been executed within the time.

The necessity for this reduction of labour on large works had been long felt in the north, and methods had been adopted in consequence, to emulate which, this timber scaffolding was introduced to London. The system had been employed, in rather a rude form, by Mr. Tomkinson of Liverpool, in his quarries and stone yards, for moving stones of large dimensions. Scaffolding of a somewhat similar kind was used in the erection of the Arc de Triomphe, Barrière de l'Etoile, and at the Eglise de la Madeleine, at Paris.*

The first time it was used by the author's firm was for the erection of the Reform Club-house (Pall Mall), under Mr. Barry, in 1838; then at the large graving-dock at her Majesty's Dock-yard, Woolwich, under Mr. Walker (Pres. Inst. C. E.), in 1839; and it is now employed very extensively at the New Houses of Parliament. In these constructions its general applicability was proved, and in the erection of the Nelson Column (commenced in 1840), where it was carried up to the height of 180 feet, its stability at a considerable elevation was fully tested. Its usefulness is manifested by the facilities which it affords to the workmen, particularly in buildings of stone. By its aid, and with the travelling machine at its summit, one mason, or 'setter', can set as much work in one day, as was formerly done in three days; whilst at least six labourers are dispensed with, who, with the old mode of scaffolding, were always required to be in attendance. It is also well known that scaffolding poles and cords are not only expensive, but are subject to rapid decay, and after a few years' wear become useless; in fact, the scaffolding of a moderately extensive building costs a large sum when first purchased, but it is almost valueless after a comparatively short period of time. Such is not the case with the timber scaffolding, which may be said to be of no greater cost to the contractor than the expense of its erection, which will not exceed in any ordinary case three-pence per foot cube. It is not secured together by either bolts or spikes, so that the waste is trifling; and after having performed its duty as a scaffold, it may be removed piecemeal into the building, at the level of each floor, and be used directly for constructing the roof and the internal carpentry of the structure. The timber having become seasoned by its exposure to the weather, is consequently better fitted for immediate use.

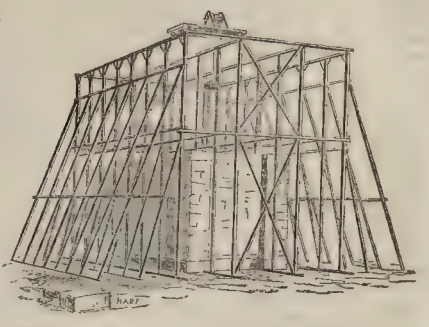
These advantages have been proved in the buildings which have been mentioned, and over an experience of more than five years, the author strongly recommends the adoption of the system. He also advises its use in moving and working large stones, either for permanent erections, or in masons' yards. If used on a wharf the rent would soon be saved in labour, and by allowing the stage to project 8 feet or 10 feet over the river, the scaffolding would be found to answer the purpose of a crane.

The scaffolding at the Nelson Column, designed by Mr. Allen, under whose direction the work was executed, was composed of sills, uprights, cross-heads, longitudinal timbers, braces, and struts, which were used whole, without sawing; the upright timbers were slightly tenoned into the horizontal timbers, and the junctions were secured by iron dogs driven into the timber diagonally across the joints. This mode was preferred to bolts or spikes, on account of the ease with which they could be withdrawn, and because the timber was not injured. The base of the scaffold was 96 feet square, exclusive of the raking-braces; the height of each stage varied from 48 feet to 21 feet, upwards; and the total height was about 180 feet. The total amount of timber in the scaffold was 154 loads, or 7,700 cubic feet, and the cost of its erection was 240*l.*

Its stability was secured, at the height to which it was carried, by using flying windbraces, supported upon cross transoms, running outwards about 6 feet beyond the perpendicular of the scaffold at each stage.

Mr. Nicholson remarked, that a scaffolding of a similar description was used in 1837 by Messrs. Cubitt (Gray's-inn-road), for erecting the entrance gateway of the London and Birmingham Railway (Euston-square).† It was composed of two parallel rows of whole timber uprights, 50 feet high and 17 feet apart, surrounding the building (Fig. 1); these were well stayed by diagonal braces, and a tramway was formed on the top of each row, by horizontal sill pieces, bolted down and secured by plates. The building work was executed by the aid of travelling carriages upon the tramways, and when the masonry had reached the height of the first scaffold, a second series of uprights and sills was added, making the total height 90 feet, which enabled the work to be completed without an accident.

Fig. 1.



Scaffolding used for building the entrance of the Euston Square Station of the London and Birmingham Railway.

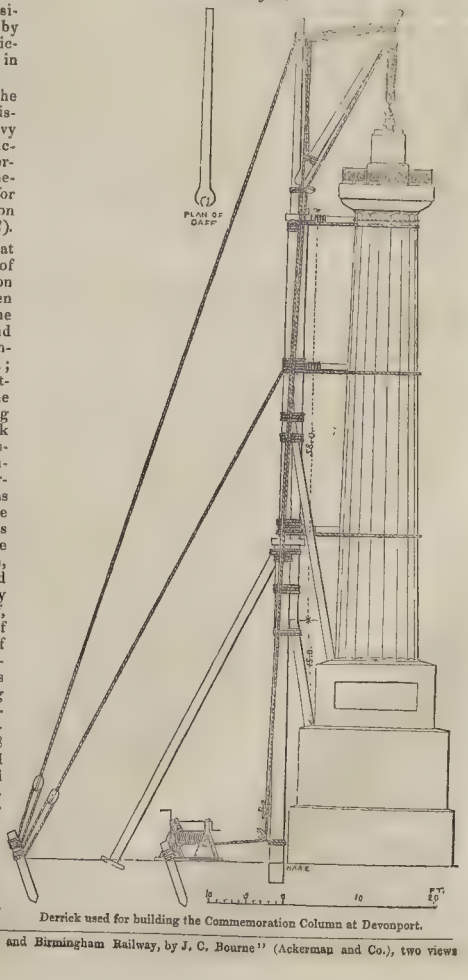
Mr. Harrison believed, that a scaffolding of a somewhat similar construction was used by Messrs. Rennie, at the Victualling-yard at Plymouth, in 1826.

Mr. Rennie said, that the scaffolding employed for raising the statue and other heavy parts of the work, at the Victualling-yard, was on the derrick principle, and was somewhat similar to that used for erecting the Commemoration Column at Devonport (Fig. 2).

Mr. Grissell stated, that when writing the account of the scaffolding at the Nelson Column, that which had been used by Messrs. Cubitt, at the entrance of the London and Birmingham Railway, had entirely escaped his recollection; he now remembered it perfectly, and was happy to have the opportunity of acknowledging that fact. He could not speak too highly in praise of the system, and he thought its advantages had, as yet, been underrated. The waste of timber was comparatively nothing; while serving as scaffolding it was becoming seasoned, and like that at the Nelson Column, could be immediately worked up, in situations demanding dry timber. The cost was one-half, and sometimes one-third, of the ordinary kind of scaffold, if the loss by the rotting and destruction of poles and cords was taken into account. The saving of labour in raising the materials was very great, particularly where weights of from 8 tons to 14 tons were required to be lifted. If steam power had been used at the Nelson Column, a still greater saving would have been effected.

Another considerable advantage was the freedom from danger to the workmen; during five years, in all the works where he had used this kind of

Fig. 2.



Derrick used for building the Commemoration Column at Devonport.

* The square timber scaffolding was employed by Domenic Fontana, in 1586, for the erection of the Egyptian Obelisk in front of St. Peter's at Rome. The means employed in that work are shewn in detail, in engravings, dated 1586, in the possession of Mr. Allen, at the New Houses of Parliament, and they are described with many other methods of using square timber scaffolding for external and internal construction, as in the "Contignationes, ac pontes Nicolai Zabaglia ... cum quibusdam ingeniosis praxibus, ac descriptione translationis obelisci Vaticani, aliorumque, per Equitem Dominicum Fontana susceptæ. Romæ, 1743."

† In the "Drawings of the London and Birmingham Railway, by J. C. Bourne" (Ackerman and Co.), two views are given of this scaffolding.

scaffolding, only one man had been killed. That accident occurred at the Woolwich Graving Dock, when a man was thrown from the travelling carriage by the handle of the winch striking him, from his having omitted to put on the break.

He believed, that this description of scaffolding might be safely carried still higher than at the Nelson Column, for although before the statue was hoisted, he had felt somewhat anxious, and had thought of attaching guide chains, and using other precautions, the fabric had stood so well, that he should not now hesitate to go to a greater height, relying upon the scaffolding alone.

Mr. C. H. Smith had adopted the system of the travelling winch on a framing, with great advantage in his carving room, for moving the heavy blocks of stone, from which the capitals of the columns for the Royal Exchange were cut. Without such mechanical assistance, he could never have executed his task within the required time, nor could the capitals have been raised and placed on the carriages, to be conveyed away, without much danger of injury.

Mr. Giles said, that Corby Bridge, over the Eden, on the line of the Newcastle and Carlisle Railway, was built by Mr. Denton, the contractor, by means of whole timber scaffolding put together in three stages. The bridge consisted of five arches, of 80 feet span each, 100 feet in height, and contained 400,000 feet of stone-work, which was executed with the greatest facility, chiefly owing to the convenience afforded by the scaffolding, and without any accident, excepting to the foreman, who fell twice from a considerable height, but fortunately was not killed.

Mr. Fowler said, that the scaffolding at the Cathedral at Cologne was of whole timber; there was little doubt, that the system was very similar to that which was employed when the building was commenced, in 1248. The crane which was used in raising the materials still remained on the summit of one of the towers; it was once removed, but was speedily restored to its situation, as the superstitious fears of the inhabitants of Cologne were excited by the occurrence of a storm immediately consequent upon the removal of the crane. It had subsequently been constantly repaired as it decayed, so that at present little of the original remained, but the form was still the same. He believed, that the materials for the York Column (Carlton-terrace) were raised by a kind of travelling carriage, on the top of the scaffolding.

Mr. Hawkins observed, that the scaffolds used at Vienna, for the erection of any building of importance, were always constructed of whole timbers, secured together by 'dogs.' In 1827 he superintended the erection of an extensive sugar-house at Vienna, where such scaffolding was used.

Mr. Coltburst stated, that at Devonport there was a column built of granite from Holman's Hill Quarry, near the Tamar. The shaft was 11 feet in diameter; its height, from the bottom of the shaft to the top of the capital was 65 feet 4 inches. The total height of the column, with its inferior and crowning pedestals, was 101 feet 4 inches. Its height above the street, including the rock on which it stood, was 124 feet. The abacus of the capital was composed of four stones, each weighing between 3 and 4 tons.*

The stones of the column were raised and set, entirely without the use of scaffolding, by means of a series of tall spars joined together (Fig. 2); the lowest, being fixed into the ground and braced by diagonal pieces, was inshed and strutted to the lower part of the shaft. A gaff, with a jaw at the lower end, was then slung in the throat by a strong rope or chain, so as to work round the upright spar, in the jaw prepared for this movement; from the end of the gaff, blocks and a fall were suspended, in such a manner as to command every part of the work, by raising or depressing the point of the gaff, to increase or diminish its range. Crab winches sufficed to raise the stones; and it was stated that the work was executed in a very short time.

Mr. Rendel had seen this column while in course of construction; the derrick appeared to act well, and it was certainly a cheap mode of raising the materials.

* Vide "The Public Buidings erected in the West of England;" by John Foulston. 4to. 1838, pp. 57 and 69.

Mr. Smith said, that in a recent visit to Liverpool, he had observed an ingenious mode adopted by Mr. Tomkinson for raising building materials, which almost superseded the use of external scaffolding. It consisted of a very high double "derick" placed upon wheels running on a tramway laid parallel with the walls of the building; the head of the derrick curved over towards the wall, and steam power was employed for raising the materials, which appeared to be accomplished with rapidity.

The president remarked, that the institution always viewed with pleasure papers descriptive of the methods adopted by contractors in the execution of works designed by civil engineers or architects. The profession was much indebted to the practical skill and intelligence of the contractors, and it would be extremely interesting to find recorded in the "Minutes of Proceedings" of the institution the names of the inventors, and the dates of the introduction of such ingenious modes of accomplishing works of magnitude as had been described by Messrs. Grissell and Peto. This could only be arrived at by either the engineers or contractors sending the necessary information, or by their giving it during the discussions at the meetings.

General Pasley described the method adopted by Mr. T. Slacks (Langholm), for building the obelisk which was erected on the Whitaw, Eskdale, to the memory of the late Major-General Sir John Malcolm, a native of that district.*

The obelisk, which was of white sand-stone, was carried up to the height of 100 feet above the foundation; it was built hollow, with thorough courses at intervals; through the centre of each of these courses was left a circular hole. In the lower of these holes was placed the foot of a pole 40 feet long and 10 inches diameter; the next hole above served as a stay, whilst the upper one supported the whole weight, as around the poles was firmly fixed a collar of hard wood. Beneath this collar 17 metal balls, 3½ inches in diameter, were introduced, which, running in corresponding circular grooves in the collar and the thorough course, enabled the pole to revolve easily. Across the top of the pole was mortised a beam 12 feet long and 12 inches square, in the form of the letter T, and it was strengthened by diagonal iron braces and straps. By means of a crab winch with a rope passing over pulleys in each end of the transverse beam, the stones, were raised to the requisite height, and by a traversing carriage on the beam, a small crab, and the pulleys, the stone was enabled to run inwards to the spot for laying it. The crane was raised as each bond or thorough course was fixed, and the time consumed in the operation of moving it did not exceed two hours.

This crane had been found very efficient, and had greatly reduced the cost of building the obelisk, which was completed in less than twelve months. For the ingenuity displayed in this simple modification of the balance crane used by Mr. Stevenson, at the Bell Rock Lighthouse, and for a clever hanging scaffolding used for completing the pyramidal top of the obelisk, the gold Isis medal was voted to Mr. Slack, by the Society of Arts, in 1836-7.

A model was exhibited of a moveable derrick crane (Fig. 3), which had been presented by Mr. Howkins. It was used by Mr. Wightman at the works of the Granton Pier, Edinburgh, and was stated by him to be very superior to any other kind of crane. It consisted of a vertical post, supported by two timber backstays, and a long moveable jib, or derrick, which was hinged against the post, below the gearing; this jib was held by a chain, passing from a barrel over a pulley at the top of the post, in such a manner that the extreme end of the jib could be raised almost vertically, or be lowered nearly to a horizontal position.

Fig. 3.



Derrick crane used at Granton Pier (Edinburgh).

The chief advantage it possessed over the old gibbet crane, was, that it commanded concentric circles of from 10 feet to 60 feet radius, which was of great use in large works, as it could extend its sweep over a circle of 120 feet diameter, without being moved from its position; whereas, the old gibbet crane commanded only one circle of comparatively limited extent, and in moving it, as the works proceeded, there was a considerable loss of time.

Mr. Bremner stated, that he had seen the crane at Granton Pier; it was a very useful machine, and the only fault he could find with it, was, that in an exposed situation, there was a risk of the wheel-work being destroyed. He believed, that the contractors had found much advantage from its use.

Mr. Bremner had used, at the works of Lossiemouth Harbour, a crane of a somewhat similar description. The jib was composed of two spars, with the hoisting-chain working between them; the radius of its sweep was 60 feet, so that any spot, within a circle of 120 feet in diameter, was fully commanded by it, and that extent of work could be completed without moving the crane.

Mr. Gale presented two drawings of improved moveable jib-cranes, the alterations in which had been suggested by the serious accidents which had occurred from the failure of the ordinary cranes.

On investigating the circumstances connected with these accidents, he found that in general they had arisen from the snapping of the jib-chain. After numerous experiments, it occurred to him that this defect might be obviated by attaching the jib-chain to the top of the post, instead of fixing it to the end of the jib: this alteration was productive of great

* Vide Trans. Soc. Arts, 1836-7, vol. li., page 78.

advantage; the strain was found to be less than one-half that of the single jib-crane, and it consequently required fewer men to work it.

He had also applied a rope instead of a chain for working the jib, as it was preferred by some builders, and he had also made some minor improvements in the other parts of the cranes.

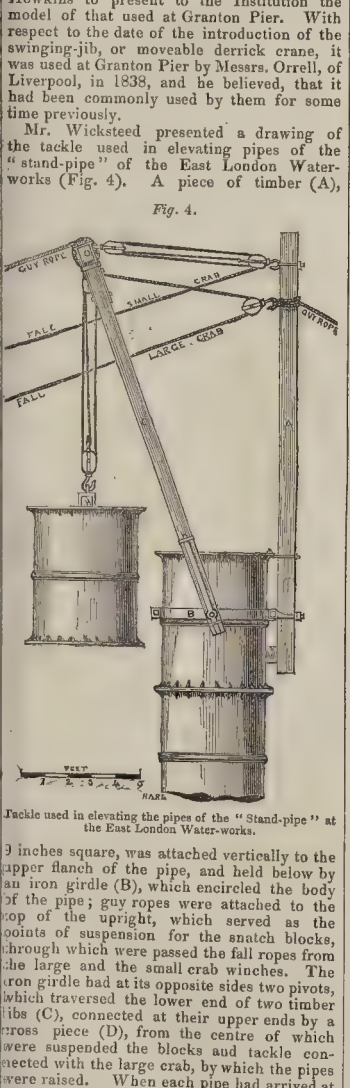
These kind of cranes were, he believed, introduced by Mr. W. York, at Glasgow, in the year 1833, and Mr. Gale had used the improved sort in 1842, at the erection of the New Court Houses, Glasgow. Since that time many builders had adopted them, and their advantages were becoming daily so evident, that he would send, early in the ensuing session, a paper descriptive of them.

Mr. Thomson believed, that cranes of this description were first used at Glasgow by builders. The contractor for the Grangemouth Docks, under Sir John Macneil, employed them in 1841 and 1842 with much advantage; he thought them the most useful kind of cranes for general work.

The President agreed in the opinion of the general utility of the cranes; he had been so pleased with them, that he requested Mr. Howkins to present to the Institution the model of that used at Granton Pier. With respect to the date of the introduction of the swinging-jib, or moveable derrick crane, it was used at Granton Pier by Messrs. Orrell, of Liverpool, in 1838, and he believed, that it had been commonly used by them for some time previously.

Mr. Wicksteed presented a drawing of the tackle used in elevating pipes of the "stand-pipe" of the East London Waterworks (Fig. 4). A piece of timber (A),

Fig. 4.



Tackle used in elevating the pipes of the "Stand-pipe" at the East London Water-works.

9 inches square, was attached vertically to the upper flanch of the pipe, and held below by an iron girdle (B), which encircled the body of the pipe; guy ropes were attached to the top of the upright, which served as the points of suspension for the snatch blocks, through which were passed the fall ropes from the large and the small crab winches. The iron girdle had at its opposite sides two pivots, which traversed the lower end of two timber ribs (C), connected at their upper ends by a cross piece (D), from the centre of which were suspended the blocks and tackle connected with the large crab, by which the pipes were raised. When each pipe had arrived at its height, the jib frame was drawn up vertically by the tackle from the small crab, and the pipe was lowered to its position; the pins were put into the flanches, and the whole apparatus was raised and attached to it, in order to use it for raising the next pipe. This process was repeated until the stand-pipe was finished at a height of upwards of 130 feet. It was stated to be a very simple and economical mode of proceeding.

Correspondence.

TUBULAR CHIMNEY-FLUES.

SIR,—Observing in THE BUILDER a controversy respecting tubular chimney-flues, I beg to acquaint you that tubular chimney-flues were introduced here at Abbotsford, by John and Thomas Smith, of Darnick, in the year 1822, and I never saw or heard of them before that time.

Their flues were in pieces of 12 inches high, and from 9 to 15 inches diameter inside. They were made of a mixture of fine clay and common clay, about 1¼ inch thick. To form the inflections, they were made a little off the square on one end, so that when put together, they formed a curve.

Since that time these flues have been very much used in this neighbourhood.—I am, Sir, your most obedient servant,

A CONSTANT READER.

Melrose, 10th January, 1845.

THE WINDOW-TAX.

SIR,—I have just made a Venetian window of three lights, divided by two 1¼ inch mullions, for which the opening between the outside brickwork of the whole window is 4 feet 9 inches. The boxings are placed in the usual way in the reveals, and the window frame is seen on the inside, and makes the window there, including the frame, more than 5 feet 6 inches wide. The height of the whole frame, including head and cill, is 7 feet 6 inches.

Is such a window liable to be charged as a *double* light under the Window-tax Acts? And if so, *why?*—Your answer will oblige,

A JOINER.

Oswestry, Jan. 13, 1845.

[Windows above 4 feet 9 inches in width between the reveals, are charged as double lights; except in shops, workshops, and warehouses, or in the public room of any house licensed to sell liquors by retail or in farmhouses especially exempted from the duties on houses.—ED.]

BLISTERS IN LIME.

SIR,—May I beg the favour of inserting the following in your excellent journal, THE BUILDER:—

I shall be obliged by any one of your readers informing me whether a lime which is subject to blister and crack can by any means be prepared or mixed with any other material so as to prevent such mishaps.—Your most obedient servant,

W. S. S.

[Is the lime in question properly prepared? Blisters usually result from the lime not being thoroughly slaked before it is used. Some limes crack in drying, when slaked with too much water. They cannot combine with the fluid, and when this is withdrawn by evaporation, shrinkage takes place.—ED.]

MODEL (?) HOUSES, PENTONVILLE.

SIR,—The public is much indebted to you for your comments on the so-called model houses in the Bagnigge-wells-road. Pray do not relax in your efforts to effect an alteration in them. The present plan is perfectly preposterous.—Your obedient servant.

A MEMBER OF THE SOCIETY.

[We shall not fail to return to the subject shortly.—ED.]

ANOTHER FIRE FROM OVER-HEATED FLUE.—On Tuesday night, shortly after 10 o'clock, police constable Reeve, perceiving smoke issuing from the lower part of the extensive premises in the occupation of W. Thomas and Brothers, 128 and 129, Cheapside, gave an immediate alarm to the engine station at Watling-street. Mr. Braidwood and two engines from that establishment were soon upon the spot, and upon an entrance being effected, it was discovered that the flue of the apparatus for warming the premises had been over-heated, and was communicating with the timbers of the flooring underneath the shop. The discovery was most opportune; as it is, however, considerable injury is done by smoke and water.

Miscellanea.

WAREHOUSING.—There is now a warehouse in the course of erection in Manchester which seems deserving of especial notice on account of its extent, as well as its mode of construction. It is the property of Messrs. Philips, and Co., the oldest, wealthiest, and certainly the most respectable firm within the borough. Its site is in Church-street, and adjoining their present large establishment. Its basement story is equal to that of Messrs. Watts, within a few superficial yards. The area of the various floors will be within a shade of a statute acre, whilst the entire concern would cover over two statute acres. The building is to be completely fire-proof; not an inch of timber will, it is said, be used in its construction. It is built of the best stock dressed brick, and instead of plastering the inner walls, the inside brick-work will be faced with dressed stock-brick, similar to the outside, with this difference, however, that the inside facing will be laid in Roman cement, thus making the inner walls impervious to damp—a great desideratum in a *haberdashery* concern like this. It is somewhat singular that the Messrs. Philips should have been the first to introduce fire-proof cotton-mills—the first, too, to introduce gas into a cotton-mill, which was effected in 1801-2, to a large extent, —and also to be the first to build a fire-proof warehouse, for the first it will be in Manchester, that has been erected for the sale of goods only.—*Doncaster Gazette.*

WILTON.—We understand that the internal decoration of the church building at Wilton, at the expense of the Hon. Sydney Herbert, M.P., is to be completed by Mr. Willement, in the style of the Temple church. We believe Mr. Boxall had been engaged upon it; but now decorative painting is to be preferred to designs of a higher character.—*Historical Register.*

MOVING BRICK HOUSES.—The *Boston Daily Advertiser* of the 20th ult says, "A very neat and successful operation was performed in Lincoln-street, in the removal of a block of two large three-story brick dwellings a distance of some 10 or 15 feet, for the widening of the street. The new foundation for the houses had been of course previously prepared, and the houses themselves were placed on a sort of railway, preparatory to their removal. The movement was effected by means of jack-screws, acting in a horizontal direction. The construction of the tracks or ways was novel and extremely simple. They consisted of double lines of cast-iron plates, inserted between the foundations of each of the walls of the building itself; and for wheels, or rollers, cannon balls of equal size were placed between the two lines of plates—the upper plates being inverted. As the foundations of these ways consisted of the original foundation of the building, there could of course be no hazard of yielding, as the whole building rested on walls of equal size: it was moved without any dislocation or cracking of the walls in any part, or of the finishing. The operation of removing the building was performed under the direction and superintendence of Mr. Preston, of the Board of Aldermen, and has been accomplished with entire success. We understand, also, that it has been done at a very moderate expense, compared with the advantage gained of placing the whole edifice on its new foundation without the slightest injury, and without hazard of serious accident."

FIRE-PROOF CONSTRUCTION.—At the conclusion of the inquest on the bodies of the sufferers in the late fire in Guildford-street, and before the jury separated, Mr. Geary, the architect, exhibited the model of a house, which he said was so far fire-proof as to ensure the saving of life. Its chief merits consisted in brick partition-walls, instead of lath and plaster, and in having the panels of the doors of sheet-iron. This confined the fire in whatever room it occurred. He stated, that this mode of building was not more expensive than the lath and plaster one usually pursued in London.

IMPROVED SYSTEM OF DRAINAGE.—It is so currently reported and believed that Government, during the approaching session, intend to introduce a Bill for the improvement of the system of draining towns, that, in some instances, works, which otherwise would have been commenced, have been postponed.

ARCHITECTURE AT KING'S COLLEGE.—Professor Hosking will resume his course on the arts of construction on Friday, the 24th, at 4 o'clock, and will continue it at the same time on every succeeding Tuesday and Friday throughout the term. We hope to find it well attended.

VACANT CHAIR AT UNIVERSITY COLLEGE.—The professorship of civil engineering at this college being vacant, candidates are requested to send in applications and testimonials on or before Friday, the 14th of February.

PUBLIC PARKS.—The subscription in Manchester for public parks, &c., now amounts to nearly 30,000*l.*

THE IRON TRADE.—This important branch of our manufactures is in the most thriving condition which its best friends could wish. We noticed an increase of 10s. per ton on manufactured iron in the early part of last month. On Friday, the usual preliminary meeting of iron masters was held at Dudley, in order to fix the prices of iron for the ensuing quarter-day, when a further increase of 10s. per ton was agreed upon. The Great North of England Railway Company's contract for 6,000 tons of rails has been taken by the Bishopwearmouth Iron Company, at Sunderland, and Messrs. Blockow and Vaughan, of Middlesbro' Ironworks, at 7*l.* 15s. per ton, which is a considerable advance on the late quotations.—*Bristol Journal*, Jan. 4.

NOTICES OF CONTRACTS.

For the erection of a Wesleyan Chapel at Hythe.—Mr. T. Pilcher, Stationer, &c., Hythe. January 21.

For making a Sewer in the town of Cambridge. The sewer to be cylindrical, and 2 feet diameter in the clear, the length will be about 385 yards, and the average depth about 9 feet.—Frederick Randall, Town Hall, Cambridge. January 21.

For Warming and Ventilating the new Buildings of the Suffolk Lunatic Asylum; and for fitting up the laundry with Drying Apparatus, upon the most approved plans.—John Henry Borton, Milton, Suffolk. January 21.

For the Erection of Stone Booking-offices at Ashton and Stalybridge Stations; and for the Erection of a Station at Sheffield for the Sheffield and Manchester Railway Company. January 21.

For supplying the East-India Company with Tin Plates.—J. D. Dickinson, Dep. Sec., East-India House. January 22.

For the erection of the Railway Works between Leeds and Bradford, including fencing, earthwork, masonry, roads, and permanent way.—William Clarke, Secretary, Hunslet-lane Station, Leeds. January 27, 1845.

For the erection of a New Pauper Lunatic Asylum at Clifton, near York.—Messrs. Scott and Moffatt, Architects, 20, Spring Gardens, London; or Mr. J. Holtby, Low Ousegate, York. January 28.

For the execution of Works on the Chester and Holyhead Railway.—1st. A distance of eight miles, or thereabouts. 2nd. A distance of twenty-two miles, or thereabouts. 3rd. A Tunnel through the promontory of Penmaen Back, near Conway.—George King, Secretary, 62, Moorgate-street. January 29, 1845.

For the Execution of Works on that part of the Blackburn and Preston Railway extending from Blackburn to Pleasington, being about 3¼ miles in length.—Peter Sinclair, Secretary, Blackburn. January 29.

For the supply of Wrought Iron Rails and the requisite number of Chairs for about 15 miles of the Southport and Euxton Junction Railway. The weight of rails to be from 60lb. to 70lb. per lineal 2 yards and 15 feet lengths, equal to from 1,500 to 1,800 tons of wrought iron, and about one-third of that quantity of cast iron.—Woodcock and Part, Solicitors, Wigan. January 31.

For erecting the Works of the third division of the Main Line of the Great Southern and Western Railway, being 11 miles, 6 furlongs, and 75 yards in length. Also for the first division of the Carlow branch, being 10 miles, 7 furlongs, and 160 yards; comprising excavation, embankments, bridges, culverts, &c.—William Taylor, Secretary, 3, College Green, Dublin. February 1.

For the formation of 4 Miles 56½ Chains (single line) of the Ashton, Stalybridge, and Liverpool Junction Railway.—John Jellecorse, Secretary of the Manchester and Leeds Railway Company, Palatine Buildings, Hunt's Bank, Manchester. February 3.

For the erection of Alms' Houses in Foundation-street, Ipswich.—Mr. J. M. Clark, Brook-street, Ipswich; or Mr. Notcutt, Solicitor, Ipswich. February 1.

For the erection of a Bridge, called White Bridge, at Grasmere, near Ambleside, Westmoreland.—Mr. George Robinson, Bridge Surveyor, Kendal; or Mr. Daniel Donaldson, Ambleside. February 4.

For the construction of the several Stations and other Buildings on the York and Scarborough Railway.—Mr. Andrews, Architect, York; or Mr. George Baker, Secretary, Railway Office, York. February 5.

For the erection of a Steam Boat Pier at the Quay on the north-east side of Blackfriars' Bridge, also for building a Decked Lighter or Dumby.—Town Clerk's Office, Guildhall. February 6.

For erecting and completing the Lower Sluice and Sluice-Pit at the top of the Eau, Brink Cut, about 4 miles above Lynn.—Messrs. Walker and Burges, 23, Great George-street, Westminster; or Mr. George Game Day, Clerk to the Middle Level Drainage Commissioners, St. Ives. February 10.

For the erection of New Buildings in Pembroke College, Oxford.—Plans, &c., prepared by Mr. Haywood, Architect, may be seen at the Master's House. February 11.

For the supply of 11,000 feet of nine-inch cast-iron Pipes for a new line of Aqueduct to be laid in the Island of Malta.—Vin. Casolani, Collector of Land Revenue, Office of Land Revenue and Public Works, Valletta, Malta. March 31, 1845.

COMPETITIONS.

Plans and estimates are required for a Pauper Lunatic Asylum for the County of Somerset; the building to accommodate 300 patients, and to contain two Stories. The Committee of Visiting Magistrates wish it to be of a plain, cheerful character, but will not further fetter the architect by suggesting any particular arrangement as to the interior, its ventilation, warming, or otherwise. The ground selected contains 36 acres.—The Clerk of the Peace, Taunton. A Premium of 100*l.* will be adjudged for the best plan, and 50*l.* for the next best. January 22.

The Committee for Building a Chapel at Holloway are desirous to receive Designs for their intended building. The style to be Gothic. The Committee pledge themselves to select for their Architect the gentleman whose design they shall prefer.—George Brooks, Esq., 1, Lansdowne-place, Holloway. January 31.

Plans and estimates are required for a Workhouse, to contain about 1,180 persons. The whole to be done in a plain and substantial manner, without any expensive embellishments. The plans and architects' estimates to be sent to Robert Mercer, the Clerk of the Clifton Union, Pennywell Road, Bristol, on or before the 17th of February next, and the Board of Guardians will adjudicate on the 28th. The architect producing the best plan in the estimation of the Board will be employed at a sum not exceeding 5 per cent. on the outlay, and a gratuity of 25 guineas will be given to the architect producing the second best plan in the opinion of the Board.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

January 22.—At Oakwood Farm, Radwinter, Essex; 175 Oak Trees, of good dimensions.—Mr. Martin Nockolds, Auctioneer, Saffron Walden, Essex.

January 24.—At the Methuen Arms Inn, Corsham, Wilts; 399 Oak, Ash, Elm, Beech, Walnut, and Apple Trees, most of them of unusual large dimensions, and clean, straight, and lofty growth.—Messrs. Giller and Son, auctioneers, Corsham.

February 25.—At the King's Arms Inn, Hemel Hempstead; a large Fall of capital Oak, Ash, Elm, and Beech Timber Trees, the greater portion of which are of very large dimensions and superior quality.—Mr. James Adams, auctioneer, Clarence-street, Staines, Middlesex.

*** The Sale at Elmer Farm, noticed in our last number, is postponed for a short time. Due notice will be given of the day when it will take place.

TO CORRESPONDENTS.

"A Young Architect (Sheffield)."—*The Wesleyan Chapel at Battersea is hardly commenced. The architect is Mr. Andrew Trimen, the contractor Mr. John Sugden.*

"T. M. O." *asks us which is the best office in which to effect an insurance against fire. There are so many good offices, it would be invidious to name one. The Alliance, the Phœnix, the Sun, &c. are equally respectable.*

"C. P." *is thanked for his drawing of the Doorway to Hedingham Castle. He will do better before long.*

"W. C. P."—*The height of the nave of the Church of St. Vincent de Paul, as stated in our article headed "Church Architecture in Paris" (p. 3), is quite correct, great as it may seem, namely, 96 feet. The portico is lower than the body of the church. We have not the dimensions of it, but should estimate its extreme height at about 70 feet. The quotation alluded to is from a description of the church, published with the sanction of the architect, M. Hittorff, "Au Bureau de l'Illustration," Rue Richelieu, Paris, 1844.*

"Mr. Rogers" *is thanked; we were not able to avail ourselves of the information.*

"T. and W. Stirling."—*Received.*

"Rusticus."—*The Act cannot be obtained till the opening of Parliament.*

"H. S." *will appear.*

"Architectural Draughtsmen's Society."—*The place of meeting is No. 33, Southampton-street, Strand.*

"F. C. M. S." *asks which is the best "Builder's Price-book." We would recommend Laxton's.*

ERRATUM.

St. Paul's Church, Herne Hill.—In our account of this church, p. 2, the sentence, "The building consists of a nave and side-aisles, *or* chancel," should be, "The building consists of a nave and side-aisles *with* chancel.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, January 20.—*Statistical*, 11, Regent-street, 8 P.M.; *Chemical* (Society of Arts), Adelphi, 8 P.M.; *Medical*, Bolt-court, Fleet-street, 8 P.M.

TUESDAY, 21.—*Civil Engineers*, 25, Great George-street, 8 P.M. (Anniversary); *Linnæan*, Soho-square, 8 P.M.; *Horticultural*, 21, Regent-street, 2 P.M.

WEDNESDAY, 22.—*Society of Arts*, Adelphi, 8 P.M.; *Geological*, Somerset-house, 8½ P.M.; *Pharmaceutical*, 17, Bloomsbury-square, 9 P.M.

THURSDAY, 23.—*Royal*, Somerset House. 8½ P.M.; *Antiquarian*, Somerset House, 8 P.M.; *R.S. Literature*, 4, St. Martin's-place, 4 P.M.; *Medico-Botanical*, 32, Sackville-street, 8 P.M.; *Numismatic*, Somerset House, 7 P.M.

FRIDAY, 24.—*Royal Institution*, Albemarle-street, 8 P.M.; *Philological*, 49, Pall Mall, 8 P.M.

SATURDAY, 25.—*Royal Botanic*, Regent's-park, 4 P.M.; *Westminster Medical*, 32, Sackville-street, 8 P.M.; *Inst. of Fine Arts* (Society of Arts, Adelphi), 8 P.M.

ADVERTISEMENTS.

NOTICE.—INVENTORS desirous of obtaining LOANS ON or of SELLING their INVENTIONS, or Patents, should apply to Mr. M. JOSCELIN COOKE, at the OFFICE for PATENTS, 20, Half Moon-street, London, where English and Foreign Patents are obtained, and Designs registered. An INDEX is kept for inspection of all Patents granted for the last century; also copies of every Patent of importance. Instructions to Inventors and a list of charges gratis on application.

EMBARRASSED CIRCUMSTANCES.—PERSONS IN DIFFICULTIES being desirous of availing themselves of the Benefit of LORD BROUGHAM'S HUMANE ACT, are requested to apply to MESSRS. GRAND & CO., of Moira Chambers, Ironmonger-lane, Cheapside, where every information may be obtained, FREE OF EXPENSE, or arrangements can be made with Creditors, by which means the painful necessity of resorting to BANKRUPTCY or INSOLVENCY may in many cases be avoided.—N.B. Partnership accounts adjusted.

OKER.—B. R. WRIGHT begs to inform Builders, Paperstainers, and the Trade in general, the prices for Native Oxford and Washed STONE OKERS, at his Oil and Colour-warehouse, 27, Castle-street East, Oxford-street:—Native Oxford Oker, 21s. per cwt, or 18*l.* per ton; Washed Stone Oker, 14s. per cwt., or 12*l.* per ton. A liberal discount to the trade. A Porter and Grinder wanted.

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THE NEW METROPOLITAN BUILDINGS ACT, together with a CYCLOPÆDIA, in which all the details of the Statute are arranged alphabetically, so as to be instantly found, and accompanied by extensive references and counter-references to the sections of the Act itself and its minute provisions.

By the late A. BARTHOLOMEW, Esq., F.S.A., Architect, Surveyor of the Hornsey District.

To the above volume will be appended a Folio Table of the Metropolitan Districts (old and new), and a List of the Surveyors, with their Residences and Offices.

Published at the Office of "The Builder," 2, York-street, Covent-garden.

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The Builder.

No. CXII.

SATURDAY, JANUARY 25, 1845.

THE present moment is one of considerable importance to builders and owners of house-property within the limits of the Metropolitan Buildings Act, insomuch as the amount of interference which may be expected on the part of district surveyors will probably be established by the first decisions of the official referees. The Act is unquestionably stringent; and, if acted on to the letter, and with a litigious spirit, will be deemed oppressive, and speedily become very unpopular. In the discharge of our duties, it will be incumbent on us to urge two things, to advocate, as it may seem, two opposing interests. While we shall have to say to builders and owners, comply strictly with the provisions of the Act, consider it, as it is, a measure for the general advantage which all are bound to assist in carrying out, we must urge on district surveyors the necessity for a lenient administration of it, and an attendance to the spirit of its provisions, rather than the word.

We are satisfied by decisions already given that the official referees desire this: it is to be hoped the surveyors will take the same wise view of the matter.

Section 13 provides that notice shall be given by the builder to the surveyor two days before any party-wall, external-wall, chimney-stack, or flues, shall be begun to be built, pulled down, rebuilt, *cut into*, or altered," with a view to his attendance, for which, of course, a fee is to be paid. Now this, strictly speaking, would seem to prevent a man from fetting in an iron air brick, for example, to his front or back wall, or making a hole for a bell-wire at the street door, without payment of a fee; but surely this is not the way in which the Act will be read, although we fear some of the surveyors think otherwise. The question of interference or not in matters of this sort will, however, be settled, as already remarked, by the first decisions of the official referees. Upon these, therefore, much will depend, and we shall endeavour as they occur to lay them before our readers for their guidance.

It becomes necessary for us to state, in consequence of the numerous comments and inquiries which followed our last publication, that we shall carefully avoid exposing individuals to annoyance by the mention of names in cases where no good can result from inserting them. Our main business is with the decisions themselves, and all must at once see that we are conferring a boon on our readers and the public by rendering them extensively known.

The referees have already made one important decision as regards what constitutes a commencement of a new building, so as to take it out of the Metropolitan Buildings Act. In answer to an application on this point made by Mr. Allen of the Rotherhithe district, they say, "We feel it necessary, having regard to the judicial capacity of the official referees who may be called upon to determine cases especially referred to them, not to signify our opinion as to the particular circumstances of any commencement without hearing the parties whose rights may be affected, but we may state briefly that we are of opinion that the commencement must be a *bonâ fide* one; and that our present impression is, that *the erection of the footings with two or more courses of the walls themselves built in a workman-like manner, is such a commencement.*

"As to the modes of erection which may be pursued with regard to buildings so commenced, we are of opinion that as to such buildings within the operation of the old Building Act (14 Geo. III. c. 78), they must be built according to the provisions of that Act, since these provisions, as to proceedings commenced or taken under that Act before the 1st of January, are not repealed; but we are of opinion that as to such buildings within the new districts, not within the operation of the old Act, the parties concerned are at liberty to pursue what course they please, so that the buildings are finished on the 1st of January, 1846."

Relative to streets, they have decided that "streets *formed after the passing of the Act*, must be built in conformity with the provisions of the Metropolitan Buildings Act—see sec. 52; and that the mere setting or laying out will not be sufficient to take them out of the Act.

"If parties are prejudiced by the enactment, they must seek relief under the 9th or 10th section."

Since the Act came into operation, the district surveyors have found much occupation for the referees and registrar, and will continue to do so for some time to come. It seems quite clear to us that the duties which devolve upon the official referees will be much more numerous and weighty than two gentlemen, however energetic and industrious they may be, will be able to discharge. If no notice be given by a builder, the referees are to be applied to; if any irregularity be committed, and is not remedied, the referees must interfere; all doubts, differences, and dissatisfaction must come before them; they are to settle all terms of qualification, and to say what is the meaning of good, sound, fire-proof, fit, proper, or sufficient. Buildings of a certain class they must themselves survey; they will be called on to settle the respective terms and interests of tenants and owners, to affix the rates and prices, according to which accounts for work and materials in party structures are to be made out; to survey in certain cases ruinous buildings, and do various other acts too numerous to mention now. They have issued a table of fees to be paid in respect of these services, which, at first sight, seem calculated to increase rather than diminish the number of cases submitted to them. We have the pleasure to place a copy of this table before our readers, but reserve our remarks upon it for a future occasion. It involves a matter of considerable importance to the profession at large.

TABLE OF FEES

To be paid to the Registrar of Metropolitan Buildings, in respect of the services to be performed by the Official Referees and by the said Registrar, in order to defray the expenses of the office, incident to such services, and the salaries of clerks, &c.

	£. s. d.
Awards.	
1. For every hearing—	
By one Official Referee	1 1 0
By one Official Referee and the Registrar	1 11 6
By two Official Referees and the Registrar	2 2 0
2. For every final award (according to the decision of the Official Referees in that behalf) from £1 1 0 to 21 0 0	
Examinations or Taxing of Accounts of Charges referred.	
3. For every account examined, 1 per cent. on the amount of the account.	
4. For every measurement—	
If the work amount to 100*l.* or less, 2½ per cent.	
And for all above 100*l.*, 1½ per cent.	
Special Supervision of Buildings.	
5. For special supervision by the Official Referees of buildings subject to such supervision, and whether upon the original erection thereof, or upon any alteration involving structural arrangements, as follows:—	
If the building be of the extra first-rate	5 5 0
If the building be of the first-rate, of whatever class, or of the second-rate	3 3 0
If the building be of the third or fourth-rate	2 2 0
[The foregoing fees to include travelling expenses in all cases of supervision.]	
6. For every licence to use a building before the certificate of satisfaction has been granted (according to the rate of the building from £0 5 0 to	1 1 0
Surveys.	
7. For every survey (not connected with the special supervision of a building) by an Official Referee	1 1 0
8. For every survey by direction of the Official Referees, such fee as the Official Referees may authorize to be paid to the person employed to make the survey.	
Plans or Drawings.	
9. For preparing, making, verifying, tracing, or copying plans or drawings, such proper fee as may be charged by the person employed to make them, unless performed in the office, and then according to the schedule hereto annexed.	
Sanctions, Authorities, or Approvals as to Materials, &c., under the Rules of the Act.	
10. For every application for a certificate of authority, approval, or relaxation of any of the Rules of the Act, according to the provisions thereof (schedule C., parts 1, 4, 5; D., parts 2, 4; E.; F.)	0 5 0
11. For every such certificate	1 1 0
Modifications of the Rules.	
12. For every application to modify rules by the authority of her Majesty's Commissioners of Works and Buildings (besides the expenses of any survey) (s. 11) £1 1 0 to	2 2 0
13. For every order thereon by the Official Referees	0 10 6
Consents.	
14. For every application for consent to be given on behalf of absent, unknown, or incapacitated parties (s. 117)	0 5 0
(And if inquiry be involved, such further fees as are payable on an award.)	
15. For every confirmation of the surveyor's certificate as to works to which the adjoining owner does not consent (s. 24)	1 1 0
Copying and Examining.	
16. For copying, per folio, including paper and examination, and chargeable upon every document to be registered	0 0 6
Searches and Extracts.	
17. For every search—	
Indexes per volume	0 0 6
Awards and other documents per volume	0 0 6
18. For every extract or copy (per folio)	0 0 6
(Besides fee for tracing or copying any plan.)	
Travelling Expenses.	
19. For travelling expenses each way *per mile*—	
For each of the Official Referees and the Registrar (each)	0 1 3
For a clerk, surveyor, or other person (each)	0 0 10
[Travelling expenses are chargeable upon all matters requiring the presence of the Official Referees, or of the Registrar, or of any clerk, surveyor, or other person employed in or by the office.]	
Examinations and Certificates of Qualification.	
20. On lodging preliminary statement	2 2 0
21. On the grant of a certificate (s. 66)	3 3 0

SCHEDULE OF FEES PAYABLE FOR PLANS OR OTHER DRAWINGS INCIDENT TO THE SERVICES OF THE OFFICIAL REFEREES.—(See Table No. 9.)

No.	Description of Plans and other Drawings of Buildings.	Extra First Rate.	First Rate.	Second Rate.	Third Rate.	Fourth Rate.
	1. Taking and laying down Plans of Buildings.					
1	For taking the dimensions and laying down a general or ground-plan of a building, or any single section or elevation	3 13 6	2 12 6	2 2 0	1 11 6	1 1 0
2	For every additional plan of the same building	1 11 6	1 5 0	1 1 0	0 15 0	0 10 6
3	For every section or elevation in connection with and in addition to a general or ground-plan	2 10 0	1 15 0	1 10 0	1 1 0	0 15 0
	2. Verifying Plans of Buildings.					
4	For verifying the general or ground-plan of any building	2 2 0	1 11 6	1 5 0	1 1 0	0 12 0
5	For verifying any other plan, section, or elevation in connection with a plan	1 1 0	0 15 0	0 12 6	0 10 6	0 5 0
6	For verifying any section or elevation not in connection with a plan	2 2 0	1 11 6	1 5 0	1 1 0	0 12 0
	3. Making Plans, &c.					
7	For making any plan or other drawing of works required or permitted by the Official Referees	1 1 0	0 15 0	0 10 6	0 7 6	0 5 0
8	For every copy of any plan or other drawing of a building, if to the same scale	0 10 6	0 10 6	0 7 6	0 5 0	0 2 6
9	Ditto ditto if to any other than the same scale	0 15 0	0 15 0	0 10 6	0 7 6	0 5 0
	4. Sites, &c.					
10	For taking the dimensions and making a plan of any building-site connected with other buildings, if the area do not exceed 100 squares					1 1 0
11	For every additional 100 squares, or portion of a 100 squares					0 7 0
12	For surveying and plotting any proposed building-site or vacant ground, if not exceeding one acre					1 1 0
13	For surveying and plotting any proposed building-site or vacant ground, for every additional acre, or part of an acre					0 7 0
14	For making a copy of any plan of a building-site to the same scale					0 7 0
15	Ditto ditto to any other than the same scale					0 10 6
	5. Verifying Sites, &c.					
16	For verifying plans similar to item No. 10					0 15 0
17	Ditto ditto No. 11					0 7 6
18	Ditto ditto No. 12					0 15 0
19	Ditto ditto No. 13					0 7 6
	6. Levelling, &c.					
20	For measuring distances and taking levels, in connection with existing or proposed drainage:— If connected with any other plan of sites, either taken or verified by the office					0 10 6
	If independent of such plan					1 1 0
	7. Examining Duplicate Plans.					
21	For examining every plan or other drawing sent in duplicate					0 2 6

MR. COCKERELL'S SECOND LECTURE ON ARCHITECTURE.

On Thursday, the 16th instant, Professor Cockerell delivered the Second Lecture of his course on Architecture, at the Royal Academy. He proposed, in the present lecture, to give a general survey of sacred architecture, from which the greatest advantage was to be derived, in a careful consideration of its principles and details. These were to be regarded as applied to plan, section, elevation, and decoration. The subject of the succeeding lectures was one of the noblest which could occupy the mind of man. Political history was of comparatively small interest, and pictured, in the greater part, the evil passions of mankind. The ordinary occupations and disappointments of life aroused melancholy emotions, but in architecture, man found scope for his lofty aspirations and idealities, and for his physical energies. There he perceived that he had a soul: order, calculation, beauty, and immortality were opened to his contemplation, and he seemed to feel the power of extending his works beyond the bounds of nature, and of time. Architecture required the exercise of an intelligence such as presented itself to the mind of Shakspeare in the words of Hamlet:—"What a piece of work is man! How noble in reason! how infinite in faculties! in form and moving, how express and admirable! in action, how like an angel! in apprehension, how like a god!"—Architecture invoked the display of physical prowess, which was the natural desire of man. Anaxagoras had asserted that the supremacy of man was owing rather to the powers of his hand, than to his head, and Sir Charles Bell had made the hand the subject of one of the Bridgwater Treatises. In the infancy of man, he contended with the forces of nature; he carved the rock, and reared the obelisk; in accumulating the masses in the pyramid, he emulated the works of Nature herself,—and, exulting in his acquired skill, exclaimed with the Babylonians:—"Go to, let us build a city and a tower, whose top may reach unto the heavens, and let us make us a name." And though we can afford to smile at such aimless labours, we must recollect that by them metallurgy, mechanics, and all the skill necessary in nobler works were first brought into practice. It was the natural sequence that in the age of Alexander and the Romans, art should be exerted in substantial benefits, and superior to the masses of Egypt, or to the delusion of beauty alone in Grecian architecture. Man at this period contended with the elements themselves. The ocean was curbed by his ports, and quays, and Pharos; marshes were drained; sewers, canals, aqueducts, and roads, displayed his mastery over Nature. Frontinus, whose work on aqueducts, written about the year 80, the professor had previously noticed, had a passage strongly illustrating the growth of this spirit. After giving an account of the nine aqueducts under his care, constructed at Rome at various periods, and amounting in length to about 142 miles, he said:—"With so many waters, and so many magnificent works necessary for their transport to this great city, will you compare the idle pyramids of Egypt, or even the inert works of the Greeks, however celebrated and glorious in history." In our day, architecture was contracted to absolute utilitarianism; all its powers being devoted to the perfection of the individual dwelling between party-walls, in which every citizen was in the enjoyment of luxuries and conveniences, unheard of in the days of the Pharoahs, the Medici, or the magnificent Louis the Fourteenth.

The professor now called the attention of the students to a number of plans of the most remarkable sacred edifices, constructed from the time of the Tabernacle in the Wilderness, to the Christian era. It might be considered that objects of daily practice should be illustrated, rather than what were of rare occurrence, and of such vast scale and costliness, but we should remember, that Vitruvius laid down, that the architect's studies should be pursued "maxime in ædibus Deorum, in quibus operum laudes et culpæ æternæ solent permanere."

In discussing the form and proportions of temples, we held in veneration those noblest motives of the heart, which we recognize alike in the Grecian, the Druid, the Hindoo, and the Christian temple, and so finely expressed in the Book of Psalms. In excavating the foundations of the temple at Ægina, the remains of burnt woods and bones were discovered, mixed, doubtless, with tears and aspirations as warm as those of David;—at Selinus, the steps of one of the temples were worn down almost to an inclined plane by the devout.

The temple of Jupiter Capitolinus, which formerly stood upon the Capitoline Hill, was then noticed at length, and the fact pointed out, that during many successive ages, and re-edifications, the original plan was strictly adhered to; a remarkable instance of the force of religious prejudice in an edifice having so many points of distinction from coeval works. It was remarked as a coincidence, that many of these large temples approach 180 feet in front, the building under notice being 200 feet by 385 feet.

The plan was the most important consideration in a building; it gave evidence of the use and purpose of the structure and was addressed to the understanding, whilst, the elevation addressed the eye. The arrangement of the plan, should in all cases have precedence, which was the reverse of the ordinary mode. The plan was made to fit an elevation previously designed, and much variety of effect, which the ever-changing considerations of purpose and convenience might have suggested, was lost. We were deficient in books on the ichnographic part of architecture, though we had many on the orthographic. Sacred architecture was not only an antiquarian study, but one of immediate application, as it was quite certain, that the architecture of the Greeks and Romans would be the architecture of the whole civilized world. From the time of the Tabernacle to that of the Temple of Venus and Rome, we were struck with the uniformity of the plan. The plan was in all cases determined by the ritual, as it must be in every age. Vitruvius, who had been in so much unmerited disgrace, had given us the plans of the ancient temples; his omission of the peribolus was, however, a very remarkable one. In examining the sections of ancient temples, we felt a difficulty as to the size of the opening in such as were hypæthral: Mr. Cockerell's own opinion was, that only a small portion was uncovered.

The Roman temples were covered by a large continuous vault. This a late traveller had considered to have been of wood; but whether it was of wood or pumice-stone, it would necessarily have to be extremely light. In the orthographic design, the use of large stones made an important feature. The mention of "great stones" in the Book of Kings, shews that the Hebrews employed them, and, in fact, their use embodied the fundamental principle of building down to the Christian era. Towards the decline of the empire, when the vast resources of ancient Rome were no longer available, smaller stones were employed. Vitruvius had given us much information on the proportions of the orders, and his obscure parts were being cleared up. There was no reason why we should not now make the axes of our columns incline towards the building in obedience to his rules: the effect of our buildings in pyramidal outline would be vastly improved. Steps were always considered an integral part of the order by the Greeks; the podium or continous pedestal, was perhaps necessary in Rome, and in street achitecture generally. In the treatment of orders above orders, care should be taken that they should seem to grow one out of the other: in the portico of Buckingham-palace, a very bad effect resulted from the contrast between the rapid diminution of the Doric, and the more slender proportions of the Corinthian. The ornamental part of a building might be considered as general decoration, sculpture, and painting. We had heard much about the revival of polychromy, but he was of opinion, that although it might add great beauty to ancient buildings, which were seldom more than 60 or 80 feet in height, and which stood under a genial sky, the case was different in those which sometimes reached to several hundreds. The ornaments of ancient temples were all within the scope of the eye, and the smaller temples must often be considered as cabinet-works; the sculptor being a more important person than the architect, who only furnished the framework for his brother artist. The lines of the sculpture contrasted with the right lines of the architecture, to the improved effect of each. In the pediments, the sculpture often projected beyond the mouldings, breaking their lines; in the Parthenon, the horse's head hung over the cornice beneath. The effect of the figures in pediments was much improved by the smaller scale of those in the frieze. In concluding this section of his course the professor paid a compliment to Mr. Pugin for the successful manner in which he had employed polychromy on the gate of Magdalen College, Oxford, which, he said, wanted only the effect of time to give it every thing to be desired.

* * *

THE PLAGUE OF WHITEWASH.

In this age of grasping at the future rather than contemplation of the past, the tardy, though highly meritorious efforts of modern antiquaries, have done comparatively little to check that course of spoliation, which bids fair speedily to overwhelm all our national antiquities. Every county in England is crowded with village churches at distances of one to two miles apart, and all of them contain matter of interest, whilst a very large proportion are full of the richest beauties of Gothic architecture.* But, to antiquary and to artist, how melancholy is the present aspect of each. The reformers and the puritans have inflicted less injury upon those noble works, than do the curiosity hunters, and the improving churchwardens of modern times. The reformation despoiled the altars, and plundered the vestments, the revolution defaced the carvings and the tombs: the fine open benches were raised and converted into pews, and the colours and gilding of the rood-screen obscured with an unmeaning white; the stove chimney was made to meander through the columns and arches of the church, and disappear through the ruthlessly broken tracery of a decorated window; the timbers of the roof were covered over with a flat ceiling, and the roof itself lowered from the original pitch. The squire erected his glazed room in the church, and made himself comfortable at "his own fireside," marring the exterior with an unsightly excrescence for a chimney. The sexton stole the brasses, and an "antiquary" purchased them. The antiquary stocked his collection with stained-glass; the country squire worked up the panels from a rood-screen in his sideboard. All these and many more were the acts of robbery and spoliation common and uncared for once, and not enough noticed now. But worse than the plunder and havoc of mistaken zealots, worse than ruin and the alterations of ignorant churchwardens, is the plague of whitewash, which seems to have grasped, Briareus-like, on cathedral and parish church in every hole and corner of the kingdom, spreading its leprosy over plain surface and moulding, stone-carving and wood panelling, and obscuring mural paintings, colour, and gilding. The infection is not destroyed, and men will never be convinced that it is better to let the tooth of time eat its way into corbel and boss—rather adding new beauties than consuming old—than to mar the contour of a moulding, or to clog up the indents of a leaf. The very extent of effort in those to whom the country allows the guardianship of our national monuments is the making them look clean, *i.e.*, white. The greens and browns from Nature's palette, are hidden beauties to those who deem the bucket and mop the true instruments of taste, and a whitewashed cottage the brightest ornament in a landscape. The noble interiors of Beverley Minster, of York, and of our other cathedrals, when compared with the nave of Westminster Abbey, whose columns retain their natural tints, lack much of the beauty which the latter possesses, despite the eye-sores on its walls. Rochester Cathedral was rich in mural decoration, yet it has been all obscured. At Chester, which we visited very few years since, we had, as usual, occasion to notice the ill effects of whitewash, and we ventured to express our opinion to one of the dignitaries of the cathedral, who concurred with us; yet we subsequently discovered, that he himself had not long previous given directions for an additional coat. The fine Norman doorway of the Temple Church was no sooner rid of its accumulated whitewash than it received another application. At St. Albans, St. Cuthbert's screen, rich in flowers and foliage, has all its beauty obliterated or destroyed. The clerk of the church, an intelligent man, and probably remembered by many of our readers, has taken some pains to clear a portion of this screen, and the delicacy of the carving is there apparent. At St. Mary's Church, Stafford, we were present during a portion of the late restorations, and saw the workmen remove the whitewash from some capitals, and found, that shapeless maps concealed foliage of elegant design, having traces of painting. St. Peter's, Northampton, till a few years ago, seemed destitute of ornament; the capitals of its columns were mere lumps, and the whole interior devoid of beauty; fortunately the state of the building attracted the attention of Miss Baker, the sister of the historian of Northamptonshire, who, at some expense, and, it is said, considerable personal labour, had the capitals freed from their covering, and they now form the most beautiful series in Anglo-Norman architecture. Haddon Hall, in Derbyshire, a perfect example of an old English residence, is preserved in its original state in all respects except the application of whitewash. The figures in relief, the ceilings, and ornaments formerly enriched with painting and gilding, periodically approach a step nearer to entire concealment. St. Paul's itself has not escaped, and the absence of the natural tints makes more than ever apparent the want of artificial colour, and revives our regret that so good an opportunity as was once available should have been lost. The colouring, in parts of Gothic churches, was a valuable instrument in the hands of the artists of the middle ages; it was applied with judgment and effect, was mostly upon plain surface, and impaired the form of neither moulding nor ornament; but the first coat of *whitewash* shews, like the last of Banquo's line, a mirror in which we see a long succession following after. Individual buildings there may be that have suffered little, and others which, within the last few years, have been entirely freed from whitewash, and the beauty of these is great; but we are certain that were the whole of our churches divested of what shrouds them as completely as the lava of Vesuvius did Pompeii and Herculaneum, the splendour of Gothic architecture would at once strike upon the beholder with a witchery and a power hardly felt even in these days of restoration and research. Let us hope for the speedy establishment of a national commission for the preservation of works of art, and that one of its earliest endeavours will be in the direction pointed out. A tithe even of the small sum we devote to public works would serve to uphold what we now possess, valuable to an extent we have never felt, and hourly crumbling away beyond the hope of renewal.*

E. H.

* We intend to revert to the subject of village churches, and we shall be glad if our friends in the country will favour us with sketches and measurements, or any information as to the present state of fabrics.—Ed.

* We have long felt the need of a national commission for the preservation of monuments, and shall take every opportunity of advocating its establishment. We shall be glad to receive communications on the best mode of cleaning paintings in distemper.—Ed.

COMPETITION OUTLINES FOR ART-UNION OF LONDON.

The nineteen sets of designs received by the committee in reply to their offered premium of 60*l.*, were in illustration of the following subjects:—The life of Offa, king of the East Angles; Midsummer Night's Dream; Thalaba the Destroyer; Parables; Revelations of St. John; the Watchfulness of Providence; the Rape of the Lock; Keat's Hyperion; the Commandments; Harold the Dauntless; Anne of Gierstein; the History of Joseph; Raising of Jairus's Daughter; Scott's Betrothed; Judgment of God against Sin; John Gilpin; Byron's Mystery; Life of Brutus; and Cymbeline.

After long deliberation, the committee selected the set illustrative of the Revelations of St. John, afterwards found to be by Mr. George Elgar Hicks, Lymington, Hampshire, as most fully complying with the terms of their advertisement, and awarded the premium to the author of it. Considering that much talent was displayed by some of the competitors, and anxious to stimulate young artists to exertion, they awarded honorary premiums of 20*l.* each to the authors of the three following sets:—Offa; the Watchfulness of Providence; and the Commandments; who were found to be respectively Mr. G. E. Sintzenick, of 3, Princes-street, Fitzroy-square; Mr. William Cave Thomas, of 39, London-street, Fitzroy-square; and Mr. G. Scharf, jun., of 14, Francis-street, Bedford-square. Mr. Hicks obtained the Royal Academy medal at the last distribution of prizes; and Mr. Cave Thomas is one of the artists selected by the Fine Arts' Commissioners for the decoration of the new Houses of Parliament. Amongst the most meritorious of the other designs we may mention the series from the History of Joseph; Byron's Mystery; and Thalaba.

A CHAPTER ON MARBLE.

Marble, *marbre* French, *marmor* Latin, from the Greek *μαρμαιρω*, to shine or glitter, is a term used to define numerous varieties of compact and granular limestone, which are susceptible of a superior polish, and are denominated either from their colour, their age, their grain, their country or district, their degree of hardness, their weight or their defects. The general characters are,—large or small-grained, generally in distinct concretions, sometimes so fine-grained as to appear compact, and often only distinguishable by a glimmering lustre. Fracture, foliated; fragments, amorphous, blunt; weight, granitose; lustre, from glimmering to shining, between pearly and vitreous, sometimes translucent, but the black only on the edges. It consists chiefly of 50 lime and 40 carbonic acid, whence it is called by chemists and mineralogists a carbonate of lime, to which class in all strictness it belongs.

Marbles are distinguished from gypsums by the application of diluted nitric or muriatic acid, which produces a strong effervescence, by expelling the carbonic acid; but otherwise, in external character, organic disposition, and capability of polish, there is a striking similitude between many varieties of each. They embrace every degree of hardness, and the specific gravity of marble varies with its density and crystalline structure. Some of them are of one simple colour, as white or black, others streaked, or variegated with stains, clouds, veins, waves, &c., but almost all are opaque, excepting the white, which, when cut in thin slices, becomes transparent.

Of the endless varieties of marbles abounding in almost every region of the earth, vast formations, in like manner with the simple limestones, retain the evidences of organic character and composition, being crystalline masses of marine animals, and embracing, in some few instances, the bones of land animals and fresh-water shells; in almost all of them we see a certain advance towards decomposition; while in other and perhaps the more extensive beds, every trace of organization is extinguished. Geologists, on this account, have classed them as primary and secondary rocks, presuming that the absence of organic delineation denotes the more advanced age; but most erroneously so, for the preservation or decay of organic masses of calcareous animals depends more upon climate and association than upon age, and very often the same formation presents the two characteristics of this class of rock.

Again, geology infers that marble is formed from masses cooling down under intense lateral pressure, but were this the case, every trace of animal organization must have been destroyed, and the crystalline appearance would have been uniform; but so far from there being any evidence of heat or fusion, or lateral pressure, much of the coralloide and shell-marble rests in its primary undisturbed state, the shells and corals exhibiting the uninjured outline, and so disposed as to exhibit an uninterrupted series of natural events, embracing in the one whole an epoch which has long since passed away. The existence of these organic masses in their pristine form, and disposed in spots where they formerly lived, propagated in their generations and died, and now their calcareous, concrete, and crystalline states, evidence the small amount of faith the student ought to place in modern classification and modern theories: a classification which pronounces all crystalline rocks volcanic; theories which assign various epochs to rocks and earths which are manifestly formed under the same existing causes, and at the same period of time.

Among the most remarkable varieties of marble may be mentioned the *African*, having a black ground diversified with moderately large spots, sometimes tinged a little reddish; *Alabandum marmor*, much used in building among the Romans, and distinguished by its remarkable glossy jet-black appearance; *Auvergne marble*, of a pale red mingled with violet, green, and yellow; *Brocatello*, of a fine bright yellow colour, thickly variegated with irregular veins and spots of purple, and spots or spaces of fine semi-pellucid crystalline spar—this is a truly beautiful marble, equal in polish to the finest agate; *Carnaggione marble*, so called from its flesh colour, exhibiting shades of pale whitish and yellowish casts, and also of a rosy hue; *Cippolino*, the true Egyptian

marble, of a sea-green colour, mixed with large waves or clouds of white or pale green, the same with that which the ancients called *Agustum* and *Tiberium marmor*.

Coralloide marble; of this there are numerous varieties, and in great abundance in almost all countries; in this country we have principally two in use, one grayish black, the other jet black. The first is found in many parts of Derbyshire, and the corals it contains are of the porous kind, and of the most elegant species in the world; they are lodged in it at all angles and in all directions, and are in general about one inch and a half long and three-quarters of an inch broad; they are composed of longitudinal plates, very fine and thin, and of a snow-white, ranged in distinct orders, and finely interspersed at small distances with their transverse plates, the whole internal part of the coral being thus divided into a sort of square cells. This net-like division runs through about three-fourths of the body, but the top has only the longitudinal plates without the transverse ones. It is a very beautiful substance, and abounds in Derbyshire and Wales.

The other species is an equally beautiful compact substance; fine, even texture, very hard, of a deep jet black, and capable of a very high polish. It is elegantly variegated with species similar to the above, but smaller, and of a less elegant texture; and among these has usually a great number of sea shells, both turburated and bivalve, the corals and shells being of a pure snow-white.

There is another marble common to Derbyshire, Dorsetshire, Sussex, and many other parts of England, of a green colour, and thick set with marine shells, and is what the pillars of many of our cathedrals are made of. We have in England vast quarries of marble abounding with marine shells.

The varieties of marble in England are numerous and exceedingly diversified, and many of them perfectly adapted for all the purposes of architecture. The green marble of Anglesea is much like the *verde antico;* its colours are greenish black, leek green, and sometimes dull purple, irregularly blended with white limestone, the green shades being owing to the presence of magnesia; it is an elegant marble, but apt to be internated by small cracks, and has a variable polish.

Derbyshire abounds with several fine varieties of marble, particularly such as is composed of concrete masses of marine shells and petrifactions; excellent black marble is found at Ashford, Matlock, and Monsaldah. In North Devon, marble is still more abundant and diversified; there are varieties of black and white from Bridestow, South Tawton, Drewsteignton. Some of the Chudley, Staverton, and Berry pomeroy marbles have a black ground, with large veins of calcareous spar traversing it in all directions. The variegated marbles are generally reddish, brownish, and grayish, variously veined with white and yellow, and the colours are often intimately blended; the Plymouth marble is principally of two sorts, one ash colour shaded with black veins, the other blackish gray and white, shaded in concentric spots interspersed with irregular red spots.

The cliffs near Marychurch, says Polwhele, exhibit marble not only of great extent, but of superior beauty to any other in Devonshire, being for the most part either of a dove-coloured ground with reddish purple and yellow veins, or of a black ground mottled with purplish globules. In a valley below the cliff, about 400 yards wide, there are loose unconnected rocks of this marble, owing their situation probably to the falling down of the ground into the sea; for there are very large rocks even on the beach. The huge fragments of rock scattered over the valley, by which we easily descend to the sea, give it a grotesque appearance, and have been whimsically called a petrified congregation; and the pleasantry of this fancy has been heightened by a rock, supposed to be about forty tons, in a very erect position, which has been ludicrously enough entitled "the Parson."

The Petworth marble was formerly most employed; it is a fossil concrete of marine and fresh-water shells, some of which are filled with spar, and add greatly to the beauty of the stone. The slender round pillars of the Abbey Church in Westminster, and of the Temple Church, are of this sort of marble: so likewise are those of the Cathedral Church at Salisbury.

France is very rich in marbles. The Romans availed themselves of this stone in their monuments at Nimes, Aix, Arles, Orange, Vienne, &c. During the middle ages the quarries were abandoned, and recourse was had to Spain, Italy, and the East. In the internal decorations of the Louvre and the Tuilleries, Louis XIV. availed himself of French marbles. They were little used after his time up to the present century; latterly, abundance of every variety and colour has been found, and suited to all purposes except statuary. The marble of St. Beax, on the banks of the Garonne, is the best marble used in French sculpture, and this is a very indifferent one, being dirty white, and rapidly decaying on exposure to the atmosphere.*

The variety called *marbre de Languedoc*, or *de Sainte Baume*, is of a fiery red, with white and gray stones formed of madrepores. The eight columns which adorn the triumphal arch in the Caronsel at Paris are of this marble, which was formerly only employed for the decoration of royal palaces. The neighbourhood of Narbonne furnishes several valuable marbles, among others a shell marble of an intensely black colour, with white belemnites, and a purple marble with yellow spots, &c.

One of the most esteemed varieties of French marble is that called *griotte;* its colour is a deep brown, with blood-red oval spots, produced by shells. Some of the ornaments of the triumphal arch of the Carousel are made of griotte, and it is extensively used in decorating public monuments and splendid furniture. Madraporic marble is common in the department of Jemappes. The beautiful bridge of Namours is constructed of an elegant marble termed *Chateau London*, of a very pale yellow, containing small, unconspicuous shells and white translucid veins.

The *Rovigio* marble, found at Padua, is used for architectural purposes. The *occhio di pavone* is formed of concrete masses of shells which form large orbicular spots, red, white, and blueish. According to Da Costa, the peacock's eye is of a bright cucumber colour, with spots and veins of milk-white spar; many of the spots, forming circles about the size of a sixpence, are filled with a red ground. *Pietra stellaria*, much employed in Italy, is entirely composed of star madrepores, converted into a grayish and white substance. Baron Bord in his "Sicilian Mineralogy," describes upwards of a hundred varieties; the most valuable of these is that denominated Sicilian jasper by English stone-cutters; it is red with large stripes like ribbons, white, red, and sometimes green, which here and there revolve, forming petty acute angles.

Spain abounds with marbles of every variety. A mountain entirely composed of beautiful marbles exists at the distance of three leagues from San Felipe, and the Tagus takes its course through hills of marble, which also constitute its bed. The abundance of this material led to its extensive use even so far back as the time of the Romans; and the monuments of antiquity, those of the middle ages and of modern times, are profusely decorated with indigenous marbles. The vault of the beautiful theatre of Toledo is supported by 350 marble columns. The mosque of Cordova, erected by Caliph Abdoulrahmin III., is ornamented with 1,200 columns, most of which are of Spanish marble. Among the ruins of ancient Merida, built 28 years B.C., fragments of the most beautiful marbles are still discovered. The church of the Escurial, the principal churches in Madrid, the palace, &c., are all decorated with the most beautiful marbles.

The milk-white marble of Cordova is adapted for sculpture. One of the most celebrated marbles is the *broccatello:* its chief colour is claret red, variegated with numerous small spots and points of isabell-yellow, yellowish gray, and a translucent white.

The marbles of Germany are very numerous. Carinthia possesses the most beautiful of all shell-marbles, viz. that of Bleyberg, called *fire marble*, or *opalescent lumachella*. It abounds with the opalescent fragments of a species of nautilus, here and there disseminated in its mass, reflecting tints of red, green, and blue, of considerable intensity; it seldom exists in layers.

The statuary marble of the ancients was principally Parian marble, so called from its coming from the island of Paros in the Grecian Archipelago, although it is well ascertained that several other islands, as Neupos, Tenos, &c., in that sea, afford similar marble. Carrara marble was also used by the ancients, and is the choice material of modern sculptors. To fit a marble for statuary, it should be highly crystalline, and yet with a fine grain; it should be perfectly white, entirely free from flaws and from foreign minerals, and should be very compact. The American Washington and New Milford marble answers very well to these qualities.

Statuary marble is exceedingly durable when favoured by climate or association, although far from being a hard stone. Hence, says Patrin, it is sought for, for the construction of the most sumptuous edifices, and of monuments which are intended to be at once magnificent and durable. Marble is one of the least destructible materials; of this we have a proof in those precious statues, which are the eternal monument of the genius of the artists of ancient Greece. They have supported the injuries of twenty centuries, while the scythe of Time has been made harmless by the brilliant polish of their surface.

H. G. Montague.

* The principal deposits of marble now wrought are those of High and Low Pyrenees, the High Garonne, the Arriége, the Ande, the Herault, the Vosges, and the Straits of Calais. M. Géruzet of Bagneres de Begorre (High Pyrenees) sent the most beautiful and varied marbles last year. The marbles of Aspan, the stalactite marbles, and the campanante marbles were those most admired. M. Géruzet has set up on the Adour a marble work which has 150 saws constantly at work, besides ten rough saws for cutting out the blocks, seven lathes, one circular saw, a straight moulding frame, four machines for making flat slabs, and one machine which makes twelve rosettes at one time: he has obtained all the prizes usually awarded and the Legion of Honour. A saw mill has been set up at Perpignan, by M. Fraisse. At Mayenne, Mr. Henry, of Laval, has a factory where 230 blades are at work on black and veined marbles. Messrs. Landeau, Noyers, and Co., of Sable (Sarthe), work black and vein marbles by machinery of their own construction. The quantity of marble imported into France is 6,000 tons, valued at 20,000*l.*, and coming principally from Tuscany, being white statuary marble, and from Belgium being a madreporic gray and white marble, known as St. Anne's marble, and used for furniture, slabs in coffee-houses, &c. The value of French marble exported is 6,000*l.*

The value of building material wrought in France annually is estimated approximately at 2,400,000*l.*; of this amount 1,500,000*l.* or 2,000,000*l.* is the regular produce of quarries in constant work. These quarries are 18,000 in number, employing 70,000 men. The value of slate quarried annually is estimated at 80,000*l.*

EPISCOPAL CHAPEL AT WRINGTON.

An Episcopal chapel has lately been erected at an expense of about 1,000*l.* at Redhill, in the parish of Wrington, Somerset; Mr. Wilson, of Bath, was the architect. It is built in the early English style, whose prominent features are simple, elegant, and light, and whose decorative members being comparatively few, admit of its more general adoption for small churches, where the funds necessary for their erection are limited. For the amount expended, we have a quiet, unostentatious beauty in the arrangement of the interior of this building that could scarcely be expected. It receives light from graceful lancet windows, three of which, with stained glass, give a pleasing effect to the chancel. The roof is of wood, opened to the ridge-piece, and for its plain construction is particularly ornamental. At the entrance, on a platform of two steps, is an ably chiselled font of stone of appropriate character; and over the doorway is a tablet which records that "This chapel was erected in the year 1844. It contains 315 sittings, and in consequence of a grant of 80*l.* from the Incorporated Society for Promoting the Enlargement, Building, and Repairing of Churches and Chapels, and of a grant of 90*l.* from the Bath and Wells Diocesan Church Building Association, 250 of that number are hereby declared to be free and unappropriated for ever." There is, with the exception of the corbel heads without the porch, so much good taste displayed in the uniformity and completeness of this unassuming structure, that we regretted to find what is called a "handsome" stove placed in the centre of the aisle, with a black flue rising vertically to some height, and then running horizontally to make its escape through one of the windows, which has been disfigured for that purpose. We think, also,—but this is a subject which we must touch upon with the greatest diffidence—that had the chancel, which is paved with imitative encaustic tiles, been elevated one step, in point of practical utility alone it would have been better, from imparting a greater distinctness and dignity to the clergyman; and as from the communion table he proclaims the holy Commandments of God, they would not

be lessened in their solemnity, nor lose the force of their impressiveness, from his being raised above his congregation. We should deprecate any attempt to produce a renewal of obsolete forms, utterly inconsistent with the pure religion which, as Protestants, we profess, but even as a spiritual religion, it is requisite to maintain the principle of doing all things decently and in order, so that, by avoiding Puritanism on the one hand, and Popery on the other, we may enter into the deep tranquillity of the House of God with a sincere, zealous, and unquestioning faith, awake only to those gracious and sublime emotions of the soul which conduct us with good thoughts, kind thoughts, ennobling thoughts, to the observance of our highest and most benignant duties.—*Bristol Mirror.*

SUFFOLK CHURCHES.

TUDDENHAM ST. MARTIN.

Few villages in Suffolk can boast of a more picturesque situation than Tuddenham. Seated in the hollow of a deep and narrow valley, it is not perceived from the high table-land on which it is approached from Ipswich, until the traveller has reached the point of descent, when a fresh landscape breaks upon his view, and below, the intermingled red-brick, and more ancient timber-built houses, with their gardens, constitute the village of Tuddenham. Westward, the valley presents no remarkable attractions, but in the opposite direction are to be found some of the most pleasing views of Suffolk scenery.

The parish church, the first object of interest in most places, occupies a commanding station on the brow of the hill immediately overlooking the village. The large Norman doorway, on the north side of the nave, refers the earliest date of the present building to the tenth century; and though no other features of that style of architecture are now visible, it is most probable that the walls of the nave are of the same era. Occasional repairs have probably effaced some of the characteristics of the original design, which the introduction of larger windows more directly superseded. There are now four windows opening into this part of the church, but the tracery is of that meagre description which is commonly found to have been supplied to village churches in the fifteenth century. The accustomed entrance is now on the south side, where the doorway is of the same date as the windows we have just mentioned. In the interior, the visitor cannot fail to be struck with the simple yet graceful appearance of the ancient open timber roof, which, with the exception of the mutilated forms of saints and angels, bereft of their heads by fanatic zeal, remain uninjured and in good preservation. The entrance to the chancel is through a rude arch, without shaft or impost. This part of the building is probably of later date, as succeeding builders generally lengthened the chancels of their Norman predecessors. The door and side windows appear to have been substitutions for former work, and are of poor design; the east window, which is of three lights, the tracery formed by crossing the mullions and without foliations, was, till lately, the only indication from which it could be inferred that the present chancel might have existed in the 14th century. But the present incumbent, upon examining the walls of this part of the church, discovered, near the surface of the ground, the ancient piscina. Upon clearing away the rubbish with which it had been filled, it was found to consist of two arches, one on the face of the wall, the other occupying part of the recess of the side window. The design is bold and striking, the central shaft appearing to support the weight of the whole superincumbent wall. The position of these arches so near the ground, as well as the form of the east window, suggest the notion that the floor of the chancel was originally lower than that of the nave, a circumstance extremely rare, but which is here to be accounted for from the slope of the hill upon which the church is built. The tower is square, consisting of three stages, without buttresses. All the windows have the tracery defaced, and this destruction in the belfry story, which is so common a feature in our churches, we can refer to no other cause than the mischievous carelessness of those workmen who have inserted the timber frames for the bells. It is really much to be regretted that such a negligence has ever been suffered, which so often gives a fine tower a very unsightly appearance. The bells are five in number, and, from the inscriptions, were cast in 1655 by John Darby, whose name is similarly preserved in a very large number of the Suffolk churches.

The history of the erection of our parish churches is generally involved in obscurity; seldom have documents been preserved to shew through whose munificence they were erected, or enlarged, or ornamented. Armorial bearings are frequently the only traces which are left wherewith to identify the families whose names may be associated with the parochial history of former days. Such is probably the case with respect to Tuddenham. But on examining the western entrance, we trace the arms of the family of D'Avilliers, a shield charged with three escutcheons, a name well known to those who have interested themselves in Suffolk genealogy. These appear in the right hand spandril of the western doorway; on the left is a shield, bearing a plain cross, charged with five escalops, but we know not to whom it may be referred.

The monumental inscriptions in the church are few. One records the decease of Richard Keeble in 1653, and several members of his family. This Mr. Keeble was a lawyer of some eminence, and his 'Reports' are at this day considered as a valuable contribution to the legal records of the country. Another is dedicated to the memory of John Sicklemore, Gent., Lord of the Manor of this parish, who died 1644, and was here buried with several of his family. The only other is an affectionate tribute to the memory of Isabella Wrattislaw, who died at the early age of 20. No date is given.

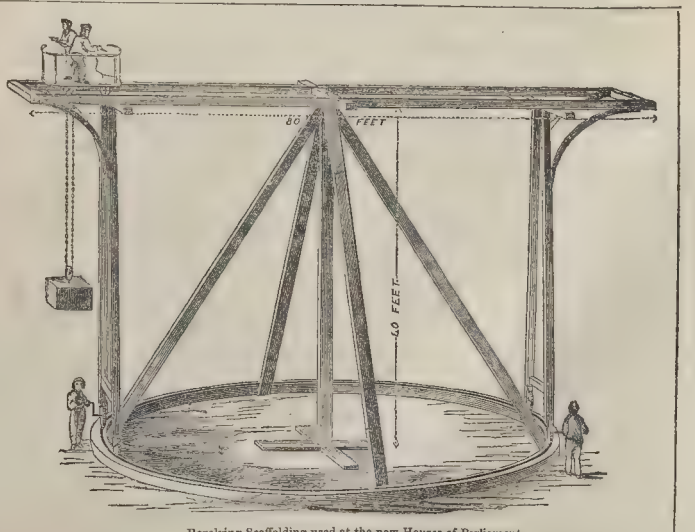
We are unwilling to refer to the state in which the interior of the building lately appeared, but we notice with great pleasure the improvement which has taken place. The north doorway, which had been contracted from its original dimensions by a poor insertion of a later date, has been restored, and a new and substantial door provided; the windows of the nave have been put in order, and their tracery repaired; and the fine open roof thoroughly cleaned. The unsightly and encroaching pews have been removed, and the ancient seats (of which a considerable portion remained in the church) have been reinstated. As more seats were required, the carving of new ones was entrusted to Mr. Ringham, of this town, who has executed them in admirable style, and in exact conformity with the rest. The rails for the communion-table have been executed by the same hand, with the same excellence of workmanship. Across the chancel arch stand the basement panels of the old rood-loft screen, the access to which was by a doorway now remaining in the south wall. The pulpit stands at the north-east corner of the nave, and is a very remarkable specimen. It exhibits a pattern of the decorative art of the middle ages, immediately before its extinction, when fantastic forms superseded the designs of a more chastened and correct taste. Indeed, there are indications of the approaching change in the workmanship of this pulpit, which, while they interest the curious, do not appear to offend the eye. This pulpit has also been restored by Mr. Ringham. A small gallery has been placed in the tower, in the room of those unsightly projections which are very often found in our churches, but neither compensate for their ugliness by any additional accommodation. The font stands on the right hand side of the south entrance, and is elaborately carved, and notwithstanding the defacements by the puritanical hatchet, is one of the best specimens of mediæval art in this neighbourhood. From the fragment of an inscription in the horizontal surface of the basement, it appears to have been the gift of Richard Silvestyr and his wife Agnes, about the year 1480.

The recent alterations in the interior have excited much interest amongst the parishioners, who have cordially seconded the views of their worthy pastor, by voluntary contributions towards the reparation of the church; and though some seceders from the Church of England have refused their aid, a better spirit has influenced others, and one, a landed proprietor, has been a very liberal contributor. Something yet remains to be done towards the renewal of the chancel, which, we hope, will not be neglected by the impropriator, and the church, thus completed, will unite the requisites of comfort, convenience, and neatness, with strict architectural propriety.—*Ipswich Chronicle.*

REVOLVING SCAFFOLDING USED AT THE NEW HOUSES OF PARLIAMENT.

In continuation of the article on timber scaffolding which appeared in our last Number, we are enabled, by the kindness of Mr. Grissell, to give our readers an engraving of the circular travelling crane, now in use for erecting the central, or ventilating tower, at the new Houses of Parliament.

It consists of a circular base curb, at the top of which is fixed a toothed rack. In the centre is fixed a vertical post, with diagonal braces, carrying a centre point, around which the travelling crane works, with its hoisting crab on the top. At the foot of each leg is inserted a toothed wheel, working into the rack, so that by means of winch handles the whole can be made to revolve. It is stated, that the saving in labour is very considerable, but that the saving as compared with the cost of constructing scaffolding is very much greater.



Revolving Scaffolding used at the new Houses of Parliament.

PRINCIPAL GATEWAY TO ST. BARTHOLOMEW'S HOSPITAL.



ST. BARTHOLOMEW'S HOSPITAL.

St. Bartholomew's Hospital is one of the most ancient, as well as the most important, of the numerous charities which distinguish England from all other countries in the world. Rahere, by whom it was founded, lived in the reign of Henry I. A curious document among the Cottonian MSS. (quoted at length by Malcolm in his *Londinium Redivivum*) describes the life of Rahere, and the circumstances which led him to build the priory of St. Bartholomew and the hospital near it. In his youth he is described as haunting "the howsholdys of noblemen and the palices of prynces; where under everye elbowe of them, he spread ther coshyngs with iapys and flatteryngs delectably anoynting the eevyes, by this mean to drawe to hym ther frendschippis," and took the lead at all plays "and other courtly mokk'ys."

Becoming impressed with a feeling of the wickedness of his life, he journeyed to Rome as a penance. Here he was overtaken by sickness, and being at the point of death, made a vow, that if he recovered, he would build "an hospitale in recoation of poure men, and to them so ther gadered necessaries mynyster after his power." He was afterwards commanded by St. Bartholomew, in a dream, according to the legend, to build a church in his name in Smithfield; and recovering, returned to England to fulfil his vow, and comply with the command. Having obtained the king's favour, he first built the church, and then "an hospital house a litell lenger of from the chirche by hymself he began to edifie."*

The hospital remained attached to the priory till after the dissolution; when Henry VIII., in the last year of his reign, granted it a new charter of incorporation, and endowed it with a certain sum on condition that the citizens of London should contribute an equal amount. At the present time its revenue is very large, the good it effects incalculable.

The buildings escaped the Fire of London; but becoming ruinous, were for the most part taken down in 1729. Subscriptions were raised to rebuild it, and in 1730, the present structure was commenced from the design of James Gibbs, but was not completed before 1770.

The principal gateway, very accurately represented by the accompanying engraving, is of earlier date than the hospital, having been rebuilt in 1702, when Sir W. Prichard, Kt., was president, and John Nicoll, Esq., treasurer. The whole is of stone, and is in a good state of repair,—much better than the hospital itself. The figure in the niche is intended for Henry VIII., those on the broken pediment above it, are designed to represent Lameness and Disease. Originally this gateway was connected with buildings on either side, and did not profess to have any thing more than a street front. Lately its character has been altered by removing these buildings, and the result is not advantageous to the design.

In the ensuing number we shall give views of the quadrangle and the Giltspur-street gateway, and shall then be able to speak more at length of the architectural peculiarities of the hospital.

* Rahere's tomb is in the church of St. Bartholomew the Great close by; an interesting building, once part of the old priory.

FIRE DAMP—VENTILATION OF MINES.

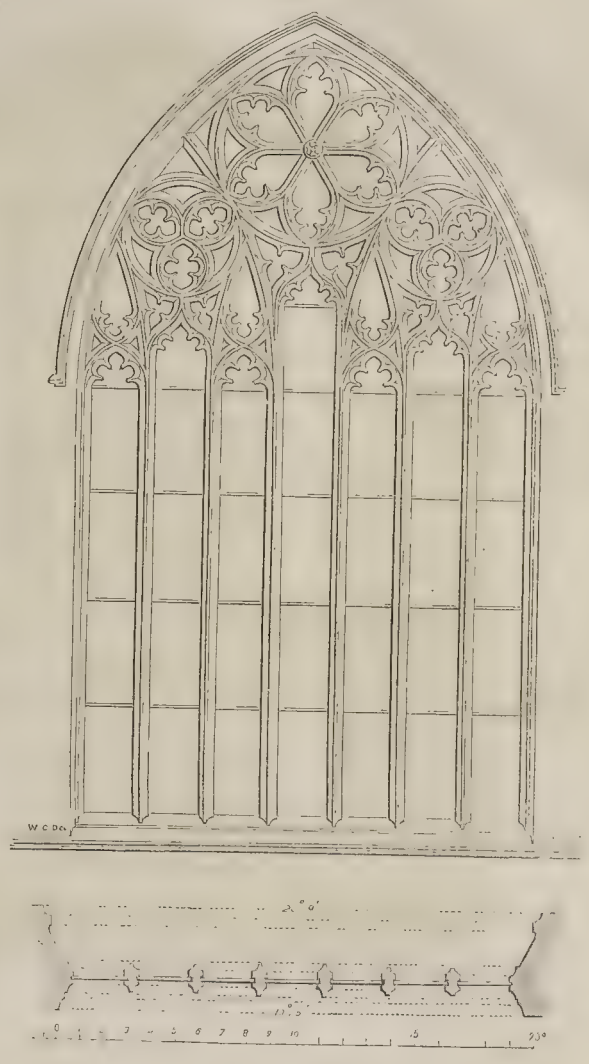
ROYAL INSTITUTION.

The first evening meeting in the present year was held on Friday, the 17th instant, when Professor Faraday laid before the members some observations on coal mines, and the accidents to which the miners are liable, with especial reference to what is called the *goaf* of the mine.

In consequence of the disastrous explosion in the coal mine at Haswell, where 95 men and boys were killed, he had been deputed by Government to proceed there, in conjunction with Mr. Lyell, and to make a report upon it. That report was before the public, and it was with the view of explaining some points in it that he came before them on that occasion. He did not profess to understand coal mines so well as those who had devoted all their time to the subject, but he did profess to understand Nature in some degree, and it was from this circumstance probably that Government had selected him for the inquiry. He would premise that the inquest shewed that no blame attached to any person in the late disaster; all precaution, so far as their knowledge went, had been taken, but certain observations had occurred to Mr. Lyell and himself which, if attended to, might, he thought, have the effect of lessening danger in future. He then described, by means of a black cloth stretched against the wall of the theatre, the appearance of a seam of coal, and the mode of working the mine. He shewed that having sunk a shaft down to the seam (in the present case 300 feet deep), a straight passage 5 yards wide was worked out of it, 25 yards forward; the end of being secured by props. A passage right and left of the same width, was then cut to the same extent, and then again returned right and left, so that ultimately the mine presented a series of masses of coal, 25 yards square, called pillars, each surrounded by a passage or alley. They then began to work out one of these masses (the thickness of the seam in question was 4 feet 6 inches), and as they removed the coal, they secured the roof by means of props. When the whole of one pillar had been taken out, as they could not afford to leave the timber supports, they were withdrawn, and the superincumbent earth descended. This is called a goaf, and ultimately presented a heap of ruins of enormous extent. The goaf lately examined covered 13 acres (an area once and a half as large as Lincoln's-inn Fields). Leaving this part of the subject, the professor then described the nature of fire-damp, and shewed its properties by experiments with coal-gas, which, in most respects, resembled it. The gas which exudes in the mines becomes explosive when mixed with atmospheric air in quantities of not less than 5 of air to 1 of gas, or more than 14 of air to one of gas; with less or more air there is no danger. The professor was of opinion that the coal-dust scattered about was licked up by the rush of air produced, in which case the combustion would be shewed by experiment) was very different. Fire-damp is exceedingly light, and necessarily ascends to the highest parts. This was exemplified by various experiments, as upon which property was based the proposition he had endeavoured to enforce—namely, that the goaf is a receptacle for fire-damp, and by a variety of circumstances may be made to discharge part of its contents into the mine—for example, by change in the density of the atmosphere.

The ventilation of mines was effected by two shafts, in one of which was a furnace; through the rarefaction produced, currents were established which drew off the gas. He shew the size of the furnace at the mine where the accident occurred, he mentioned that a ton of coals was always in combustion. The professor then shewed by experiments with pipes communicating with a room how rapidly smoke was carried off in this manner, and urged, as the main object of his lecture, that all goafs should be ventilated as much as was practicable by means of pipes communicating with the furnace. This might be done in most cases at an expense of 50*l.* There is no lecturer who can invest a subject with so much interest as Mr. Faraday, or more completely simplify an abstruse one. His illustrations too, never fail, but are always ready. His audience are not kept waiting while this bottle is filled, or that is exhausted; preparation and explanation go together, and the result is perfect.

CENTRE WINDOW IN WEST FRONT OF THE DUTCH CHURCH, AUSTIN FRIARS.



Plan of Window.

GOTHIC DETAILS FROM THE DUTCH CHURCH, AUSTIN FRIARS.*

The centre window in the west front, represented by the accompanying engraving, is a very good example of a window in what is termed the decorated style, which, as a general rule, may be called the architecture of the 14th century. The arch of windows of this style is usually equilateral (not always), and the tracery consists in the earlier specimens, of geometrical forms, circles, trefoils, &c.; and in the later examples is formed by wavy, flowing lines. In the Perpendicular style, which succeeded it, the mullions ran through the head in perpendicular lines, and the tracery took the same character; the arch became flatter, and ultimately lost the pointed form altogether. The perpendicular style in the same general way, as above stated, may be considered to belong to the fifteenth century. In windows of the early English style, which preceded the decorated, the arch, especially in the earliest specimens, is acute, and the opening long and narrow. This style belongs to the thirteenth century.



The window that forms the subject of our illustration is considerably larger than the aisle window figured in the last number of our journal, (as is shewn by the dimensions annexed), but is drawn to a smaller scale. The moulding of the cill is the same in this as in the aisle window; the section of the reveal, with its dimensions, is shewn by the annexed cut.

* See p. 30

SOCIETY OF ARTS.

WEDNESDAY EVENING, JAN. 22—W. H. Bodkin, Esq., M.P., V.P., &c. in the chair.

Bennett Woodcroft and J. Havers, Esqs., were elected members.

The secretary read a paper by M. Claudet, "On the progress of the various branches of Photography."

The author treated of the improvements which the art of Talbotype and Daguerreotype have undergone during the past year. Also, mentioning many new processes, and describing a discovery of his own connected with the optical part of the subject, by means of which great and hitherto unattainable facility is given for obtaining a sharp and defined picture. The most interesting part of the paper, however, was that which treated of the new process of engraving the Daguerreotype image, so that it may produce a great number of copies, in the same manner as a plate engraved by the usual method. The process consists in biting away (by certain means described by the author) the dark parts of the picture, so that they may retain ink, and admit of being printed by the ordinary process of copper-plate printing.

FLOOR-TILES.

WE have been favoured with a specimen of glazed flooring tiles from Scinde, of such superior quality and beauty to any procurable in Bombay, that the subject of their importation seems well worthy of the consideration of the mercantile community. The aspect of the tiles must be familiar to most of those who have been on the Indus—specimens, indeed, are plentiful in Bombay. Those before us are 6¼ inches square, and ⅝ of an inch thick, admirably well-baked, and glazed blue and white, like old Dutch ware. One hundred will furnish 3½ yards of pavement for 2½ Rs. of price. The glaze is a true vitreous one, as perfectly made and applied apparently, as that on European earthenware. The floors of our lobbies and verandahs are here at present generally composed of blocks of trap, rough, cold, and comfortless-looking, though sufficiently strong and substantial, or of tiles imported from China. The stone is at once unseemly and expensive, and would rarely be employed could a more elegant and economical substitute be found. The Chinese tiles are 14 inches square, and cost from 15 Rs. to 25 Rs. per 100. Or taking 20 Rs. as the average price, and assuming that something less are required to the square yard than seven tiles, at a cost of about Rs. 1: 12 annas a yard—more than double the price of the Scindian tiles, which can, it is said, be imported here for betwixt 2 and 3 Rs. a hundred—equivalent to 3½ yards of flooring, which will, on an average, cost less than 13 annas a yard. A verandah, or lobby, 15 feet by 30, could be paved with them for about 70 Rs., chunam, pavior work, and all. They would exceed the Chinese tiles as well in strength as in cleanliness and beauty.—*Bombay Times*, Nov. 23.

BUILDING SOCIETIES, LOAN COMPANIES, AND SAVINGS' BANKS.

BY WILLOUGHBY WILTON.

(Concluding Letter.)

Snug. "You never can bring in a wall. What say you, Bottom?"

Bottom. "Some one must present wall."

MIDSUMMER NIGHT'S DREAM.

THE Editor of THE BUILDER has received a letter from "H. S." on the subject of our remarks in previous letters respecting building societies. As our object is truth, not victory, we most willingly receive any light which can be thrown on this abstruse subject. Acting on this principle, we will consider it our duty calmly and independently to admit and criticise such attacks as may be made upon our position, until we shall be shifted from it by numbers—not of assailants, but of truth-telling figures. But to cut this preamble short, the letter of "H. S." reads thus:—

TO THE EDITOR OF THE BUILDER.

SIR,—I have read the letters of Mr. Wilton in your periodical on building societies, and although he has stated sufficient to act as a caution to the public, yet, as it appears to me, he has fallen into some errors, which needlessly make those societies appear worse than they would really seem to be, and consequently of greater disadvantage to the borrowers. Having no connection with any of these societies, I know nothing of their plan of operation, beyond what one may glean from their rather ambiguous prospectus; far from thinking, however, with your correspondent that a period of seventeen years is required, I am inclined to believe that a society may finally terminate in ten years, and also yield a large return of profit to those members, who become, in fact, lenders of money.

Let us suppose a society holding 100 shares. The terms are that 10*s.* per month per share shall be paid, and in addition 4*s.* per month for interest on those shares upon which money has been advanced. The shares being nominally 120*l.* each, we will further suppose that the borrower agrees to a deduction of 63*l.* by way of bonus, and obtains 57*l.* for his share. The account will then stand thus:—*

	£. s. d.		£. s. d.
1st year, Subscriptions of 100 shares	600 0 0	10 shares at 57*l.* each	570 0 0
		Balance	30 0 0
	£600 0 0		£600 0 0
2nd year, Balance	30 0 0	11 shares at 57*l.* each	627 0 0
Subscriptions	600 0 0	Balance	27 0 0
Interest on 10 shares	24 0 0		
	£654 0 0		£654 0 0
3rd year, Balance	27 0 0	11 shares at 57*l.* each	627 0 0
Subscriptions	600 0 0	Balance	50 8 0
Interest on 21 shares	50 8 0		
	£677 8 0		£677 8 0
4th year, Balance	50 8 0	12 shares at 57*l.* each	684 0 0
Subscriptions	600 0 0	Balance	43 4 0
Interest on 32 shares	76 16 0		
	£727 4 0		£727 4 0
5th year, Balance	43 4 0	13 shares at 57*l.* each	741 0 0
Subscriptions	600 0 0	Balance	7 16 0
Interest on 44 shares	105 12 0		
	£748 16 0		£748 16 0
6th year, Balance	7 16 0	13 shares at 57*l.* each	741 0 0
Subscriptions	600 0 0	Balance	3 12 0
Interest on 57 shares	136 16 0		
	£744 12 0		£744 12 0
7th year, Balance	3 12 0	8 shares at 57*l.* each	456 0 0
Subscriptions	600 0 0	Balance	315 12 0
Interest on 70 shares	168 0 0		
	£771 12 0		£771 12 0
8th year, Balance	315 12 0	22 shares at 121*l.* 13*s.* 9*d.*	2677 2 6
Subscriptions	600 0 0	Balance	0 1 6
Interest on 78 shares	187 4 0	100 shares.†	
9th year, Subscriptions	600 0 0		£2677 4 0
Interest on 78 shares	187 4 0		
10th year, Subscriptions	600 0 0		
Interest on 78 shares	187 4 0		
	£2677 4 0		

GENERAL ACCOUNT.‡

10 years sub.	£6000	0 0	78 sh. at 57*l.* each	£4446	0 0
9 do. int. on 10 sh.	216	0 0	22 do. 121*l.* 13*s.* 9*d.*	2677	2 6
8 do. do. 11 do.	211	4 0	Balance	0	1 6
7 do. do. 11 do.	184	16 0			
6 do. do. 12 do.	172	16 0	100	£7123	4 0
5 do. do. 13 do.	156	0 0			
4 do. do. 13 do.	124	16 0			
3 do. do. 8 do.	67	12 0			
78	£7123	4 0			

* The calculation here instituted has not the merit of novelty, though it may be original to its author. The same species of Dr. and Cr. account will be found in some of the pamphlets which have been published on building societies; and particularly in the "Proceedings of the Court of Common Sense," but with this difference that the author of that *brochure* gives it the title—"Calculation to shew what would be the duration of a society, if the shares were fixed at 150*l.* each, the monthly payments twenty shillings per share; the borrowers to pay five per cent. interest, or 12*s.* 6*d.* per share, and *to receive the full value of their shares without any deduction for premiums or discount*;" and proceeds as follows:—

Dr. FIRST YEAR.		Cr.	
To Subscription, 500 shares at 12*l.*....	6000 0	By 41 shares, taken up at 150*l.* each	6150 0
To Interest, 41 shares average 7*s.*	153 15	Cash	3 15
	£6153 15		£6153 15

† The writer "H. S." supposes in all this that the borrower is liable only for 57*l.*; but from all we can learn—and we have asked the question besides in our letters, and it has not been answered in the negative—the borrowers are bound to pay, in full of all demands, 120*l.* per share; and it is this which constitutes the difference between the apparent and real duration of these societies, between 10 and 17 years.

‡ We would recommend "H. S.," who is quite competent to the task, to work out the several cases with these data:—

100 × 120 = £12,000	100 × 63 = £6,300
	100 × 57 = 5,700
	£12,000

These 6,300*l.* of bonus are, what? Are they the premium which has become a shadow of James Blackman, chairman of directors of the Lambeth Building Society? We again pause for a reply. And then let "H. S." say whether we have needlessly made those societies appear worse than he himself does.

10 shares pay each sub.	£60 0 0		
Interest for 9 years	21 12 0		
	£81 12 0	and	obtain a loan at expiration of 1 year.
11 shares, pay each sub.	66 0 0		
Interest for 8 years	13 4 0		
	79 4 0	do.	2 do.
11 shares, pay each sub.	66 0 0		
Interest for 7 years	10 16 0		
	76 16 0	do.	3 do.
12 shares, pay each sub.	72 0 0		
Interest for 6 years	14 8 0		
	74 8 0	do.	4 do.
13 shares, pay each sub.	78 0 0		
Interest for 5 years	12 0 0		
	72 0 0	do.	5 do.
13 shares, pay each sub.	60 0 0		
Interest for 4 years	9 12 0		
	69 12 0	do.	6 do.
8 shares, pay each sub.	60 0 0		
Interest for 3 years	7 4 0		
	67 4 0	do.	7 do.
22 shares, pay each sub.	60 0 0	and	double their capital in 10 years.§

In their prospectus they say that the member only pays an interest of 4 per cent. on the loan. Were the member to receive 60*l.* upon his share, doubtless the interest at 4 per cent. would be exactly what the society charge him, viz. 4*s.* per month, or 2*l.* 8*s.* per annum; but this is a one-sided account, and without reckoning the value of his annual subscription of 6*l.* for 10 years, which at 4 per cent. amounts to 72*l.*, leaving him 12*l.*, after paying his debt of 60*l.* and interest at 4 per cent.‖ Let us take, for example, the first and last cases in our calculation. In the first case, a member joins the society, and pays an annual subscription of 6*l.*; he has appropriated to him at the end of the first year 57*l.*, for which he has to pay annually 2*l.* 8*s.* in addition to his subscription. At the expiration of

10 years, he will have paid	£81 12 0
And have received from the society	57 0 0
Paid for loan of 57*l.* for 9 years	£24 12 0

If he had borrowed 57*l.* for 9 years at 4 per cent., and invested his yearly payments at the same rate of interest, his account would have stood thus:—

1st years' investment		£6 0 0
9 years do. at 8*l.* 8*s.* each		75 12 0
Compound interest 4 per cent. on above		15 16 9
		79 8 9
Sum borrowed	£57 0 0	
9 years' compound int. at 4 p. cent.	20 10 5	
	77 10 5	
		£19 18 4
Or, in other words, he has paid for interest		£24 12 0
The difference between	£20 10 5	
And	15 16 9	
		4 13 8
Is the balance of interest at 4 per cent.		
Paying beyond 4 per cent.		£19 18 4

In the last case a member has appropriated to him 57*l.* at the end of 7 years; at the expiration of 10 years he will have paid 67*l.* 4*s.*, and received from the society 57*l.*—paid for the loan of 57*l.* for 3 years, 10*l.* 4*s.* If he had borrowed at the expiration of 7 years, 57*l.* for 3 years at 4 per cent., and invested his yearly payments at the same rate of interest, his account would have been—

7 years' investment at 6*l.*		£42 0 0
3 do. do. 8*l.* 8*s.*		25 4 0
Compound interest at 4 per cent. on above		12 6 6
		79 10 6
Sum borrowed	£57 0 0	
3 years' compound int. at 4 p. cent.	6 16 9	
	63 16 9	
Excess of interest over 4 per cent. paid to the society		£15 13 9

In fact, the borrowers are paying such rate of interest as the lenders are receiving, and this we find by calculation to be about 15 per cent., and doubling their capital in 10 years by monthly instalments.¶ —I am, Sir, your obedient servant.

H. S.

The *monthly* subscriptions, *fines*, and *forfeiture* of shares, tend to increase the profits above 15 per cent.

We have deemed it our duty not to disturb the calculations of "H. S." in any manner but to leave them as he has conducted them believing that without being checked, on his own premises, the computations of the interest are perfectly correct. "H. S." and all men capable of conducting a calculation o

§ The whole of this elaborate but ingenious process is detailed with great fidelity by "H. S.," but what end does it serve? It does not come near the amount we have shewn to be contributed by the unfortunate borrower.

‖ There is much of truth in this remark, but the whole calculation, which disregards the operation of the bonus or premium, and its terrific re-action on the borrower at the end of 10 years, or for a duration of 17 years, must be erroneous in the extreme.

¶ We have already so fully expounded the operation of these monthly instalments in our previous letters, that we can only refer "H. S.," as well as our readers, to those epistles, and leave the question as therein stated. We are not in any way interested in these societies, and have entered on the discussion because we know that "honest and intelligent men" are connected with them; and these we solicit to act the matter right, "that the public may be able to place confidence in them," and that the borrowers may be equitably dealt with.

magnitude similar to that we have presented from his pen must know that if we had in our previous letters followed the same course, our readers would have been confounded by the very appearance of the figures marshalled to bring out our results. But in all these cases the figures resemble the ingeniously constructed scaffolding which surrounded the Nelson Column, the Royal Exchange, or that which now surrounds the New Houses of Parliament. We removed the whole of our apparatus, and left the object single and entire to view. This, to drop the simile, is to take up the whole question in one proposition, which we word thus:—

To what sum would an annuity of 8l. 8s. a year for ten years amount, when paid or received, and laid up at interest in monthly portions of 14s. 8d. each, the interest at the rate of 5l. per cent. being converted into principal twelve times in the year?*

THE ANSWER IN ROUND NUMBERS IS ONE HUNDRED AND SIX POUNDS TEN SHILLINGS.†

Thus the whole of the calculation of "H. S." falls to the ground, if one share pays annually 6*l.* of contribution and 2*l.* 8s. of interest; or 8 guineas a year by twelve payments of 14s. 8d. each; and with this stringent condition in our calculation on the lenders, that the borrower has had 60*l.*, which he repays in ten years, with interest at the rate of 4 per cent.

If therefore this contribution will not make 120l. in ten years, what annual, or from thence, monthly sum will make 120l.?

We answer: *Nine pounds nine shillings and seven pence a year; or fifteenn shillings and ten pence a month;* improving the contributions at 5 per cent. compound interest; in all of which the borrower has no participation, as we have shewn already from the rules of these societies. Therefore, we conclude the borrower must make good the bonus, and become free some years after his financial bondage of ten years.

We had promised in a previous letter to notice also in our inquiries the operations of the small loan societies. But we desire not to be misunderstood here. We do not associate building societies with the nefarious schemes we are now about to handle.

The small loan societies differ essentially from all other modes of advancing money upon interest in Britain: they are *sui generis*—they make the food they feed on—they are established professedly to lend sums of *5l.*, *10l.*, &c., at 5 per cent. interest, to be repaid by weekly instalments proportioned to the sum borrowed.

Suppose some five idle men choose to get up one of these societies, one is manager, another treasurer, three are trustees, who become divisible also into clerk, messenger, and "Newman Noggs,"—the man who makes inquisition into and reports on the character *cum moribus bonis* of the borrowers' sureties. But these "five senses" have no money, nor do they require any; they are started by a "Ralph Nickleby," and his man "Noggs" put in to look after the other fellows. You cannot now-a-days contemplate any one of these wretched concerns without finding at least one spy, one eaves-dropper—and in the third corner a *sourd et muet* placed there by the chief:—

> "Of spirits, likest to himself in guile
> To be at hand, and at his beck appear
> If cause were to unfold some active scene
> Of various persons, each to know his part."

Well, then, the directors—oh! the prostitution of language!—meet at eight o'clock a night, in a decently-furnished house, or it may be otherwise, as we shall presently see, and in an innermost snuggery sits the chief, the counterpart of your *Ralph Nickleby*. All persons wishing to become members pay the first week's contribution, and tender the names and residences of the parties they propose as sureties, and also the fees for Mr. Noggs making inquisition into their respectability, which fees go by the mileage scale of one mile, 1s.; not exceeding two miles, 1s. 6d.; and 1d for every additional mile, the further charge of 6d. And then the chairman informs the applicant that notice will, in due course of time, be sent to him whether the sureties are approved of.

First applicant wants *5l.* on loan, and pays for being allowed to ask for it 2s., or the first week's contribution; and for the journey of Mr. Noggs from Paddington to Stepney, 3s., 1s. for the book of rules, 1s. towards a deficiency found, and 2d. for office-rent, making in all 7s. 2d.

This is a tolerable entrance-fee before the man knows whether his respectable friends will be accepted as sureties, and the loan obtained.

Pray, gentle reader, is this according to law, and conformable with the Act of Parliament? However these may be, the man buttons on his great-coat, makes his bow, retires, and walks home, the Devil whispering in his ear all the way:—

> "Therefore, if at great things thou wouldst arrive,
> Get riches first, get wealth, and treasure heap,
> Not difficult"—

and the visions of "wealth amain" piled on the board-table, flickering brighter than the gas-lights to his eyes, and his ears listening as to the chairman's voice, as in broken accents it says of the society:—

> "Riches are mine, fortune is in my hand."

Enter No. 2 for a loan of *10l.*—"Four shillings, Sir, first week's contribution (says the chairman); 9s. for the inquiries into your sureties, one being at Hoxton, another in Kennington, a third all the way to Nottinghill—in all 15s. 2d." The man pays: "small consolation" to be now told, as the former, that he will hear in due course from the secretary.

The third party for a loan of *15l.* now appears, and the same forms are gone through, and he feels

> "That fellowship in pain divides not smart,
> Nor lightens aught each man's peculiar load;"

for he pays 6s. as the first week's subscription, and all the *et cæteras* of No. 2. Or at the option of the member, to which option he receives a gentle hint from a touter in the person of Mr. Noggs, No. 1 for *5l.* puts down his 4s.; No. 2 for *10l.* takes 10s. out of his purse, and hands it to the secretary; and No. 3—"envy they say excites"—whisks 12s. on the table.

Next evening the cases are discussed; and some accepted, some postponed, and some rejected. In due course the parties and their sureties attend, *de nocte in noctem*, and the "promissory notes" are drawn, signed, accepted, and endorsed; and each gets a book, in which is entered, or to be entered, all the transactions of the loan, and the results of his wandering promissory notes. Suffice it to say, the parties are charged interest at the rate of 5 per cent. per annum, from and for the time the money is advanced; charged too in the amount, and deducted from the money when advanced.

Now, though "Ralph Nickleby" appears the lender to the hundred borrowers, his coadjutors could manage the matter very well without him, for 50 subscribers would enable a society in four weeks to lend *10l.*, since the society is not the lender, but merely the manager of the fund lent. This is the great secret, the moving spring in the operations of these widely-spread and ruinous societies, for the managers are paid so much for doing *improperly* what the contributors themselves could do economically and *equitably*.

Upon the principle of receiving, as from 50 members, their weekly quotas, these societies, if they have no backer as "Ralph Nickleby," are enabled to make loans of *10l. ad infinitum*, the difference between what the borrower receives and what he pays being quite enough to pay expenses of management, and allow the "directors," as the needy scheemers style themselves, to pocket a handsome sum annually. We speak advisedly when we affirm, that for managing every loan of *10l.*, which the borrowers contribute one to another, the directors pocket far more than people generally imagine; but we shall see. Besides, the interest is here illegally charged—we mean that the lenders charge the borrowers interest in place of discount, which makes an immense difference in these transactions. For example, if a poor man contracts for a loan of *10l.* by weekly instalments of 4s. a week for 50 weeks, the loan is at first simply equivalent to the sum of five pounds two shillings for that time, or to two hundred and fifty five pounds for one week; and the true charge for interest would be about four shillings and eleven pence, whereas the lenders exact about seventeen shillings and sixpence by their process more than ought to be taken.

But we must now have done with both Building and Loan Societies.

Yet one word in defence of the savings' banks before we lay down our pen. In recommending building societies to the public, the secretary to the Tring Benefit Building Association, ventures a bold remark, to the effect, that "Persons desirous of joining a building society, have nothing to fear in regard to the safety of their money. These societies," he affirms, "offer a better security than savings' banks, or any investment of the sort. The security of savings' banks is only *visionary* at best; but building societies have real security for money advanced." That is to say, a small joint stock club at Tring, in Herefordshire, is broader-backed, stronger, and more secure than a savings' bank over which the most independent, wealthy, and influential men of a county, parish, or district preside whose funds are periodically invested with the Commissioners for the reduction of the National Debt. The ravings of this Bedlamite would deserve no consideration, did he not labour under the mesmeric influences which impresses members of building societies with the belief that, as to their freeholds—

> "Underneath are diamond-rocks,
> Topaz-boulders, ruby-blocks,"——

and past their doors run onward still

> "Golden rivers, silver streams,
> Richer sights than visit dreams."

We beg leave to recommend savings' banks, as banks of safety.

The miserable victims of the small loan societies, so hurtful and pernicious to the morals of the industrious classes, not only find no relief in the calamities to which they expose them, but by association with them prepare themselves for future unknown vicissitudes; while the humble man, who goes weekly to the savings' bank, may hope, by the blessing of Heaven, for a continuance of that prosperity which had enabled him in the beginning to call himself a "saving-man."

Correspondence.

METROPOLITAN BUILDINGS ACT.

SIR,—It is much to be regretted that complexity or ambiguity should exist in such an important Act of Parliament as the above; but that it does exist, and in several of its regulations, cannot be denied. This was repeatedly pointed out during its progress through its several stages; and to improve the Bill, a postponement was suggested until the ensuing session;* but having lingered so long, and having undergone so many alterations, it was supposed by those having its management to be perfect in all its parts, and it was determined at once (late in the session) to pass it into a law.

In your last publication, in a note to your notice of some of the proceedings under its provisions, you state that "many of the builders and zinc-workers have been astonished at the interference of the district surveyor when erecting a funnel or smoke-pipe on a chimney-shaft! nevertheless, he (the surveyor) would seem to be justified. If it be 4 feet above the brickwork, *notice must be given of such work*, and the FEE *paid*, or the penalty *may* be incurred. See s. 13, and schedule F, art. chimney-pots, tubes, &c.

I must confess I was as much astonished at reading this note as the builders and zinc-workers must have been at a visit by the district surveyor, especially *with* the demand for a FEE.

Having carefully read over sect. 13, I find no mention whatever of *chimney-pots, smoke-pipes, or funnels*, but the section clearly enough particularizes *chimney-shafts and flues;* by referring to schedule F, you will find that chimney-shafts and flues are to be of brick or stone-work, and at least four inches thick; this, therefore, cannot mean, even by *implication*, a metal or any other chimney-pot or smoke

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* The borrowers are charged 4 per cent.; we assume that the lenders can improve their contributions at 5 per cent.

† If we had computed the improvement of the money at 6 per cent. the amount would have been somewhat different.

* In the reports made upon the Bill by the committee of master carpenters, published from time to time in THE BUILDER.

tube, but a little further in advance in the same schedule you will find the following regulations for "Chimney-pots, tubes, &c."

"As to earthen or metal chimney-pots, tubes, funnels, or cowls, of any description whatsoever, if such pot, tube, funnel, or cowl be higher than 4 feet above the brick or stone-work of the flue on which the same is placed, *then* it must be fixed 2 *feet* at the *least* into the brick or stone-work of the flue, *on which it shall be placed*."

There can be no doubt but this is a very proper regulation in the affixing these tubes, and much to be preferred to the old and clumsy method usually adopted in piling brick-work upon a flange, and round the pot or tube; but that the Act requires any notice to the district surveyor for such a trifling work cannot be admitted; and less so that *any* FEE is payable therein. It is true that if a "*chimney pot, &c. higher than 4 feet, is not fixed at least 2 feet into the chimney-shaft and flue*," that then (but not if properly constructed) the 14th and 18th secs. may be put into operation against the party committing the irregularity; both these sects. provide for the payment of all costs and charges to which the district surveyor may be put in rectifying irregularity; but he is certainly not to be paid *regular or irregular* by a FEE. I am borne out in this opinion upon reference to the amended Bill in the committee of the House of Commons, previous to the "*amendments and alterations*" proposed to the Committee of the House, and assented to by them. In that Bill, among a great many other objectionable fees, was a fee specially set forth of 10*s. for inspecting chimney-pots, shafts, funnels, &c. above a certain height.*

This and several other fees for trivial matters were opposed by the society I had the honour to represent, and I may venture to assert, that the result was an alteration and expunging of these unnecessary and objectionable inflictions. It is therefore to be exceedingly regretted that attempts are made or making in *many instances* to inflict upon the unwary a fee not *justified* by any part of the Act; and further, there is no question that the surveyor or surveyors exacting a fee for chimney-pots, smoke-pipes, tubes, &c., will assuredly bring himself or themselves under the operation of the 79th sec. of the Bill. In a word, the legitimate fees *demandable* will be found to be quite remunerative for any of the ordinary duties to be performed; for any special services provision is made to meet all such services by special fees. This being the case, and any costs or charges, expenses or loss of time, in compelling or putting in force its regulations and enactments, being also fully and amply provided for, and which charges are set forth in schedule L, in the Bill, it is to be hoped that charges will not be made upon the public not authorized by the legislature.

Dorset Place. H. BIERS.

[The above letter did not arrive in time for us to offer any observations upon it in the present number. We shall do so hereafter; the subject of it, as will be seen by our leading article, has already occupied our thoughts.—ED.]

MISTAKES IN ESTIMATES.

SIR,—The steady course you have always pursued with respect to professional disputes and grievances, and the decided stand you have always made against crooked dealings connected therewith, induce me to make known to you the particulars of a transaction in which I have been recently engaged, and regarding which I conceive that I have a just cause of complaint. In so doing, I trust that others may benefit by my want of caution, and by my loss. In the remarks upon St. Paul's Church, Herne Hill, which appeared in your publication of the 4th instant, it is stated that the amount of the estimate for the building was 4,500*l.*, and details are given to prove that the actual outlay did not exceed that sum. This agreement between the estimate and expenditure is generally a theme for well-merited praise, and deservedly so when the conditions of the contract are fairly carried out; but cases may arise, and in the one I am about to trouble you with, has arisen, when very different deserts to those of praise should be awarded. It was my lot to be the unfortunate subcontractor for the masons' work of the church in question. My calculations were made from quantities supplied by Mr. Broomfield; after which an agreement was handed to me by the chief contractors, Messrs. Howard and Son, which, in an unguarded moment, supposing all was right, I signed. By this I undertook to do the work agreeably to plans and specifications furnished by the architect, and which I distinctly understood were the same or similar to those made use of by Mr. Broomfield. As I progressed with the work, I soon discovered that the quantities supplied by Mr. Broomfield were very deficient when compared with the plans and specifications supplied by the architect. I remonstrated with each party, but to no effect; Mr. Broomfield said that he did not take out the quantities himself, but copied them from the architect's book of dimensions. The architect said that he had nothing to do with it, and referred me to Mr. Broomfield. Messrs. Howard and Son said that I had the same quantities that were supplied to them, and that I must abide by my written agreement. Without troubling you with the full particulars of the loss which I contend has been most unjustly forced upon me, I will mention that one item in the quantities supplied by Mr. Broomfield was 322 feet of stone in quoins to buttresses taken at 7 inches by 5 inches, while in the plans and specifications supplied by Mr. Alexander, all the quoins were to be 9 inches by 5½ inches. I can prove that upwards of 1,000 cubic feet of stone have been used more than my calculations were made for, and this, together with the labour upon it, amounts to a very considerable sum. I shall feel obliged by your giving insertion to this communication in your columns; it is a transaction that ought to be generally known in the trade, as it may act as a warning to others.—I am, Sir, your obedient servant,

WILLIAM SUGDEN.

Gravel-lane, January 18, 1845.

[The circumstances stated do not seem to reflect in any degree on the architect. Mr. Sugden's remedy is against the party who took out the quantities.—ED.]

REPAIRS COMMENCED BEFORE JANUARY 1ST.

SIR,—I commenced some rather extensive alterations in a house in one of the metropolitan suburbs (removing old pots, rebuilding part of chimney, stuccoing the front, &c.) about the 15th of December last, and had finished the chimney before the scaffolding for the front was erected, which was this week.

I am applied to by the district surveyor for "a notice," which, as we commenced operations before the new Act came into force, I do not think proper to send.

You will oblige me by giving your opinion on this subject to your numerous readers, among whom is yours, &c., ALPHA.

January 17, 1845.

[This is an important question, and one which, as we desire our opinions to be regarded, we cannot definitely answer without the fullest information. One alteration or addition commenced before the 1st of January, and therefore not within the control of the Act, would not exempt from its provisions *another* alteration or addition commenced after the 1st, although in the same building. If the whole were included in one specification, and contracted for before the 1st of January, the matter would perhaps be open to question.—ED.]

SIR,—I am a journeyman carpenter, and want to make myself acquainted with architecture, drawing, &c.; but from the numerous works published, I do not know which to buy that would be most useful to me; and after reading your leader of THE BUILDER, January 4th, I resolved to seek your advice. Your opinion would oblige and serve

ONE OF YOUR SUBSCRIBERS.

32, Shaftsbury-street, City-road,
January 20, 1845.

[Our correspondent's inquiry is a more difficult question to answer fully in a few words than it may appear to be; but we recommend him to read Mr. Hosking's two treatises on Architecture and Building, published by Longman. He can perhaps borrow them, rather than buy. As to drawing, he would find facilities for learning the rudiments cheaply at one of the literary institutions—the Mechanics', for example, in Southampton buildings.—ED.]

SLABS AND HEARTHS UNDER THE NEW ACT.

SIR,—In the new Building Act, schedule F, it is required, that the hearth of every chimney must be laid and bedded wholly on brick or stone, or other incombustible substance, which must be solid for *a thickness of* 9 *inches* at least beneath the surface of any such hearth. Will you be kind enough to inform me how I am to manage that, as the joists in my specification are only 6 inches deep, and the floor 1 inch thick.—Yours,

Shadwell, Jan. 21, 1845. J. T. LOVELL.

[Our correspondent mistakes hearth for *slab*. The Act directs, as he correctly states, that the hearth (on which the stone stands, within the opening) shall be bedded on incombustible substance at least 9 inches thick: but regarding the slab, in *front* of the opening, it simply provides that it shall be laid on stone or iron bearers, or brick trimmers, without mentioning any thickness.—ED.]

Miscellanea.

CLERKENWELL IMPROVEMENTS. — At a meeting of the Middlesex magistrates held last week at the Sessions House, Clerkenwell, the report of "the committee appointed to ascertain if any and what alterations and repairs are necessary to be made in the Sessions House," was read. It set forth that the present building was entirely inadequate for the purposes of the county, especially for the business of the sessions, whether in regard to the accommodation of the prisoners, to the offices for the clerk of the peace, to the comfort of the judges, the jury, the bar, the press, or the public. Mr. Wilson, in moving that the report be printed and circulated amongst the magistrates, begged that they would all come and examine the present building, and, if they were to do so, he was satisfied they would instantly approve of the suggestions which the committee had made in the report as to a remedy for the evil. Mr. Rotch said the county would be much benefited by the adoption of one of the suggestions, which was that the present building should be pulled down and the site let upon building leases for the new street in continuation of Farringdon-street; and that a new Sessions House should be built on some waste ground belonging to the county, nearly opposite to the House of Correction. The motion was agreed to.

GROWTH OF TOWNS NEAR RAILWAY STATIONS.—A village of 200 houses and a population of 1,000 souls, has sprung up at the Wolverton station on the London and Birmingham Railway. A church and parsonage house have been built at an expense of 4,000*l.* We learn from the *Railway Record* that the railway company have given a room for the use of the Wesleyan methodists, and have established day and sunday schools, where 250 children are educated under the charge of the clergyman. A reading room and library, savings' bank, and musical club, have been established and are working satisfactorily.

PROPOSED RAILWAYS.—The Board of Trade are throwing overboard the new schemes by wholesale, but it remains to be seen whether or not their decisions will be allowed to pass unquestioned. It seems dangerous to entrust such powers as this Board seems to wield to a small number of individuals.

THE CATHEDRAL OF ST. CANICE.—This, perhaps the most perfect and beautiful of the ancient cathedrals in Ireland, was lately threatened with destruction by fire, caused by the overheating of one of the flues. Mrs. O'Brien, the bishop's lady, first observed that flames were bursting from the roof of the cathedral, and gave the alarm. After about an hour's active exertion on the part of the military and the inhabitants, it was completely extinguished, without further injury having been sustained than the partial burning of a few rafters and the stripping off of some of the slates and lead.

SOIREES TO FELLOWS OF ROYAL SOCIETY. —Lord Northampton has issued his invitations for Saturday, February 22nd; March 8th and 15th; and April 5th.

GREENWICH HOSPITAL.—The buildings composing Greenwich Hospital, which have hitherto been unprotected from the ravages of the electric fluid, are about to be supplied with Harris's lightning conductors.

THE HOUSE OF COMMONS.—A great many workmen are employed in constructing the temporary buildings intended as committee rooms for the approaching session of parliament. They are being built in what is termed the Speaker's Court of the old houses, and are about ten in number. These rooms have become necessary from the alterations made in the lobby of the House of Commons, which has been curtailed at least one-half, and the preparations now being made in the Speaker's drawing-room and adjoining rooms, which were used as committee rooms last year, those apartments, as well as the fine old dining-room, having to be prepared for the extension of the building of the new Houses of Parliament. The new committee rooms are so placed as to afford every facility of communication, especially to members at the house, by a passage through Westminster Hall and the Cloisters, leading from the lobby. Some months back it was stated that Bellamy's refreshment rooms were required to be removed to make the necessary alterations. They now occupy nearly the same site as before the fire which destroyed the Houses of Parliament. In the Cloisters presses are being formed for the papers of the Journal Office, as a temporary depository. The two large rooms in New Palace-yard are intended as courts for the Vice-Chancellors Knight and Bruce. The ancient apartment known as the Speaker's dining-room, is to be restored to its original architectural elegance, but the connecting buildings are being cleared away for the building of St. Stephen's Hall. The beautiful Gothic Cloisters are also to be renovated, and are to form a portion of the new houses.—*Morning Paper.*

NAWORTH CASTLE.—We are glad to learn that Naworth Castle is to be restored forthwith, in the style of the olden time, and that to Mr. Salvin, F.S.A., is confided the task. During the past week a quantity of magnificent oak timber, from Lowther-park, has been laid down for the purpose of being used in the work of restoration, and already are workmen busily engaged in preparing materials, and in repairing and strengthening various parts of the external walls. The great hall, which formed perhaps the most imposing feature of the old castle—in which, of yore, had feasted the retainers of "the noble Lords Dacre, who dwelt on the Border," and where, in later and more peaceful times, the tenantry of the barony were entertained—is to be furnished by a highly decorated ceiling of carved oak, somewhat after the fashion of that of Eltham Hall, in place of the "grim and antique portraitures" with which it was formerly crowned. A strong arch of freestone has been built for support, under the hanging eastern tower, the apartment in which, comprising the tapestries, bed-chamber, oratory, and library of "Belted Will," have suffered but little injury, and will still serve to afford future visitors an idea of what Naworth Castle was previous to the late lamentable fire.—*Carlisle Patriot.*

COMPETITION FOR BATHS AND WASH-HOUSES.—The committee have passed a resolution to the effect that no person is to be admitted to see the plans, or even to be informed of the number sent in, until the decision be made. They find difficulty in obtaining proper sites at a fair price; landowners have manifested their desire to follow precept and "take in the stranger." At a meeting of the committee, held last Wednesday at the London Tavern, among several plans submitted was one which met with approval, having for its object the making various divisions in the washing department, so as to preclude any party from being overlooked by a neighbour, and thereby prevent unpleasant observations or feelings with respect to the nature, quality, or quantity of the articles brought to be washed.

FINE ARTS IN BATH.—The second exhibition of the Society for the encouragement of the Fine Arts in Bath, will be opened early next month. It is the intention of the committee to award a premium of 20l. for the best picture exhibited.

STRASBURG CATHEDRAL.—The *Courrier du Bas Rhin* contradicts the report of a deviation from its perpendicular in the Tower of Strasburg Cathedral, and affirms that it rests as securely on its foundations as it did two centuries ago.

TESTIMONIAL TO MR. BRUNEL, C.E.—An elegant service of plate, said to be worth 2,000*l.*, was presented yesterday week to Mr. Brunel by 257 subscribers connected with various railways, to commemorate their successful completion. The entertainment took place at the Albion in Aldersgate-street. Mr. C. Russell, M.P., chairman of the Great Western railway, presided, and was supported by upwards of one hundred of the subscribers. Mr. Saunders, the secretary, in the course of the evening announced that the differences between the Great Western and South Western railways had been amicably adjusted.

CORRUGATED IRON ROOFS AT PEMBROKE DOCKYARD. — Messrs. Fox, Henderson, and Co., are now erecting nine iron roofs over as many slips in Pembroke Dockyard. They are remarkably light in appearance. The iron principals are of the same shape as the carpentry introduced by the late Sir Robert Seppings, in the construction of his wood roofs. The covering will be corrugated iron. If these roofs answer, of which there is little doubt, it is reported that other slips of larger dimensions will be similarly covered. Within the last year the dock-yard has been increased about 14 acres, making an area of nearly 80 acres. In the new part, two large building slips have been formed. There is also an extensive pond for the immersion of elm timber, and it is generally thought that much durability would be given to English oak by a similar process, before it is put into a ship, a system adopted by the late Sir R. Seppings. The foregoing works have been executed by Henderson and Co. Large additions are making to the smithery. A building for Nasmyth's steam-lift hammer, &c. These buildings are in the hands of the contractors for the iron roofs. A great many sheds, for the preservation of timber, plank, deals, &c., have been built.

THE NATURAL SYSTEM OF ARCHITECTURE, AS OPPOSED TO THE ARTIFICIAL SYSTEM OF THE PRESENT DAY.—Mr. W. P. Griffith, F.S.A., has issued a prospectus of a work under this title, the object of which is to set forth the principles which guided the formation of the Grecian Temples (the circumstances which regulated their proportions), and to shew the connection between ancient architecture and music.

NEW CHURCHES.—At a meeting of the society for promoting the enlargement, building, and repairing of churches, held last Monday, grants were voted in aid of the erection of new churches for the districts of Wyke, in the parish of Birstal, near Halifax, North Rode, near Congleton; Salford, near Manchester; East-end Finchley, Middlesex; Byley, near Middleton, Cheshire; St. James, Congleton, and Neut Head, near Penrith.

IMPROVED DWELLINGS FOR AGRICULTURAL LABOURERS.—Forty-two acres of excellent freehold land, most conveniently situated between the Wilford and London roads, have been bought by the members of the *Ruddington Land Allotment and Provident Fund Society*, the purchase to be completed and the land entered upon at Lady-day next. It is intended to erect 160 five-room cottages for the members, two and two, upon each half-acre. The moneys from the sick clubs, and those small sums belonging to private individuals will be withdrawn from the savings' banks, to be invested in the purchase, bearing an interest of 4*l.* per cent. per annum. Any person is allowed to subscribe, in shares of 5*l.* each, but none permitted to have more than 20 shares. In this way, the working men will have the use and profit of their own money, in addition to the interest. Each cottage will have a back door, garden, office, pigstye, and covered cesspool, for the reception of all drainage and refuse of the family, so that nothing unseemly, offensive to the senses, or injurious to health will be met with here.—*Derby Mercury.*

FIRE BRICKS IN STOVES.—The stoves in Lloyd's rooms at the New Royal Exchange are said to give great heat with much economy. The economy arises from the use of fire-lumps, which are placed at the back of the grate. These fire-lumps are slow conductors of heat, which is very powerfully radiated over the apartment by them, and they retain the heat much longer than metallic bodies, and to such a degree, that they impart a considerable warmth to the rooms many hours after the fires have been extinguished.

THE FATAL ACCIDENT AT THE PHŒNIX-PARK.—The fatal accident which lately occurred in the park caused the greatest sensation in the neighbourhood. It is a matter of surprise that more damage was not done both to life and property, considering the position the houses are in, and the sudden burst of the accumulated waters on them. The following is the finding of the coroner's inquest:—"We find that Mary Fox, Margaret Fox, Pat Fox, and J. Coyne were accidentally drowned by means of an embankment at the pond in the Furry-hill, Phœnix-park, giving way, when the water rushed into the room where they were, and did then and there drown them. And the jury further say that said embankment, built or caused to be built by the Commissioners of Woods and Forests, was built in an insecure and insufficient manner, and wholly incapable of supporting the body of water therein confined; and that such insecurity and insufficiency was the cause of the accident; and the jurors beg to call the attention of the Commissioners of Woods and Forests to the great injury and loss of property sustained by several poor persons through the negligence of the servants of said Commissioners of Woods and Forests."—*Globe.*

NEW PIER AND BASIN AT DEVONPORT.—The foundation-stone of this immense work was laid on the 14th of May, 1844, since which time 52,000 cubic feet of stone have been set, and a great extension of dam has been effected for the purpose of building the invert for the caisson at the basin entrance. The foundation of these works over a considerable space is at a greater depth from the coping than was ever known in a work of a similar nature, it being no less than 68 feet 6 inches, which is 8 feet deeper than the lowest foundation of London-bridge; consequently the greater is the risk of the security of the coffre-dam at Devonport than it was at London-bridge. The strata of the foundation is hard slate rock. On the east side of the basin, and leading into it, two large docks will be found, capable of receiving the largest class ship. These will be made partly from the docks Nos. 1 and 3, intended to be broken up. The dock No. 1, which will be thus converted, is the oldest in the dockyard. From a copy of an old drawing, it appears that it was made about the commencement of the 18th century.

THE SMOKE NUISANCE IN MANCHESTER.—It is yet too early to speak with any accuracy of the amelioration of this long-endured nuisance; but so far as we have been about the streets of Manchester and Salford, in both of which boroughs the statutory provisions against smoky chimneys came into operation on Wednesday week, we are inclined to think that there is a considerable improvement. Indeed, we know that various apparatus for consuming smoke have recently been fitted to the furnaces of a number of manufactoring establishments in both towns, and it would be a libel on these to suppose that no good effect had resulted from them, or from the increased watchfulness and care rendered obligatory by the local acts. The nuisance committee of the Manchester Council have given three months' grace to parties offending, and will begin to enforce the penal provisions of the Police Act "from and after the 1st of March next."—*Manchester Guardian.*

HESSLE CHURCH.—Some further improvements in this church have just been completed. The noble arch connecting the tower with the nave was some time since opened, thereby extending the church to the extreme west, and affording better and increased accommodation in free seats to the parishioners. And during the last week a very handsome window of stained glass has been put into the west side of the tower. The window, which is partly after the design of some in the Temple Church, London, has been very ably and satisfactorily executed by Mr. Barnett, of College-street, York. Few parishes can now boast of having a neater or more comfortable church than Hessle, nor have any, during the last few years, undergone more alterations that have tended so much both to improve the sacred edifice, and also to accommodate those worshiping therein.—*Hull Packet.*

INSTITUTION OF CIVIL ENGINEERS.—At the anniversary meeting, held last Tuesday evening, Mr. Walker was re-elected president for the ensuing year. A change had been contemplated.

REMOVAL OF ST. MARGARET'S CHURCH, WESTMINSTER.—Towards the close of the last session of Parliament a report was ordered to be printed, made by the select committee to whom the petition of the rector, churchwardens, and vestrymen of St. Margaret's, Westminster, for aid towards repairing the church, was referred. The report is an interesting document, and contains a recommendation for the removal of St. Margaret's Church from its present site. The incongruity of the church (the committee declare) in its style of architecture and its proximity to Westminster Abbey, have been frequently noticed and lamented. They express their unanimous recommendation "that the church of St. Margaret's should be removed from its present site, and they have reason to think that a new churchyard or cemetery in some less populous situation might be purchased at a very moderate expense; and that it might be possible to obtain a portion of land not far distant from the present site, where the church could be rebuilt in a great measure from the present materials.—[Churches should not be pulled down without the gravest consideration, and for most cogent reasons.—ED.]

IMMENSE STONE.—The Peckforton Quarries have for some time been in full work, and we understand that the stone for all purposes is of the very best quality. Some little time ago an immense stone was raised in the quarry belonging to Mr. Tollemache; it was 54 feet long, 18 feet 6 inches wide, and 5 feet deep. It was cut up in blocks for the baronial castle now in course of erection by Mr. Tollemache, at Beeston. We are informed that the stone was fairly lifted out of its bed.—*Chester Chronicle.*

TYPHUS FEVER.—We have said that this pestilence has many favourite lurking places as well known to our learned physicians of the Fever Hospital as their own names. Where are they? In the aristocratic vicinity of Belgrave or Grosvenor Squares? Alas! no. Would to heaven the fever would follow the fashion and migrate westward, if only for a single season.—Imagine but one fashionable street or square in the predicament of a fever district in Whitechapel, with not a house, nor a single room in a single house without its fever patient. What a sensation it would produce! What learned consultations as to the cause, what paragraphs in the newspapers, what searching inquiries into the state of the drainage, what indignant denunciations of the Commissioners of Sewers, what abuse of the landlords! The patriots of both houses would lose no time in bringing the matter forward, and we should have a second edition of the *qui tam* actions. The witty divine who wished to immolate a member of the Episcopal bench to stop a railroad abuse, would be delighted with such a practical application of his principle. But, unfortunately for the cause of social improvement, the fever has vulgar tastes and loves obscure localities, such as Rosemary Lane, and other low parts of Bethnal Green and Whitechapel. "The streets, courts, alleys, and houses, in which fever first breaks out, and in which it becomes most prevalent and fatal, are invariably those in the immediate neighbourhood of uncovered sewers, stagnant ditches, and ponds, gutters always full of putrefying matter, nightmen's yards, and privies, the soil of which lies exposed, and is seldom or never removed. It is not possible for any language to convey an adequate conception of the poisonous condition in which large portions of both these districts always remain, winter and summer, in dry and rainy seasons, from the masses of putrefying matter which are allowed to accumulate." This description, though written some few years since, still remains true to the letter. Again: "In every district in which fever returns frequently, and prevails extensively, there is uniformly bad sewerage, a bad supply of water, a bad supply of scavengers, and a consequent accumulation of filth; and I have observed this to be so uniformly and generally the case, that I have been accustomed to express the fact in this way. If you trace down the fever districts on a map, and then compare that map with the map of the Commissioners of Sewers, you will find that, wherever the Commissioners of Sewers have not been, there fever is prevalent; and, on the contrary, wherever they have been, there fever is comparatively absent."—*Medical Times.*

ANCIENT RESERVOIRS. — The immense works which were made by the ancient kings of Egypt, for receiving the waters of the Nile when it overflowed, are well known. But there never was a more stupendous work of this kind than the reservoir of Saba, or Merab, in Arabia Felix. It was a vast lake formed by the collection of the waters of a torrent in a valley, where, at a narrow pass between the mountains, a very high mole or dam was built. The water of the lake so formed had near 20 fathoms depth; and there were three sluices at different heights by which the plains below might be watered. The city of Saba, or Merab, was situated immediately below the great dam: a great flood came and raised the lake above its usual height; the dam gave way in the middle of the night; the waters burst forth and overwhelmed the whole city, with the neighbouring towns and people. The remains of the eight tribes were forced to abandon their dwelling, and the beautiful valley became a morass and desert. This fatal accident happened before the time of Mahomet, who mentions it in the Koran. See also "Sale, Prelim. sect. 1, and Niehbuhr, Descript. d l'Arabie, p. 240."—*From Lowth's Notes on Isaiah, ch.* 1.

HAWKSHEAD CHURCH.—This fine ancient edifice is about to be greatly beautified in the forthcoming spring. An altar-window is to be put in at the cost of nearly 100*l.*, and a new and powerful organ to be erected. A covering for the altar was lately received by the rev. vicar as a present from some ladies who visited the church last summer. It is a very splendid and costly affair, richly embroidered with gold.—*Westmoreland Gazette.*

Tenders.

TENDERS delivered for Re-pewing Leverington Church, Wisbeach.

	To be executed in Fir.				in Wainscot.		
Thomson	£215	0	0	..	£268	0	0
Bennett & Son	279	10	0	..	318	0	0
Ellis	275	0	0	..	360	0	0
Batersham ..	349	0	0	..	398	16	2
Richmond ..	355	0	0	..	456	0	0
Freeman	314	0	0	..	474	0	0

Another tender was received too late, the amount of which did not transpire.

NOTICES OF CONTRACTS.

For the erection of the Railway Works between Leeds and Bradford, including fencing, earthwork, masonry, roads, and permanent way.—William Clarke, Secretary, Hunslet-lane Station, Leeds. January 27.

For the erection of a New Pauper Lunatic Asylum at Clifton, near York. — Messrs. Scott and Moffatt, Architects, 20, Spring Gardens, London; or Mr. J. Holtby, Low Ousegate, York. January 28.

For the execution of Works on the Chester and Holyhead Railway.—1st. A distance of eight miles, or thereabouts. 2nd. A distance of twenty-two miles, or thereabouts. 3rd. A Tunnel through the promontory of Penmaen Back, near Conway.—George King, Secretary, 62, Moorgate-street. January 29.

For the Execution of Works on that part of the Blackburn and Preston Railway extending from Blackburn to Pleasington, being about 3¼ miles in length.—Peter Sinclair, Secretary, Blackburn. January 29.

For the Compo and Plasterers' Works, both external and internal, of four houses now erecting in Brandon-terrace, Yarmouth. — Mr. Farrant, Victoria Hotel, Yarmouth. January 29.

For the supply of Wrought Iron Rails and the requisite number of Chairs for about 15 miles of the Southport and Euxton Junction Railway. The weight of rails to be from 60lb. to 70lb. per lineal 2 yards and 15 feet lengths, equal to from 1,500 to 1,800 tons of wrought iron, and about one-third of that quantity of cast iron.—Woodcock and Part, Solicitors, Wigan. January 31.

For erecting the Works of the third division of the Main Line of the Great Southern and Western Railway, being 11 miles, 6 furlongs, and 75 yards in length. Also for the first division of the Carlow branch, being 10 miles, 7 furlongs, and 160 yards; comprising excavation, embankments, bridges, culverts, &c.—William Taylor, Secretary, 3, College Green, Dublin. February 1.

For the erection of Alms' Houses in Foundation-street, Ipswich.—Mr. J. M. Clark, Brook-street, Ipswich; or Mr. Notcutt, Solicitor, Ipswich. February 1.

For the formation of 4 Miles 56¼ Chains (single line) of the Ashton, Stalybridge, and Liverpool Junction Railway.—John Jellecorse, Secretary of the Manchester and Leeds Railway Company, Palatine Buildings, Hunt's Bank, Manchester. February 3.

For the works required in erecting certain Farm Buildings at Badley Hall, Essex, and for alterations and additions to the dwelling-house.—Mr. George Sergeant, 27, Queen-street, Colchester; or Mr. John Eagle, Badley Hall. February 3.

For the erection of a Bridge, called White Bridge, at Grasmere, near Ambleside, Westmoreland. — Mr. George Robinson, Bridge Surveyor, Kendal; or Mr. Daniel Donaldson, Ambleside. February 4.

For the construction of the several Stations and other Buildings on the York and Scarborough Railway.—Mr. Andrews, Architect, York; or Mr. George Baker, Secretary, Railway Office, York. February 5.

For the erection of a Steam Boat Pier at the Quay on the north-east side of Blackfriars' Bridge, also for building a Decked Lighter or Dumby.—Town Clerk's Office, Guildhall. February 6.

For one Pleasure Carriage, four Milk Trucks, and fifty Box Waggons, with drawing and buffer springs, for the Manchester and Birmingham Railway.—Mr. John Latham, Secretary, London-road, Manchester. February 6.

For erecting and completing the Lower Sluice and Sluice-Pit at the top of the Eau, Brink Cut, about 4 miles above Lynn.—Messrs. Walker and Burges, 23, Great George-street, Westminster; or Mr. George Game Day, Clerk to the Middle Level Drainage Commissioners, St. Ives. February 10.

For the erection of New Buildings in Pembroke College, Oxford.—Plans, &c., prepared by Mr. Haywood, Architect, may be seen at the Master's House. February 11.

For the erection of two Fever Wards in the workhouse at Slough.—C. P. Barrett, Clerk of the Union, Eton. February 11.

For a supply of Railway Fastenings for the Great Southern and Western Railway, Ireland.—Mr. William Taylor, Secretary, 3, College-green, Dublin. February 17.

For the supply of 11,000 feet of nine-inch cast-iron Pipes for a new line of Aqueduct to be laid in the Island of Malta.—Vin. Casolani, Collector of Land Revenue, Office of Land Revenue and Public Works, Valletta, Malta. March 31.

COMPETITIONS.

The Committee for Building a Chapel at Holloway are desirous to receive Designs for their intended building. The style to be Gothic. The Committee pledge themselves to select for their Architect the gentleman whose design they shall prefer.—George Brooks, Esq., 1, Lansdowne-place, Holloway. January 31.

Plans and estimates are required for a Workhouse, to contain about 1,180 persons. The whole to be done in a plain and substantial manner, without any expensive embellishments. The plans and architects' estimates to be sent to Robert Mercer, the Clerk of the Clifton Union, Pennywell Road, Bristol, on or before the 17th of February next, and the Board of Guardians will adjudicate on the 28th. The architect producing the best plan in the estimation of the Board will be employed at a sum not exceeding 5 per cent. on the outlay, and a gratuity of 25 guineas will be given to the architect producing the second best plan in the opinion of the Board.

NOTE.

We shall be glad to receive information from Publishers of all New Books on the subjects whereof we treat.

TO CORRESPONDENTS.

"James Pulham," and "One of your Readers," *received.*

"An Architect and Subscriber's" *letter about Chimney-pieces in Keene's Cement, is too palpable an advertisement for insertion.*

"R. K." *objects, in a sensible letter, to our brief remarks on Mr. Nixon's statue of William IV. He may rest satisfied that we give no opinion without due consideration. We shall probably accede to his wish, and "examine the work" about a fortnight hence, when it will be complete."*

"Charles Newnham" *is thanked for his good opinion. The advantages of railway travelling not "to the select few," but the community at large, are now so fully understood, that no such obstacles as he would impose would be permitted.*

"W. J. D." and "Mr. Gliddon."—*Any irregularity in the return of communications which has occurred must be attributed to the death of the late editor. Inquiry shall be made.*

"Scrutator."—*Next week.*

"Bernan's History and Art of Warming and Ventilating" *received.*

The Builder.

No. CIV.

ATURDAY, FEBRUARY 1, 1845.

URING the past week we have attended a series of experiments on the strength of iron girders made by Mr. Thomas Cubitt, at his place of business at Thames Bank. object was to try the absolute and comtive strength of different forms of section, y to assist Mr. Cubitt and Sir Henry beche in their inquiry into the cause of accident at Oldham (on which their re- is anxiously looked for), and partly be- e it is the custom at that establishment to e no means untried to prove every thing they are about to use, and arrive at the certain information on all that relates to truction. The greatest care was exercised btain an exact result. Force was applied eans of the hydrostatic press to the centre rders with 15 ft. bearing. The deflection ed by each successive ton weight (or that h represented weight) was measured, as also the *set* permanently acquired by the r at each stage of the proceeding, and xact weight by which at last they were seve- broken was recorded. These details, with rm of section, we propose to lay before our rs in an early number of the journal. aking these experiments the difficulty of ning a perfectly sound casting, and the equent danger of using cast-iron girders out proving them, was strikingly ap- nt.

rought-iron girders at reasonable cost are *ideratum;* and there is no difficulty in the which could not be overcome. Mr. Cubitt ested that a few premiums offered by rnment for the best wrought-iron beams a certain size would probably lead to such mprovement in the machinery used, that might be drawn of large dimensions at more cost than cast beams. It is to be that he will urge this on the Governin the forthcoming report, and that it e acted on. A series of experiments on nd wrought beams should likewise be taken by Government forthwith, as, from pense attending them, individuals can- e expected to work out the question fully. a the amazing difference in strength pro- simply by a different disposition of the quantity of metal is seen, the importance ull and minute inquiry to ascertain the sposition of the metal—the best form of n in other words—must at once be evi-

Cubitt's establishment offers many sub- f great interest for consideration, and it hese we propose to speak briefly in the t article. A minute description of it, g its extent, comprehensiveness, and eteness—the modes of economising labour, he new processes employed, would be y instructive and interesting. As, how- this would excite curiosity, and lead to ations, which the proprietor would be lled to refuse on account of the inter- n they would cause, we will speak rather r results, and the motives which are seen ail, than of the works themselves.

ongst the most important of the latter nt at every step, is a desire to raise the condition of his workmen; a desire so wise and so good, that we cannot praise it loudly enough, or set it forth for imitation too forcibly. The men literally work in drawing-rooms, large and lofty (the carpenters' shop is above 200 feet long), equably heated and well ventilated. Attached to each shop is an apartment for cooking, with oven, boiler, and hot-plate, where they may dress their dinner, or prepare their tea. And here, high up under the roof, are rails, where they may dry their coats after a wet walk to their work. In order to prevent the men, as far as possible, from acquiring the habit of drinking spirits in the morning, facilities are given, so that, on their arrival at six o'clock, they may have a cup of hot coffee, or cocoa, by arrangement amongst themselves, on payment of *one halfpenny!* The consumption being large and certain, one halfpenny pays the expense of a cup of coffee, a fact that speaks volumes, and points the way for an amazing increase of the personal comforts of the operative classes. Hot water is used to heat the shops, and the range of water-closets belonging to each department is ventilated by superfluous warm air.

In the smith's-shop, in the mason's-shop,—one usually so smoky, the other so wet,—all is clean, dry, and warm, and here, as the shops themselves are hardly suited for eating in, there is a dining-room, with tables and benches, connected with the cooking apparatus. When to all this we add that there is a lending library comprising some of the best scientific and elementary books, and a room supplied with the daily papers to which the foremen have access at particular hours, it will be seen how much the comfort of the men is studied.

The result, it is gratifying to know, is exactly what might be expected. The best workmen are anxious to be employed there: a drunken man is unknown in the establishment,—a man who cannot trust himself hardly ventures to ask to be employed.

The arrangements to prevent accidents by fire, so important and often so little regarded, are very complete. The most important parts of the building are fire-proof, and in other places where this was not so practicable, portions are made fire-proof, in order to cut off the connection, and stop the spread of the flames. Along the side of the carpenters' shop are cisterns supplied with water to extinguish *instanter* any outbreak, and around the building are mains constantly charged, and hose ready for emergency. The stables are wholly fire-proof and complete in all respects.*

The plasterers and modellers' shops will afford many lessons in design, and here may be observed one of the numerous arrangements for economising labour and obtaining a satisfactory result, which occur throughout the establishment. High up, above where the modellers sit, is a large looking-glass framed and so regulated by pullies and cords, that the modeller has but to turn his head to see the appearance which would be presented by the work on which he is engaged if raised to any particular height.

Steam plays a very important part in the establishment; it is sawing timber, polishing marble, pumping water, preparing food for the horses, and clipping bars of iron irresistibly. As we have already said, however, we may not go into details, and with the remark that there are excellent arrangements for preparing the timber and deals for use, we will close our present notice of this extraordinary result of one man's energy and power.

The chimney-shaft attached to this establishment presents several peculiarities, to which we shall refer in a separate article.

* Each horse is supplied with a lump of rock salt placed in a compartment of the manger. The pavement of the stable (granite pitching laid in asphalte on concrete foundation with a layer of broken glass in centre of concrete to keep back the rats), is sprinkled periodically with plaster of Paris saturated with sulphuric acid, to absorb deleterious matters.

MR. COCKERELL'S THIRD LECTURE ON ARCHITECTURE.

PROFESSOR COCKERELL gave the third lecture of his course at the Royal Academy, on Thursday, the 24th ultimo, and was listened to throughout with great attention.

He proposed on that occasion to direct their notice to the civil architecture of the ancients, to the gymnasium, the forum, and the baths. The form of the temple, a parallelogram, admitted very little variety except as to the order used, and its size: nothing was left to the architect. The refinements which were gradually introduced in templar architecture had been recorded, fortunately for us, by the faithful Vitruvius, whose accuracy was confirmed by recent investigations. He mentioned particularly Vitruvius's description of the pyramidal tendency of the temples, obtained by inclining the axes of the columns until the inner line of the columns was perpendicular, and of the elevation given to the centre of long horizontal lines such as the entablature and ridge, in order to overcome an optical illusion by which a long level line was made to appear inflected. The precise rule for this elevation had been deduced from the Parthenon through the researches of Mr. Pennethorne. The professor illustrated the present state of Athenian antiquities by Mr. Knowles's drawings, already mentioned in our journal.

Civil architecture, he went on to say, afforded much more scope to the architect. It flourished during 500 years, namely from the reign of Alexander to that of Constantine, and its principles became as fixed as those which guided the erection of temples. In the time of Alexander canons were laid down which are as applicable now as they were then—they have endured through all the changes of fashion and caprice, and are clear to all who have respect for them in their hearts, and will study them with a proper feeling. The study of Vitruvius had been recommended by the greatest masters: the execution of his book had been forced on Vitruvius by Augustus. Palladio said, from his youth upwards Vitruvius had been his study: Vignola, Serlio, and others said the same thing. All modern architecture had sprung from ancient art. Ancient buildings had been fully explained to us in modern times, especially by Canina, whose work was worthy of the glorious country of which it treated. British architects had an opportunity to reproduce every style in its proper climate: the sun never went down on the British dominions, and our colonizing architects should study the works of all countries. Cast-iron would lend itself usefully to a columnar system, and many modern appliances might be used, but for design we must still go to the ancients. The arch afforded us facilities: it was doubtless used in Greece, but the Romans had first united it to a columnar system and employed it every where. We had no excuse for neglecting the study of ancient works; modern travellers and writers had afforded us increased facilities. The merits of Vitruvius he had long maintained against fashionable detractors, and would continue to do so.

The professor then alluded to ancient cities, and described their arrangement. The great streets crossed each other at right angles with colonnades through the heart of the city; these were sometimes deflected slightly, so that their extent was never seen. There was an example of this at Palmyra. Chester might be restored to afford a very fair approximation to a Roman town. He recommended for study the article "*Cité*" in Quatremère de Quincy's fine work. The arrangement of towns was most important for those who went to the colonies; mistakes made in a new settlement, in the first instance, were usually perpetuated and injured all that was done after. He then described with the aid of drawings, the principal buildings in an ancient city. The agora of the Greeks, and the forum of the Romans, had been well illustrated by Vitruvius. The former was used for gladiatorial shows before amphitheatres were

built. The confined streets of Rome made such a meeting-place as the forum necessary. Relative to these streets, he could not tell how a population of four millions could have moved in them. Adorned by such buildings, Rome became the grandest city in the world; it required a strong imagination to recal the appearance she must have presented in her perfect state. The forum of Trajan was the most magnificent: it covered twelve acres of ground. The basilica was 540 feet by 168 feet. The forum itself, was a quarter larger than the court of Somerset House and was surrounded by a portico 32 feet deep with two ranges of columns. The plan of the new Exchange placed by the side of a plan of this forum drawn to same scale, shewed strikingly the great size of the latter. Much could be learnt by studying the plan of this forum. The professor then went on to speak of the best position for a monument, to produce an effect on the beholder. He was satisfied, that by placing it in a confined space, its appearance was increased. An insulated column placed in the centre of a large area, lost much of its effect. If the buildings were removed from around St. Paul's Cathedral, the effect of the building would be lessened. Vanburgh excelled in placing his buildings so as to produce good effect. The gymnasium, the schools, and baths, formed a compact building of great size. In the side of the school there was an apse or semi-circular recess—this had not been forgotten by Wren when he rebuilt the Westminster School. Buildings in our country were deficient in character. In ancient models each had a distinct character. To describe these buildings required a volume; he simply alluded to them to induce students to give their attention to the study of them. He was aware that their everyday business, the duties of the various offices in which they were engaged, must occupy the greater part of their time, but he nevertheless trusted they would make opportunities and become well acquainted with these glorious works of a glorious country.

THE RUINED CITIES OF AMERICA.

Attracted by the subject, we attended a lecture under this title, delivered in Miss Kelly's theatre, Dean-street, Soho, on Saturday last, hoping to be able to place before our readers some new information on these extraordinary and mysterious ruins. It seems that a society has been established, or is in progress, chiefly through the exertions of Mr. W. H. Shippard, of Turnham-green, under the designation of "The Museum of History," or, as it originally stood, "My Museum." The object of which, as set forth in a prospectus, is—"to illustrate the history of man by means of popular lectures, aided and enforced by scenery, maps, and costumes, adding every scenic attraction to the higher views of instruction, and combining art, history, travels, and geography.

"The classic lecturer shall thus convey his observations in the Roman forum restored, or awaken the spectator's reflections amidst its very ruins."

The lecture on the present occasion was given by Mr. Shippard, and had all the aids proposed in the prospectus—transparent maps, as large as the stage would admit, and some views of the ruins equally extensive, by Mr. C. Marshall so beautifully executed, as really to carry the spectator to the place itself.

Unfortunately, however, Mr. Shippard mistook his vocation when he turned lecturer. He seems enthusiastic in his endeavours to carry out what is really a fine idea, and, therefore, we would not willingly say any thing discourteous; but wanting, as he does, the power of condensation, and the facility for connecting subjects, necessary for a lecturer, we are satisfied he will fail in rendering the institution popular, unless he yield the lecturer's wand to more practised hands. If properly carried out, the "Museum of History" may become a very important educational institution.

The ruined cities of America afford much interesting matter for consideration; fortifications, mounds, pyramids, town-walls, and temples, are scattered over a large extent of country, overgrown by enormous trees, and covered, in some instances, by 9 feet of mould. Mr. Stephens, in his interesting account of these remnants of past time, speaks of no less than forty-four cities in one district alone, long buried and unknown. Some of these were described by the Spaniards 300 years ago, and their accounts shew that the ruins were in the same state then as now. These statements were at that time considered fabulous, but are now verified. The date of their erection, and the people by whom they were executed, are still disputed points. The pyramids agree in many particulars with those of Egypt (they face the cardinal points for example), but it does not seem certain that there was any connection between the two countries.

ARCHITECTURAL THEOLOGY.

The reporter for *The Times* at Exeter described in a recent communication St. Paul's Church, in Penzance, which was built in 1842 by private subscription. He says that it is in "the Norman Gothic style" and is fitted up in the interior almost precisely as a Roman Catholic Chapel.

"This church is divided entirely by a distinct chancel, with sedilia for the priests. They are thus separated during the whole service from the people. The access to the pulpit, which is of stone, is within this chancel. The lecturnum is placed on the base of the chancel; so that, except when the priest descends to the faldstool, where he kneels with his face to the communion-table and his back to the people, he is separated from the congregation. That which in other churches is a railing round the communion-table, is here a stone screen built across the church, and separating this portion of it entirely for the use of the priests, and constituting it a kind of holy of holies. The faldstool is placed on the steps fronting and erected up to this screen. Within this chancel are two enormous candlesticks on each side the communion-table; and on the table two other of smaller dimensions. Erected over the table is a large gilt cross; and the mode of conducting the service, together with the ceremonies which have been introduced, render it a close copy of the Roman Catholic mode of worship. As may be supposed, this new church has excited much comment, and its mode of service has been much objected to. The Rev. C. V. Le Grice, for a great number of years minister of Penzance, in several very able letters, signed 'Civis,' eloquently and strongly denounced these innovations as dangerous to the church, as an introduction of—

"Every thing ceremonial and nothing spiritual—every thing to make the priest proud, but not to make the people pious—in short, to strengthen Puseyism, which is an attempt to bring every thing connected with religion within the material walls of the church, within the exclusively distributive power of the Sacraments, and within the sole, mystic, arbitrary, dispensing meditation of the priesthood."

ON THE MANUFACTURE OF SCAGLIOLA, OR ARTIFICIAL MARBLE AND GRANITE.

Sir,—In your useful journal, of the 21st of December last, a paragraph appeared concerning a factory about to be established at Berlin, for the manufacture of artificial marble (commonly called scagliola) from plaster of Paris and solutions of alum, said to be equal to the finest marble, from which it might appear to those who are unacquainted with it that scagliola was not made in England. And I see in your journal of January 11th there is another paragraph entitled "Scagliola, or the Art of Imitating Marble," which only tells us a few of the materials used, and is not altogether correct. I think the writer, ("H. G. M.") cannot understand it, for the art of making scagliola would fill a volume, and is kept secret by the trade. I do not know that it was ever published in a correct form, although attempts have been made. He says, "in England it is comparatively unknown, having sunk into disuse, in consequence of the perishable nature of the material." Now there are several establishments in London, and one at Hoddesdon, Herts: and it is very much in use by English artists, and has been for many years in our public buildings and noblemen's mansions. Indeed, there is scarcely a building of note of the present day but is more or less embellished with this most beautiful material. That done at Buckingham Palace, Pantheon Oxford-street, and Everington's, of which "H. G. M." speaks well, was executed by English artists; indeed, I know only one o two places where it has been done by Italian or foreigners—namely, the chapel at Green wich, and at Stoke Park, under Mr. Wyatt, th architect, many years ago. An English car penter, named Alcott, who was employed t make the skeletons, and plane the work to it proper shape after the veneer, or outer coa was laid on (as is the method in general), wa sent to Stoke Park, having an insight of th process, to work at it; and he obtained a piec of real marble, and, contrary to directions imitated it so well, as to please the architec more than what had been done by the Italians I may mention that an offer was made to m foreman, a few years ago, who has been in th trade upwards of twenty-six years, to go t France, to do some work, as his specimen were superior to those of the French artist It has attained such perfection in Eng land, that, to make use of the words of Stuar in his Dictionary of Architecture, "it prov so complete a deception, that nothing but fracture of its substance can discover th difference." I will mention a few places whe I know it has been done, and the date, whe I am acquainted with it, viz.:—

At the Duke of Wellington's, Apsley-hous about the year 1821; Duke of Northumberland' Zion-house, and at Charing-cross, 1819; Du of Sutherland's, 1829; Duke of Hamilton 1831; East-India College, Addiscombe, abo 1820; J. G. Bosanquet, Esq., Broxbourne-par 1835; Goldsmiths'-hall, 1833; Crockford Club-house; Athenæum Club-house; U versity Club-house; Union Club-house; O ental Club-house; Lord Boston's, Maidenhea the Reform Club-house; Messrs. Howel a Cos., Regent-street; Earl Spencer's, Jam place; United Service Club-house; and ma others.

At all these places it is in excellent conditi except where it has been injured by accide even bases, which are very subject to blo where fixed on floors, remain uninjured.

There are several works now in ha which, if compared with old work, w shew that improvement has been ma I have now in hand a first-rate staircase an hall, the scagliola work of which consists o great number of columns, pilasters, pedestals in imitation of various marbl with white mouldings, and imitations of tuary caps, bases, cornices, &c.; most which are being done at Hoddesdon, and be conveyed to Kilnwich Percy, in Yo shire. Scagliola is of the same material throu out its thickness, except that the veneer outer coat has the colour mixed with it, an of rather less density of the two, and brittle than some of the marbles. I thin have said enough to establish the fact of durability, and that English artists are su rior to the Italians; in fact, I will prod specimens of scagliola, which will prove The vile imitations, which are made by pers with very slight knowledge of the process, to bring it into disuse. With respect to its security when employed as columns having bear a superincumbent weight, it is sel used to support a heavy weight, except in pearance, and where strength is require support girders, entablatures, &c., an column or core is fixed to take the wei and the skeleton or cradle is made on it.

This skeleton I will describe: it has a l piece of timber of 3 to 6 inches square, acc ing to the size of column required, and circ pieces of wood are fixed to it; then strip wood cut from a half-inch board are n round, which form a very strong skeleton, a is made 2 or 3 inches less than the finished w to allow for thickness of composition. S of the inferior work has been done on very skeletons, formed of common laths, and first coat composed of lime and hair. "H. G. says the manufacturer is subject to great by the plaster setting too quickly; this error, for the solutions prevent that for fiv six hours when necessary, and no manufac will keep it so long as to become useless, expose it to the damp atmosphere, which spoil it. There is no material so easily me without being seen, and as to expense, it is trifling in a building of magnitude, and sca gives an air of beauty, richness, and gran which could not be attained without, a expense of marble is so great. It has used for a floor in the Hall of the Du

orthumbland's for many years, and it stands ll, and is now used in the shape of columns lamps, of which I have sent 300 and upds, and continue making them, and it is also ed for slabs, chimney-pieces, tables, vases, d many other purposes. "H. G. M.'s" statent, if not corrected, will tend to injure the de, seeing it in a first-rate practical work, l also to discourage native industry. Foreign ists are too often encouraged without merit, l I think, Mr. Editor, your journal will culate native talent, especially as the art of glio'a is brought to such perfection by glish artists. I will, if you think proper, ge some specimens of scagliola at the Office The Builder, and I, as well as the de in general, will feel glad to see this inted in your valuable journal.

Toddesdon. James Pulham.

shall return to the subject of plastic comitions, cements, artificial stone, &c., in a ure number.

OYAL INSTITUTE OF ARCHITECTS.

An ordinary meeting of the Institute was d on Monday, January 27th, Mr. H. E. ndall, vice-president, in the chair, when r Ludwig Gruner, of Rome, and Il Conte valiere Orti di Manara, Podestà di Verona, e elected corresponding members; Mr. n Tarring, fellow; and Messrs. F. Clark, ins Compton, Frederick Lett, Samuel ton, Robert C. Saunders, and Thomas ler, associates. Among the donations ounced was "Views of Ancient Monuts in Central America, Chiapas, and catan," by F. Catherwood, presented by the nor, for which Mr. Godwin moved a special of thanks, and took occasion to speak of interesting nature of the work.

paper was then read "On the Domestic hitecture of France during the Middle s," by Mr. Ambrose Poynter, wherein the dual changes which occurred between the and 17th centuries, were traced. The were chiefly taken from Rouen, where did not find any specimen earlier than the named date. Beauvais contains some e houses of the same date. The roofs at this were equilateral, but had afterwards much ter elevation. The dormer windows became important feature, and were in some exles highly decorated. In the 14th century found few stone houses in France, and in 15th they were chiefly of timber with hanging fronts, one story projecting over other. Bricks then became used in conion with timber. Protection being an ct, there were few windows in the groundr. In the 15th century the stairs were often ed in a *tourelle* projecting from the angle e house, especially when at the corner of a t. At Dijon there was an interesting exle of this, where the top of the newell was tured to represent a man with flowers on head, which branched out and formed the At Paris these tourelles are numerous: are to be found also in Scotch architec-

Passing on to the time of the *Renaissance*, he shewed the change in style h took place, and alluded to some fine mens now at the Palace of the Beaux , in Paris. The paper then gave a view of improvements made in the internal ngement of houses in France, and some es of the state of the city in early times. p Augustus paved for the first time four e principal streets. In the 14th century tate of the streets was dreadful, nor did become much better for a hundred years . Mr. Poynter took an opportunity to nion that the French government had nted, through M. Guizot, to our School esign, casts from the celebrated bronze s of the Baptistry at Florence, executed hiberti, after the designs of Arnolfo; Mr. Wilson, the director of the school of n, who was present, invited all members e Institute to examine them.

. I'anson, relative to Mr. Poynter's paper, dered that the roofs of high pitch were r than agricultural roofs. He mentioned the works of the transition period in ce, were much better than the Elizabethan s of this country, and attributed it to the mstance that France had a more intimate ection with Italy than we had.

e council have not yet reported on the e essays.

A FEW WORDS ON COMPETITIONS.

Much as the subject of architectural competitions has been discussed, we still seem to stand a long way distant from improvement. The general ignorance of the public in any thing beyond the mere book-illustration part of architecture, the apathy of the influential members of the profession towards the immediate interests of their younger brethren, and the want of energetic remonstrance and vigorous co-operation amongst architects in general, are obstacles in the way of change which need to be at once stoutly assailed and demolished. We assume that, were competition only a little better managed, it might powerfully aid the progress of art, that it might call out the latent energies of the young, and infuse something of the ardour of youth into the exertions of the more advanced, keep the public mind alive to the use and value of architecture, and open to all a legitimate road to success in an art in which the avenues to fame and recompense are confessedly few, and difficult of discernment. We deem that the attempt to prove that all competition is adverse to progress in art fails, and is entirely inconsistent with experience in buildings erected or in progress; the errors that have resulted were clear and remediable, and could not recur with the changes about which there is no difference of opinion amongst us. Such are, for example, explicit instructions, public exhibition before the decision, and competent judgment. The barrier drawn between architects and the notice of the *public* needs every examination, and speedy removal; but under the influence of a better system in competitions we are confident that the profession would rise in the estimation of the world, which is at present positively ignorant of its distinctive existence; that the appliances of the art would be extended to buildings to which it has been supposed inimical rather than subservient; that the *accredited* professor would supply the place of the empiric; and finally, that architects, instead of consuming those days when hope and exertion are at the highest in working out the ideas of others on an inadequate stipend, or in filling the duties of some appointment in which art has no place, would find the pleasing and healthful reward for years of toil and outlay, in the practice of an art which speaks the history of mankind, and yields to all its votaries the "purest well" of intellectual delight.

We can hardly call to mind an instance in which competition has been conducted with fairness towards the several competitors, or for the benefit of the public. Indeed, it can hardly fail to be otherwise in the present state of matters. The interest which architecture excites is so small compared with its importance, that its finest works are allowed to be destroyed without the slightest notice. So that the usual education and habits of men are calculated to fit them even less for judges of architecture than for architects, and other considerations are allowed to operate with undue influence.

It seems strange that in a free country, we should permit ourselves to be ruled in matters of taste, possessing an importance in the highest degree national, by those who have never devoted a single day of their lives to the study of the subjects on which they sit in judgment. Were our own character as a nation not involved in the question, it would still be unjust to suffer the dishonest proceedings complained of by architects; and were they the only parties interested, which they are not, their claims should be considered in a country where justice has been always considered the brightest jewel in the sceptre of a government. We hesitate not to say, that were an individual to act as, with few exceptions, committees have acted, his society would be shunned by all who rank themselves as men of honour and integrity. We need not deny that in some cases committees have desired to act with perfect good faith, but in general their ignorance of every thing that to form competent critics they should know, presents an insuperable barrier to a correct decision. Composed, for the most part, of men who consider the education of an architect limited to the knowledge of the five orders, they decide upon matters affecting the prosperity of twenty, fifty, or a hundred rising artists, and the progress or decline of art. One who applied in a case of typhus fever to a baker, or in an abstruse point of law to a wine-merchant, would be considered as a fit subject for a commission of lunacy; yet we could mention cases in which the pursuits of adjudicators have been as little akin to the subjects on which they have sat to decide.

On one occasion a committee, for the erection of a pump-room at Harrowgate, was composed of seventeen individuals, among whom were five innkeepers, two wine-merchants, a porter-dealer, a baker, a coach-builder, a druggist, a plumber, a milkman, and a grocer. Now we wish to set no limits to the investigations of man in architecture, or in any other study, but are these the individuals in whose custody we should choose, from their previous *study* and *research*, to leave the arts of a country? Doubtless they were all honourable men, but some of them, if not all, were deceived by the trickeries so commonly employed, and which could not one moment escape the notice of an architect. Probably few of them were accustomed to the examination of geometrical drawings, the understanding of which requires long previous study and attention. Each one, we think, on being shewn the elevation of a building, would at once form an opinion as to its effect, instead of placing the plan and elevation side by side, and judging from the two, the only way in which architectural drawings are intended to be examined, as through the medium of several the same effect is conveyed which otherwise would be expressed by one perspective view. An inspection of the plan might shew that certain parts receded or advanced from the front; these in the elevation would appear upon the same plane, so that a tower shewn above the roof, and as if it were upon the plane of the front, might, in reality, stand in the centre of the block, and not appear when erected except from a point far removed from the building. If it requires great experience in the architect to unravel the mysteries of plan and section—and if, in addition, he must possess a knowledge of the strength of timber, of requisite supports and counterforts, of sizes of openings necessary to admit a proper quantity of light—if, to the experience of the practical man, he must add the acquirements of the man of science, and the taste and fancy of the artist, he has surely a right to expect corresponding qualifications and careful attention from those who adjudicate. Ordinarily, the committee are compelled to throw aside the instructions which were rigidly to be observed, so that the competitor who has acted with most good faith, in endeavouring to make his design correspond in all particulars, is the first to feel the effects of his mistaken confidence. The committee will often state that the building must be of a style to which they attach an unintelligible name; that it shall be built of certain materials; and shall afford accommodation sufficient to double the sum the architect has to work upon; and that the drawings shall be delivered on a day so near at hand, that he has barely time to execute the actual drawing, much less to mature the design. How many instances have there been in which the whole of the competition drawings have been laid aside, the work being given to some more fortunate architect, who has had a larger sum for expenditure, and the whole of the competition drawings at his disposal for reference, no remuneration whatever being granted to the competitors. How often after the drawings have been submitted, has one of the competitors received instructions to prepare another design, more in accordance with the altered views of the committee, to which the premium has been awarded. The architects who at present compete are, for the most part, those to whom competition presents the only chance of success; they are compelled to embark in it with all its evils, and though, through trickery and ignorance, their chance is small, it is their only one. But we cannot notice all the disadvantages of the present system, and the dishonesty and want of principle which it engenders—one of its effects we witness in some of our national edifices; and it is not too much to say, that were a change effected, competition might oftener be appealed to, and we might hope to feel the result in a higher character in all our structures. The only course which, in the opinion of the writer, committees can pursue to induce men of established reputation to compete, with perfect fairness to the competitors, and to prevent the annoying attacks to which they are now exposed, will

be, in all cases, to call in the aid of architects themselves, and to exhibit the designs publicly *before* the decision.

The instructions, in the first instance, should be carefully framed, with complete practical particulars as to the objects and destination of the intended building, leaving to the architect the consideration of the mode in which those objects may be obtained. Full information should be afforded as to foundations, levels, and drainage; a plan of the land should be given, and some account of the site. The amount at the disposal of the committee should be stated, with the description and cost of building materials in the neighbourhood of the intended edifice. In deciding upon the merits of the designs, the committee should either refer them to architects of eminence, unconnected with the competition, or to the competitors themselves, who should record their votes openly, no one voting for his own design. The former course was pursued in the first competition for the Royal Exchange, and, by the report of the appointed architects, it appeared that many of the designs possessed errors of construction which would certainly have escaped the attention of any but professional men. We urge upon the attention of building committees the consideration of the important subject we have noticed. The plan is by no means new, and in some minor details might need consideration, but we are assured that no system could be worse than the present *want of it*, fraught, as it is, with injustice to the architect, discredit to the promoters, and with irreparable injury to the arts, and consequent standing of the country in the scale of nations. E. H.

[If the history of competitions were written, its details would shew an extent of rascality astounding to architects themselves. We shall not fail to publish particulars of such mal-practices as come to our knowledge. The remedy unfortunately is not evident or easy.—Ed.]

ON BATH STONE.

BY C. H. SMITH.

Bath stone has been used almost universally, as a mineral substance for building, in the city of Bath, during a long period. The Abbey Church, which was not finished till after the Reformation, has been in great part restored within the last thirty or forty years. The west front has been richly ornamented, especially with a representation of Jacob's ladder on each tower, reaching from top to bottom, on which many angels were carved in bold relief; these have now mouldered away, till only a few faint traces remain, just sufficient to indicate where they originally were. This building I am inclined to believe is the oldest in existence of Bath stone, and beyond doubt not a very favourable specimen of its durability. The oldest of the modern buildings of similar material in that city is, I imagine, Queen-square, erected in the beginning of the last century; the houses are ornamented with projecting mouldings, Corinthian capitals, &c.; and certainly they are not much decomposed, considering the time since they were erected.

It has been remarked that Bath stone appears to stand the weather better in the neighbourhood of the quarries than it does if removed to a distance, or in London; and, judging from the present condition of the oldest houses at Bath in comparison with Bath stone buildings of more modern date erected in London, a casual observer might indulge his imagination with the idea of something being more congenial to the stone in its native atmosphere than if removed to waste and perish in what may be termed a foreign climate. I am ready and willing to admit that there may be a very material difference between the air of Lombard-street or the Royal Exchange, and that of the land of the cuckoo and the nightingale, or any other spot far from the busy world's unceasing sound. But I cannot conceive it probable, that a stone which would last for a century or more in the city of Bath or its environs, would decompose in a quarter of that time were it placed in the Regent's-park. The plain matter of fact is, that the stone used in the construction of the oldest buildings at Bath was procured from the Box quarries, which is in the more important qualities very superior to, and far more durable than, such as is now generally used. The Box quarry stone is still used occasionally in and about Bath, but the stone merchants in London have long since discovered that the masons will not buy it on account of its being a little coarser and harder, and thereby more expensive to work.

Coombe Down Bath stone was next introduced; it is finer grained, softer, and less durable than the Box stone; but both these have been almost entirely superseded by the grand favourite from Monckton Farleigh, or by what is usually called "Farleigh Down Bath stone." This material possesses all the qualities required by a hasty mason or contractor; it may be sawed dry, like wood, with a common pegtoothed saw, more expeditiously than any other stone; an industrious workman may do almost as much work as he pleases in it, consequently a building may be executed in this stone in a shorter space of time than in any other; and, lastly, it decomposes in a shorter space of time than any other stone, hence some people are inclined to think it "makes good for trade."

The restorations of Henry the Seventh's Chapel, at Westminster, were executed in Coombe Down Bath stone, between the years 1808 and 1821, at an expense to the nation of about forty thousand pounds. A large proportion of this amount was for the Bath stone, which has always been about as expensive in London as those of a more durable nature. If an additional ten thousand pounds had been bestowed on labour, in all probability a material might have been selected which would have lasted several centuries longer without being in so decomposing a condition. But whilst the lover of elegant architecture is admiring the extreme attention that has been bestowed in preserving the true spirit of the original design, he will be annoyed at discovering abundant evidences of premature decay. Many projecting parts of that beautiful fabric are conspicuously mouldering away, in less than thirty years since they were restored. A casual observer may, by one glance at the south-eastern towers, convince himself of the truth of these statements; but on more attentive examination, a considerable portion of the masonry throughout the entire structure, especially the more exposed parts, will present multitudes of slight undulations or swellings, somewhat resembling in their progress gatherings or tumours under the skin; these increase in size and number until they meet each other, when they burst, and the surface falls off. This cankering process will be repeated as often as a fresh surface is exposed, until all architectural features are obliterated. Such is the lamentable condition and prospective state of Henry the Seventh's Chapel at this time, that there is every probability of its being in the same dilapidated condition within thirty or forty years that it was in before the repairs were commenced in the year 1808.*

That there are many stones in the building which at present shew no symptons of decomposition is readily admitted; and those persons who advocate the use of Bath stone for such highly decorative purposes frequently imagine that sufficient care has not been taken to place the stones on their natural bed. The importance of such precaution is generally very considerably overrated; I do not consider it signifies which way a stone is fixed, unless it presents a laminated structure, which scarcely ever occurs amongst the oolites. A stone of an open, powdery, and slightly cemented texture, will, if exposed to the weather, decompose in a comparatively short space of time, in whatever direction it may be fixed, or whichever surface may be parallel to the horizon.

Another generally received fallacy is the opinion that soft stone will become hard and durable by exposure. Although this notion is true to a certain extent, it is not of sufficient importance to warrant its appreciation in architectural works. All kinds of stone while in the rock, or when recently quarried, are somewhat softer and more easily worked than after they have been exposed to the atmosphere a few months, owing to the stone in its original situation being more thoroughly saturated with moisture than can ever be accomplished after it has been once allowed to get dry. This is a principle well known to masons, for it is a general practice amongst workmen to frequently wet a stone, especially if it be rather of a hard quality, during their operation of working it into mouldings or ornaments, to make it work, as they term it, "more kindly." If the stone be remarkably soft, it is advisable not to let it dry too fast after it has been taken from the quarry, for fear of its cracking, in consequence of the moisture being removed from the outside before the interior of the block can have had time to evaporate; hence, while the central part remains of its original size and extremely damp, the surface will dry, shrink, and thereby cause many invisible cracks, the effect of which will be conspicuous after a sharp frost.

All free-working limestones and oolites become in some degree harder on their surface by exposure to weather. This arises from a very slight decomposition taking place, which will remove most of the softer particles, and leave the hardest and most durable to act as a protection to the remainder. In addition to which, the pores and interstices of the surface get filled with dust and dirt, washed in by rain assisted by powerful winds; all which circumstances help to secure the least protected grains from external violence. If the stone be naturally compact and durable, a surface of this description will materially assist its duration; but, on the other hand, such material as the Heddington stone, near Oxford, or the most perishable Bath stone, will in due time similarly attain a hard crust, which, from the general body of the stone being loose and powdery, is not sufficiently compact to hold on; water will soak in behind the crust, cause a swelling and disruption on the surface, which ultimately breaks. The crust thus opened gradually bends forward more and more, until finally the weight of the disintegrated portion causes it to fall off. In some instances, as in Bath stone, these defective places rarely exceed an inch or two on surface before the decomposed part falls off; whereas the crust of the buildings at Oxford is so remarkably tenacious that it peels off and hangs like rags, often as much as a foot superficial, before it entirely separates. Upon the whole, I do not consider it a recommendation to a soft stone to say that it gradually becomes harder on the surface.

As Bath stone is decidedly one of the most fragile mineral substances ever used for building, a few observations on its cohesive strength may be offered, less on account of their utility, than because most persons who have investigated the subject of stone for building have expatiated considerably on the head. In all cases which have come within my notice, the stone possessing the least cohesive strength, or that which will crush with less pressure than any other, is nevertheless strong enough, when once fixed, for almost all practical purposes. No architectural member have to sustain greater pressure in proportion to their size than mullions of large Gothic windows. The tracery in the great north window of Westminster Hall is now executed in Bath stone, which is remarkable for having the least cohesive strength of all the specimens experimented upon and described in the Report on the Stone for the new Houses of Parliament. Some of the mullions of that window are less than 9 inches wide, and more than 40 feet high, sustaining not only their own weight, but also the whole of the tracery beneath the arch. The eastern window of Carlisle Cathedral, built of a friable, red sandstone, is 50 feet high; the mullions are smaller and the tracery much heavier than that at Westminster; yet in neither of these examples are there any symptoms of crushing. The cohesive strength of stones is never more severely tested than during their conversion by workmen from the rough state to being fixed in their final situation in a building. During these operations iron levers, jacks, lewises, and various other implements are applied, frequently without judgment, and with but little regard to the mechanical violence which the stone will bear; therefore, it may be considered a useful practical rule, that however soft a stone may be, if it resist the liability of damage until out of the mason's hands, there can be little doubt of its possessing sufficient cohesive strength for any kind of architectural work.

Lithology, or Observations on Stone used in Building.—Trans. British Architects.

* The north front of Westminster Hall was restored with similar material immediately after Henry the Seventh's Chapel was completed; it is now progressing in the same state towards decay. During the spring of the year 1840, the stonework about the principal entrance was washed by means of an engine; this operation mutilated the projections in a slight degree, the force of the jet of water separating many small portions of stone from the prominent parts that were already in a decomposing state. The restorations of Westminster Abbey, north side, are proceeding slowly with Bath stone, apparently from Farleigh Down quarries; it is to be regretted that a more durable stone is not used, since there is unequivocal proof of its perishable quality in the adjoining edifice.

THE IRON TRADE OF SCOTLAND.

Seeing that the iron trade of this country w employs a large amount of wealth and terprise, and that, in many districts, the ineral resources are yet only beginning to ract attention, it may not be uninteresting take a brief glance at the history of this im-rtant branch of national industry. We have t sufficient data to trace its earliest com-encement in this northern part of the king-m, but it is believed that attempts were made a remote period to extract iron from ore in en fires, of which evidences are supposed to ist in some of the higher mineral districts. bout a century ago, the first application of coal for smelting iron was made in the ath, previous to which we find that there re fifty-nine furnaces in England and Wales, oducing at a very great cost, by means of od fuel, about 17,000 tons of iron per an-m, or about 290 tons from each furnace. bsequently to the introduction of pit coal for l, furnaces were erected at Carron and Wil-ntown, in Scotland, and, towards ths close of t century, at Clyde, Muirkirk, Devon, and noa. It has only been, however, during the t twenty-five years that the trade assumed y importance in this quarter, and we shall nfine our remarks to the progress which it s made within that period.

As the best index to its condition, we give e following list of the selling prices of the st quality of foundry pig-iron per ton in the asgow market for the month of January in ch year :—

31— £7	1826— £10½	1831— £5	1836— £5¾	1841— £3¾
32— 6	1827— 7	1832— 4½	1837— 5	1842— 3
33— 5½	1828— 6	1833— 4½	1838— 5	1843— 2½
34— 6	1829— 6½	1834— 4½	1839— 4½	1844— 2½
35— 12	1830— 5	1835— 4½	1840— 3½	1845— 3½

At the commencement of the above period, number of furnaces in operation in Scot-nd was fifteen, and the average make of iron out 575 tons per week, or 25,650 tons per num. In 1826, when an impulse had been ven to the trade by the higher prices of the o preceding years, the number of furnaces reased to twenty-two, the weekly make to 0 tons, and the annual average to 36,900 ns. About this period an effectual struggle s made to obtain a reduction of duty on cast l wrought-iron imported from foreign untries, and we find Mr. Crawshay, one of largest ironmasters in Wales, in his evi-nce before a committee of the House of Com-ns, in 1825, stating that the annual make of n in Great Britain was 600,000 tons, of ich one-third was exported to foreign coun-es. The above produce may be apportioned follows :—

outh Wales.....	85	furnaces....	232,000 tons.
orth Wales	8	,, ...	14,000 ,,
taffordshire	61	,, ...	178,000 ,,
hropshire.....	36	,, ...	90,000 ,,
orkshire	22	,, ...	37,000 ,,
erbyshire.....	14	,, ...	20,000 ,,
cotland	17	,, ...	29,000 ,,
Total.....	263	,, ...	600,000 ,,

n 1826 the imports of Welsh pig-iron into Clyde were 1,600 tons, and the general orts of Scotch about 8,500 tons, being, in h cases, a slight increase on the preceding ar. The trade remained somewhat stationary, h gradually declining prices, until the cts of Mr. J. B. Neilson's hot-blast came operation. The patent was obtained in 9, but several years elapsed before its prac-l application with raw coal was accom-hed. This opened an entirely new era in h iron trade of Scotland; the quantity pro-ed from the same furnaces became at once re than doubled, while the consumption of l, to each ton of pig-iron, was reduced to ut one-fourth—hence an immense stimulus given to the trade. Existing works were atly extended, and new works were esta-hed in districts where, a few years before, minerals were considered next to valueless. us it is, that, during the last fifteen years, number of furnaces have become nearly drupled; and with recent improvements in construction, the yield from each, on an rage, may now be reckoned about treble quantity which was formerly made with l air and charred coal. At first there were plaints of the inferiority of the iron made the new system, arising chiefly from the being more easily broke; but we believe it been satisfactorily ascertained, from nu-rous experiments by practical men, that, h proper care in the selection, castings produced from hot-blast iron are equally strong, and of as sound texture, as those made from cold-blast. It must, therefore, be evident that the application of heated air in smelting iron has been an incalculable benefit to the country, to the iron trade generally, and to the landed interest. It has cheapened the cost and increased the variety and usefulness of articles manufactured from iron; it has vastly augmented the consumption; and, but for this improvement, large tracts of land in the west of Scotland, now yielding a handsome return, would have remained at the former low value of surface rent. The extension of railway communication will open up other rich and extensive mineral fields, so that we may expect to see the iron trade of Scotland progressively increasing for many years to come. The average number of furnaces in operation last year was 65, and the weekly produce 6,600 tons, giving an annual make of 330,000 tons, or considerably above one-half of the entire make for Great Britain in 1825.

The following are the exports of Scotch pig-iron (in tons), as derived from authentic sources, for the last two years, exclusively of what was shipped by way of Liverpool, which, to America alone, must have amounted to a very considerable quantity :—

	Continent.	America.	Indies, &c.
1843....	27,970	7,851	863
1844....	30,715	11,719	613

In the former of these years the lowness of the price, and the prospect of increased duty in Germany, induced an extensive trade in pig-iron, a material portion of which was for conversion into malleable iron. In the event of any modification of the American tariff there will be a large demand for Scotch pig-iron for that quarter.

But there is another feature which speaks well for the future prosperity of the iron trade in Scotland. The peculiar character, the abundance, and the richness of the minerals, admit of iron being produced at less cost than in any district of either England or Wales; consequently, instead of importing from thence, as formerly, large quantities of Scotch iron are now sent to these districts—this, no doubt, arises chiefly from the cheaper cost, but another cause may be assigned. Scotch pig-iron is particularly adapted for making malleable iron, and as the present unparalleled demand for railways, ship-building, and other puposes, has outstripped the produce of pig-iron in some of the southern localities, it may be expected that recourse will be had to Scotland for increased supplies to meet the growing deficiency.

We may remark, that the manufacture of malleable iron is yet but in its infancy in Scotland, although making rapid strides towards an important position: there are five establishments, and the present make may be computed about 900 tons per week, or 45,000 tons per annum. For superior finish, toughness, and uniformity, it will stand comparison with either English or Welsh iron. — *Scottish Guardian.*

Bristol Academy for the Promotion of the Fine Arts.—We recently alluded to the intention which existed of founding a Fine Arts' Academy in Bristol, and are rejoiced to find that it has now assumed a tangible shape, and has come before the public with a list of donors and subscribers whose munificent contributions shew them to be not only earnest in carrying out the scheme, but determined to evince their zeal in the most effective and palpable form. The lady, whose princely donation, 2,000*l.*, heads the list, deserves the highest praise for her public spirit and liberality. All honour is likewise due to Mr. P. W. S. Miles, M.P., who originated this important movement, and to the gentleman associated with him, for combining to remove the stigma which rests upon Bristol in regard to the arts. The objects of the society are the advancement of the arts of painting in oil, fresco, and water-colours; of drawing in chalk; of the study of sculpture and to architecture: and of the other branches of the fine arts. The academy will be free to all artists residing within ten miles of Bristol for the previous twelve months, on their subscribing to its rules, and on certain conditions; and its arrangements will comprehend a school of painting and sculpture; pecuniary and honorary rewards to artists and students; exhibitions of pictures, &c., &c.; and an art union.

PROBABLE QUANTITY OF IRON REQUIRED FOR THE NEW RAILWAYS.

It has been estimated, that out of the numerous railway bills coming before Parliament next month, there will be forty-five carried, or about one-fifth of the present applications. Taking these lines at an average length of forty miles each, there will be 1800 miles of railway to be formed, commencing from the autumn of this year, and extending over 1846; for, though these will not be all completed at that period, the deficiency may be more than made up by the lines which were passed during last session, and which are now being formed. A yard of railway requires 280 lbs. of rails, 98 lbs. of cast-iron chairs, and about 70 lbs. of iron girders—making 4 cwts. per yard, or 352 tons per mile. In addition to this, it is pretty clearly ascertained, that an equal amount of iron is required for each mile, in waggons, carriages, stations, engines, and locomotive establishments, &c.—making 700 tons of iron for each mile, or 1,260,000 tons for 1800 miles of railways about to be constructed in this country, or, as nearly as possible, the whole make of iron in Great Britain for one year. This is independent of the contractors' rails, which are immense; and, if to this tremendous consumption be added what will be required for the new water and gas companies, the docks and other great public works, as well as the extra demand arising out of the prosperous trade of the country, it can hardly be conceived that our capabilities for the production of iron, great as they are, will be sufficient to supply what will be required. This is also entirely independent of our foreign trade, and as railways are likely to be constructed in almost every country, the exports of iron must also be greatly increased. Under these circumstances, there can hardly be a question that iron must shortly be much enhanced in value. —*Mining Journal.*

COMPETITION PLANS FOR BATHS AND WASH-HOUSES.

Notwithstanding the large number of applications for particulars, only twenty-two competitors have sent in plans, and it is said that as many as four-fifths of these have not complied with the published conditions. It is to be regretted that, with the exception of two or three sets, no attention whatever has been paid to ventilation in any of the designs. The number of drawings in the whole is 147.

A correspondent of *The Times* says, "There are many places in London well adapted for the position of such establishments, a poor or thickly-populated neighbourhood of course being likely to prove the most advantageous and convenient to the class of people for whose use they are intended. London, from its local position, is fortunate in having wells, which produce most excellent water, and some of them are known to be more or less medicinal. Would it not be an advantage, therefore, for bathing purposes, to select a site where such a well is known to exist, so as to combine a common bath with a medicinal one, for such as may require it, on account of health, or for other reasons?" He suggests that a spring at No. 3, Old Belton-street, in the line of the intended new street between Holborn and the Strand, said to have been the resort of Queen Anne, might be made available.

Roofing Houses with Tin. — John Woolley, Springfield, of Massachusetts, gives the following description of his plan for roofing houses with tin:—"What I claim as my invention is, constructing metallic roofs without boarding, by means of strips fastened to the rafters by cleats, to which the sheets of tin forming the roof are attached. I also claim the shield-plate under the eaves, constructed and arranged in the manner and for the purpose described."—The strips of tin are fastened on the top of each rafter, and extend from end to end, with the two edges turned up, and to these edges the sheets of tin forming the roof are connected, by lapping over these edges, and then turning down; and the shield-plate, referred to in the second section of the claim, is for catching and conducting into the gutter all the moisture that condenses under the roof. For this purpose, a plate extends from the gutter under the roof, there being sufficient space between this plate and the lower edge of the roof, for the water thus collected to pass out.

VIEW OF ST. JOHN'S CHURCH, NOTTING HILL.



ST. JOHN'S CHURCH, NOTTING-HILL.

On Wednesday last the new church of St. John, in Kensington-park, was consecrated by the Lord Bishop of London. The above engraving represents the structure as it appears when viewed from the south-east, and shews it to be cruciform in plan, and to have a tower and spire at the intersection of the cross. There is an entrance porch at the west end of each side of the building and other entrances in the transepts. The exterior is wholly of stone: the plain faces are of Kentish rag hammer-dressed, the quoins, dressings of doors and windows, ornamental parts, and the spire, are of Bath stone. The style throughout is early English, the style of the thirteenth century, but presents variations which are to be found rather in works in Normandy of that period than in this country.

The interior of the church consists of a nave and two aisles, one on either side, transepts, and chancel. On each side of the latter, but extending only part of its length, as shewn in the engraving, an aisle is formed; that on the north side is used as the robing-room, and contains the organ in the upper part, that on the south side contains pews, and is separated by a high open screen from the chancel. The nave is separated from the aisles by plain cylindrical columns bearing pointed arches, and has a clerestory. The tower is supported on four clustered columns and arches at the junction of the nave and transepts. The ceilings are wholly of wood stained and varnished, and the timbers of the roof are exposed, and are slightly adorned with painted symbols of the evangelists, and scripture sentences rubricated. In an ensuing number we shall present to our readers a general view of the interior of th building, as seen from the west end, which wi convey a clearer idea of its appearance tha description alone can do.

There is a gallery at the west end, and on in each transept, but none in the body of th church. The pews are low, formed of dea simply varnished, and afford sittings fo 1,500 persons, of which 400 are free. It wa originally intended to separate the chance from the nave by an un-protestant rood-scree but this was wisely abandoned at the reques we believe, of the Bishop of London.

The whole length of the building, in th clear of the walls, is 125 feet 9 inches; th width of the nave between the columns 19 feet 10 inches, and of each aisle 13 fe 6 inches, making in the clear of the walls, wi the thickness of the columns, 51 feet. Th height of the church from the floor line to th

dge of the roof is 50 feet. The length of the ansepts from north to south is 91 feet, in the ear of the walls. The total height of the tower d spire is 156 feet. The building was designed Messrs. Stevens and Alexander, of whose urch at Herne Hill we had occasion re-ntly to speak in terms of commendation, d was executed under their superintendence. r. Joseph Gibbins was the clerk of the works d is entitled to praise for the manner in hich the works are done: as are the con-actors, Messrs. Higgs and Son, of Davies-reet, who have satisfactorily completed the hole within twelve months. The total cost as 7,500*l.*

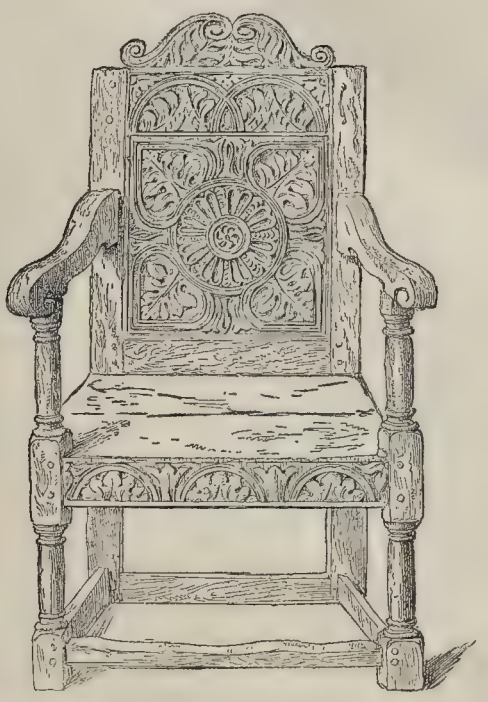
A considerable part of this amount has been ised by subscription. Mr. Robert Roy (of e firm Blunt, Roy, and Johnson), purchased d presented the site for the church, and fur-er, gave 150*l.* towards the cost of the struc-re, an act which deserves to be recorded. Mr. . A. Shaw gave 150 guineas, and the Venera-e Archdeacon Sinclair, vicar of Kensington, 50*l.* Mr. Shaw also gave a small stained-ass light in the gable, at the west end of the ve; and Mr. Alexander, the architect, a ained-glass window in the south aisle, both ecuted by Warrington. There is no other ained glass in the church at present, but ese examples will, probably, induce further nations. The encaustic tiles with which e chancel is paved, were made by Minton, d presented to the church by Mr. Blash-ld.

The external arrangement of the church is tistical and effective, and cannot fail to ad-nce the reputation of the architects. Its uation, on a hill, is admirable; the east end ces Ladbroke Grove, and forms the western rmination of a wide terrace proposed to be ilt, leading straight to Westbourne Terrace. n entirely new neighbourhood has grown up this quarter "like an exhalation," and will ubtless be increased and improved by the ection of the church we have described. In nclusion, we will venture with all reverence, say with the bishop at the consecration of "Grant that they, who in this place shall their own persons renew the promises and ws made for them at their baptism, may ntinue Thine for ever; and being preserved the unity of thy Church, may daily increase thy Holy Spirit more and more, until they me to thine everlasting kingdom."

PRESERVATION OF LONDON ANTIQUITIES.

Last week Mr. Lott, F.S.A., moved at a mmon Council, in pursuance of a *notice* to at effect, a recommendation to the Library mmittee to take into consideration an in-uction given them some time ago, to pro-le a suitable place for such antiquities re-ing to London as were in their possession might be offered to them, but the members esent being counted, it was found there were t enough to form a court, and the meeting as accordingly adjourned! The apathy thus idenced is really disgraceful to the city of ndon, and cannot be sufficiently reprobated. here are few towns in England in which me public repository of local antiquities can-t be found: yet in London, a city built on a y,—where curious remnants of the past are rned up every day, there is nobody appointed r their preservation, there is not even a place hich they may be gathered together: they e at once sold to individuals and so dispersed st, west, north, and south, or worse still, and too many instances, are unnoticed and de-oyed. A museum of national antiquities is eatly to be desired, and might be made par-lly complete in very little time, and with very tle trouble. If we remember rightly the ciety of Antiquaries have *in their cellars* large collection of architectural antiquities, which they have no proper place. Many ividuals too, possess relics of little value by emselves but very important in a series, and uld gladly place them in some general col-tion, where they would form links in a chain, d be accessible to all. It is surely the duty of e corporation of London to bestir themselves t this matter: at the least let them provide a oper receptacle for the relics they possess, d take means to prevent the dispersion of ch as may hereafter be discovered.

OLD ENGLISH CHAIR.



In Vol. II. of The Builder, page 630, we gave representations of two chairs belonging to Thomas Charles, Esq., of Chillington House, Maidstone, Kent. The above glyphograph by Palmer, from a drawing by Mr. C. J. Richardson, is from the collection of the same gentleman, and affords another example of a numerous class of chairs to be found in farm-houses and cottages in various parts of England.

PREMIUMS OFFERED BY THE ROYAL ACADEMY OF ARTS.

The council of the Royal Academy have issued the following announcement relative to the prizes for the present year:—

Royal Academy, Trafalgar-square, Jan. 20.

The president and council give notice to the students in the Royal Academy, that the following premiums will be distributed on the 10th day of December next, viz:—

A gold medal, and the Discourses of the Presidents Reynolds and West, for the best historical picture in oil colours; the subject to be—"Finding the Body of Harold." To consist of at least three figures; the size of the cloth to be a common half-length, viz. 4 feet 2 inches, by 3 feet 4 inches; the principal figure to measure not less than 2 feet in height.

A gold medal, and the Discourses of the Presidents Reynolds and West, for the best composition in sculpture; the subject to be—"The Hours leading out the Horses of the Sun." Basso-relievo—imbost not to exceed 2 inches; the figures not to be less than 2 feet, nor more than 3 feet high; the principal figure to measure not less than 2 feet in height.

N.B. The candidates to present their models either baked or cast in plaster.

A gold medal, and the Discourses of the Presidents Reynolds and West, for the best-finished designs in architecture; the subject to be—"A Design for a National Record Office, including a Council-room and Offices; a Keeper's-house, with Courts and appropriate Entrances; the whole to cover three acres." The whole comprised in one general and regular composition; the designs to be as large as an entire sheet of double elephant will admit, and to consist of a plan, elevation, section, and perspective view.

A number of silver medals will be given for the best Drawings and Models of Academy Figures, done in the Royal Academy; and for the best accurate-figured Drawings of the Strand Front of Somerset House; done from actual measurements, carefully finished and washed; to be as large as a whole sheet of double elephant will admit; with a rough outline, giving the dimensions, attested to be their own performance by any one of the academicians, or any other professor of reputation resident in London. The first medal in each of the classes will be accompanied with a copy of the Lectures of the Professors Barry, Opie, and Fuseli, handsomely bound and inscribed.

Three silver medals will also be given for the best drawings, and three silver medals for the best models, of a statue or group in the Antique Academy, to be selected and set out by the keeper for that purpose on the 1st day of October next, for one month. The first medal in each of these classes will be accompanied with a copy of Fuseli's and Opie's Lectures, handsomely bound and inscribed.

Two silver medals, for the best copies made in the School of Painting, between the time of its opening after the exhibition and the 1st of November. The first medal to be accompanied by the Lectures of the Professors Barry, Opie, and Fuseli; unless the student to whom the premium may be adjudged shall have previously acquired them in the Academy.

A silver medal will also be given for the best medal die, to be cut in steel, from the head of the Belvedere Apollo, in the Royal Academy. The size to be not less than one inch and a quarter in diameter, to be accompanied with an impression in wax.

RIGHT OF TAKING UP PAVEMENTS.

A few day since Mr. Bingham was occupied for several hours at Worship-street in hearing an information on the part of Commissioners of Pavements of the Whitechapel district, against a man named George Bird, for having, as the admitted agent of the Commissioners of Excise, broken up a certain pavement within their jurisdiction to the extent of 1,820 feet, whereby he had incurred penalties to an enormous aggregate amount.

Mr. Ballantine attended for the complainants, and Mr. Carr, the solicitor to the Board of Excise, conducted the defence.

The substance of the case will be best understood from Mr. Ballantine's statement of it, which was to the effect, that the present proceedings had been instituted by the Paving Commissioners, under the act 57 George, III., c. 29, s. 53, which enacted that any person who shall take or break up any pavement in any street or place within the jurisdiction of the commissioners, without their authority, or that of their surveyor, shall forfeit and pay any sum not exceeding 10*l.*, nor less than 5*l.*, for each and every square foot so broken up. After briefly referring to the several acts under which the commissioners were appointed, and by which they themselves were liable to indictment for the non-fulfilment of the trust reposed in them, the learned council went on to state the peculiar circumstances which led to the present proceedings. In the month of October last certain persons, employed by the Board of Excise, thought fit to break up the pavement immediately contiguous to the extensive distillery of Messrs. Smith, Whitechapel, for the purpose of discovering certain secret pipes which were supposed to be concealed under the ground, and to communicate with Messrs. Smith's distillery and rectifying-house; and, although the Paving Commissioners felt greatly annoyed at such vexatious proceedings, no intimation whereof had been previously made to them, and the ground had been left in a state which was highly annoying and dangerous to the public, they did not at that time feel it necessary to interfere, as they were being aware of the authority possessed by the Excise Board under their laws to remove pavements contiguous to any distillery with regard to which they entertained reasonable grounds of suspicion that illegal proceedings were carried on there. Not satisfied, however, with the steps they had already adopted, and in which perhaps they might have been then justified, the present defendant, acting under the express orders of the Excise authorities, had again commenced on the 1st of January breaking up the pavement on the opposite side of a square, nearly 150 yards distant from Messrs. Smith's distillery, where there could not be the slightest pretence for supposing that any secret communication with the premises in question had been established. They, the Excise Board, had received timely notice of the illegality of their conduct, but, notwithstanding that, they continued on the two succeeding days to break up the ground over an extensive surface, although they must have been well aware they could have no justification for such a proceeding. He should proceed to establish his case by evidence, and felt the fullest confidence that the magistrate would consider the defendant had brought himself within the terms of the Act, and rendered himself liable to the heavy penalties incurred under its provisions.

Richard Burgess, surveyor of pavements for the district, proved that on the 1st 2nd and 3rd of January, a gang of men, acting under the orders of the defendant, were engaged in taking up the pavement along the line in question, which embraced three streets, named respectively Little North-street, Court-street, and Buck's-row, and that neither the witness nor any person acting under the authority of the Paving Commissioners had given his sanction to such a proceeding. The place where they on this occasion commenced breaking up the ground was situate about 200 feet from the gates of Messrs. Smith's distillery. In his cross-examination by the solicitor of the Excise, the witness stated that the defendant Bird, on being remonstrated with, at once acknowledged that he was acting under the express directions of the Excise authorities.

Joseph Little, another surveyor, deposed to having been ordered to measure the ground in question which had been taken up, and that in the whole it amounted to 1,829 square feet.

Mr. Jennings, clerk to the Paving Commissioners, stated that on his attention being directed to the subject he immediately waited upon Mr. Carr, the Excise solicitor, and cautioned him that they were acting illegally in removing the pavement without first applying for the consent of the Paving Board, which had not been done; and that though Mr. Carr assented to every thing he said with the utmost politeness, no arrangement or explanation had been come to.

Mr. Carr then, in defence, contended that the proceedings the Board of Excise had felt themselves called upon to adopt in this instance were perfectly justified by the terms of the statute under which they had acted, namely, the 6th of Geo. IV., cap. 80, sec. 43, which enacted that it should be lawful for any officers of excise, or persons acting in their aid and assistance, either by night or by day, to break up any ground in any distillery or enter premises of a distiller or rectifier, or any ground near or adjoining such distillery, in search of any pipe or private conveyance or utensil, and on finding such pipe or conveyance, to break up any ground through which it shall lead; and he should clearly prove that they had reasonable grounds of expectation that an examination of this ground would result in the discovery of some pipes of this description. Before adopting this course, however, they had obtained the sanction of the East London Water-works Company, who supplied Messrs. Smith's distillery; and it was his strong impression that in the interview which he subsequently had with the complainants' own clerk the complainants had given a qualified assent to the steps afterwards taken, on the understanding that their own servants should relay the pavement which it might be found necessary to remove. He had an ample justification for the proceedings the Excise had taken, but he was precluded from entering on as satisfactory an explanation as he should wish, or he must thereby anticipate the action now pending against Messrs. Smith in the Exchequer, which would shortly come on for trial.

Thomas Frankish, an Excise officer, was then called, and proved being directed by the Board of Excise to trace the course of certain mentioned pipes suspected to communicate between Messrs. Smith's distillery and their rectifying-house, that he discovered pipes of which he had reason to complain, and that the object of his finding them formed part of the grounds of action against the Messrs. Smith in the Court of Exchequer. Witness stated that every foot of pipe he uncovered led directly from the pipe at the entrance gates of Messrs. Smith's premises in the direction of the broken-up ground in question, and that the examination of a pipe leading into North-street was brought to conclusion by the discovery that it terminated in a dead end with a flange on it.

Mr. Ballantine then pressed for a conviction and the enforcement of a heavy penalty against the defendant, as the expense of carrying on the proceedings and re-establishing the roads in their former condition would amount to a considerable sum, and he considered it would be extremely unjust to impose the burden of its liquidation upon the rate-paying inhabitants of the district, when the cost had been solely incurred by the conduct of the Excise authorities.

Mr. Carr expressed his readiness to enter into any reasonable arrangement for defraying these expenses that might be suggested, but strongly deprecated the infliction of any of the penalties sought to be recovered.

Mr. Bingham said the case was one of great difficulty and nicety, but, whatever decision he might come to, he certainly did not consider it one for the imposition of more than a merely nominal penalty; and with regard to costs in the way of compensation for expenses, he possessed no power to award their payment. He would, therefore, suggest that the whole amount of actual expenses should be ascertained and laid before the Excise Commissioners, and he felt assured that no obstacle would be thrown in the way of an amicable ajustment.

Both parties assenting to this arrangement, the case was adjourned for three weeks, to allow opportunity for its being carried into effect.—*Times.*

THE RUINS OF NINEVEH.

Letters from Constantinople announce that M. Botta has nearly completed his discoveries in the subterranean palace of the ancient Nineveh. He was then on the point of clearing the grand southern façade. The vast entrance of this front is entirely cleared: six colossal bulls, with the heads of men, and two human statues, also colossal, strangling lions in their arms, form its principal ornaments. These sculptures are said to be of great beauty, and as fresh as if executed yesterday. The two bulls in the centre, as seen from the front, form the entrance-pillars. The animals have inscriptions between their feet, some of which have, however, been cut away by the chisel, so as to leave only their traces, a circumstance which would seem to indicate that a new dynasty, or a new monarch, taking possession of the palace, had removed the inscriptions of his predecessors. M. Botta is anxious to transport these figures to Paris; but the physical difficulties are very great. Still, he hopes to remove them, on wooden rollers, to the Tigris, which is five leagues from Khorsabad,—whence they might go, by the first flood, to Bassora, and there be received on board a ship of war for France. This discovery of M. Botta's is one of the most valuable which has been made for many years in the field of archæology,—supplying an important link, hitherto wanting, and believed to be irrecoverable, in the history of the arts amongst the earliest civilizations of the world. It deserves, therefore, some words of further notice, which we collect from the French papers in general, and the *Revue de Paris* in particular. The Greek historians and the books of the Old Testament, furnish the very vaguest hints as to the condition of art amongst the Medes, Assyrians, and Babylonians; and hitherto no monuments were known to exist by which they were more fully represented. Unlike the cities of ancient Egypt, which have transmitted to our times, almost in their integrity, the arts of their builders, the great cities of Central Asia—Susa, Ecbatana, Babylon, Nineveh — have perished from the face of the earth, leaving, in the language of ancient prophecy, scarcely one stone upon another. Dreary mounds of rubbish, traversed by deep and narrow ravines that indicate the lines of the streets, alone mark the sites of these mighty cities. Nineveh, the city of fifteen hundred towers, whose walls were a hundred feet in height, and had space on their summit for three chariots abreast, seemed more utterly ruined than even Babylon; yet from beneath its dust has the long-buried art of the Assyrians been recovered, and an impulse been communicated which may end in bringing, through future excavations, our knowledge of the former to something of a level with our understanding of Egyptian art. M. Botta, as our readers know, is a distinguished archæologist, who was consul for the French at Mosul; and there, his neighbourhood to the ancient Nineveh inspired him with an earnest desire to try some excavations in the soil of the lost city. His first attempt was on the most conspicuous mass (for the ruins of the various gigantic edifices of old present now the appearance of separate barren hills), near the village of Nininoah, supposed by tradition to be the tomb of Ninus. Here, however, finding only broken bricks and insignificant fragments, he opened his trenches in the sides of another hillock, on whose summit is built the village of Khorsabad,—where bricks had been frequently found covered with inscriptions in the cuneiform or arrow-headed letter. It was principally the hope of finding other inscriptions, which might help, by comparison, to decipher the cuneiform writings, hitherto unreadable, that had tempted M. Botta to these explorations. Something of the success our readers know. An Assyrian edifice has been recovered in a state of unlooked for preservation. On this discovery the French Government supplied M. Botta with the means of continuing his researches, and sent out M. Flandin to make drawings of whatever could not be removed. A tolerable judgment may now, from what is laid open, be formed of the extent and importance of these ancient constructions. Fifteen halls of this vast palace, with their corresponding esplanades, have been cleared. The rest of the monument, it is made quite certain, has been destroyed,—intentionally, however, the stones

having been carried off to serve for other buildings. A fortunate accident—that would seem an evil one at the time—has preserved for us what remains. This portion of the palace has been ravaged by fire, which has entirely destroyed only the timbers of the roofs:—but as the other calcined materials were rendered useless for new constructions, they have been left where they were: and thus, one-third of the edifice remains, to testify of the rest. We have, from time to time, described the sculptures and inscriptions found within its walls; and we announced to our readers the work, which embodying M. Flandin's drawings, will furnish the details of this curious discovery. We may add that the fragments thought worthy of being collected and transmitted to France, are numerous and important enough to load a ship.—*Athenæum.*

New Books.

An Act for regulating the construction and the use of Buildings in the Metropolis and its neighbourhood, with a Cyclopædia *arranged Alphabetically, and accompanied by extensive references and counter-references to the sections of the Act itself.* By A. Bartholomew, Esq., F.S.A., Architect. Published at 2, York-Street, Covent Garden.

The Cyclopædia which accompanies this edition of the New Metropolitan Buildings Act was first published in "The Builder." Its value was at once recognised so fully by the public and the profession, that the author was induced to revise the whole, enlarge it considerably, and arrange it in the pocket form, in which it is now issued. Together with the Act in full, it is no larger than an ordinary pocket-book, and cannot fail to be acceptable to all the numerous classes connected with house property. By a reference to it, all the parts of the Act which bear on a particular question are at once seen, accuracy is secured, and much time saved. Appended to it is a full list of the district surveyors and their offices.

The History and Art of Warming and Ventilating Rooms and Buildings; with Notices of the Progress of personal and fire-side Comforts, and of the Management of Fuel. By Walter Bernan, Civil Engineer. 2 vols. London: 1845. George Bell.

In seventeen essays, illustrated by 240 diagrams; these two volumes present a very interesting history of the contrivances adopted for warming and ventilating rooms and buildings, such as open fires, hypocausts, German, Dutch, Russian, and Swedish stoves, steam, hot-water, heated air, and others, arranged, in most cases, in the order in which they appeared. It is very clearly written, and displays considerable research. The subject is one of paramount importance, and demands consideration.

As the author observes in his preface, "Though much has been done by ingenious men in the art of distributing heat for household uses, it must be confessed, that in one or two instances only have they been able to make a permanent impression or bring their contrivances into that general use as to constitute them 'machines of society;' while in the economy of fuel for manufacturing purposes invention has already produced marked benefits; yet however great the saving that may ultimately be effected in furnaces, still, from the nature of things, it must ever be of small importance when compared with that which would arise were better methods of heating and ventilating dwelling houses generally followed;—of the fifteen-and-a-half millions of tons of coals raised yearly from the mines, not more than three-and-a-half millions are consumed by steam-engines and in manufacturing operations,—leaving eleven or twelve millions of tons of fuel to be mismanaged in kitchens and sitting-rooms throughout the country. The register-plate was described at the close of the fifteenth century by Alberti, the ancient Florentine architect, and by others who wrote afterwards. Were this simple and cheap smoke-valve introduced into every cottage chimney, it would save the heat of five or six millions of tons of coals that is now annually wasted and thrown away."

From the essay on heating by means of steam, we extract the following table collected from cases given by various parties, which "exhibits the practical effect of a given surface of steam-pipe in keeping a certain cubic area of building at a certain temperature, when the external air was *under* the *freezing point* of water:—

Description.	Cubic feet of space heated by one square foot of pipe.	Temperature of internal air.
A chapel; cast-iron pipes	400	60°
A meeting-house; cast-iron pipes	370	
A church; massive walls and stone pillars, inside stone, no plastering or wainscot, except for seats, cast-iron pipes	270	48°
Dining-room; cast-iron pipes	180	64°
Ditto, containing 8,400 cubic feet of space, 15 feet from floor to ceiling	200	62°
Public-room; cast-iron pipes	305	54°
Cotton-mill; tin-plate pipes, not painted	200	
Six cotton-mills, each containing on an average 205,096 cubic feet of space, cast-iron pipes	175	80°
Staircase, average of five, with lantern lights	163	56°
Average of four others with window in wall	174	56°
Rooms in an inn	200	
Counting-house, lighted from the ceiling	255	61°
Average of three do. lighted from side	243	64°
Average of seven rooms in a public building, heated by an ornamental cast-iron vase in each, ¾ inch thick; greatest effect	140	50°
One of the rooms, fitted with a double window, could be kept at		64°
Calico-printers' work-room	90	80°
Ditto. press-room	144	80°
Forcing-house	30	80°
Drying-house; cast-iron pipe	80	100°
Ditto ; tin-plate pipes	40	90°
Ditto ; walls and windows defective	23	90°
Forcing-house, glass very defective	25	73°
Printing-office; four floors average.	265·5	68°

"The quantity of steam-heated surface required to produce a certain average temperature may be readily approximated by dividing the cubic contents in feet of the building to be heated by the number placed in the first column opposite the description of a similar building. Thus, for a factory containing 100,000 feet of space, this number divided by 175 in the table will give 574·2, which is the number of square feet of pipe surface that will keep it at a temperature of 80° in the coldest weather. If the cubic area of a dining-room be 5,000 feet, this divided by 140, one of the numbers in the table, will give about 35·7 square feet of steam-pipe surface required to warm it to a summer heat, with the air outside at the freezing point. These, it is obvious, although rough, are safe practical estimates that may be applied and depended on in numerous analogous cases.

"The required quantity of steam-pipe is sometimes estimated in another way. If, for example, 200 cubic feet of air are to be supplied in a minute to a room which is to be kept at a temperature of 60°, when the external air is at the freezing point, and the average heat of the surface of the steam-pipe is to be 200°, then, if the difference between the temperature the room is to have and the external air be multiplied by the number of cubic feet of air required per minute, and the product divided by 2·1 times the difference between 200 and the temperature of the room, the quotient will give the number of square feet of heating surface required, thus:—

$$(60-32) \times 200 = 5600 \div 2{\cdot}1\,(200-60°) = 19$$

which is the square feet of heating surface to be used.

"An estimate formed from the table omits the consideration of any definite amount of ventilation; and formed from the rule above, omits any reference to the cubic space to be heated. For instance, a room containing the same number of persons and windows, but of twice the cubic capacity, or one with double the superficial area of radiating wall, ceiling, and floor, would be supplied with the same quantity of pipe! The rough approximation to be had from the table will therefore be found a useful check on the still rougher guesses made by means of the rule.

"In Dr. Arnott's method of finding the amount of heating surface, one of the omissions in Mr. Tredgold's rule is supplied, 'to maintain,' says the doctor, 'in an ordinary apartment the agreeable and healthful temperature of 60°, there must be of surface of steam-pipe, or other steam-vessel heated to 200° (which is the average surface temperature of vessels filled with steam at 212°), about one foot square for every six feet of single glass window of usual thickness; as much for every 120 feet of wall, roof, and ceiling of ordinary material and thickness; and as much for every six cubic feet of hot air escaping per minute as ventilation, and replaced by cold air. A window with the usual accuracy of fitting is held to allow about eight feet of air to pass by it in a minute; and there should be for ventilation at least three feet of air a minute for each person in the room. According to this approximation, a room 16 feet square by 12 feet high, with two windows each 7 feet by 3, and with ventilation by them or otherwise, at the rate of 16 cubic feet a minute, would require 20 feet of pipe 4 inches diameter, or any other iron vessel having the same extent of surface.'

"If pipes 3 inches diameter externally are to be used, then the amount in square feet of heating surface multiplied by 1·09 will give the number of feet in length of 3-inch pipes required; or of 4-inch pipes, if multiplied by ·82; of 5-inch pipes, by ·66; and 6-inch pipes, by ·55. Thus in the above example, $23{\cdot}7 \times 0{\cdot}82 = 19{\cdot}4$, which will represent the number of feet of 4-inch pipe required to heat 200 cubic feet of air in a minute from the temperature of 30° to 60°.

"The allowance made for the expansion of cast-iron pipes is in practice ¼ inch in 10 feet, or $\frac{1}{480}$ of their length. When heated from 32° to 212°, cast-iron expands $\frac{1}{480}$ of its length, bar-iron $\frac{1}{810}$, copper $\frac{1}{581}$, brass $\frac{1}{534}$, tin $\frac{1}{467}$, lead $\frac{1}{351}$, zinc $\frac{1}{323}$.

"The size of the boiler is regulated by the capacity of the heating-pipes. As much space is left for the steam in the boiler as is equal to all the steam in the pipes; and the space for the water may be about one-eighth less. The water-line should always be kept above the highest part of the flue."

We shall probably return to this work, and in the meantime recommend it to our readers.

CORRESPONDENCE ON METROPOLITAN BUILDINGS ACT.

WHO HAS POWER TO DECIDE WHAT IS A COMMENCEMENT?

Sir,—Finding it necessary to obtain for my own guidance counsel's opinion upon two points of the Metropolitan Buildings Act, I inclose you a copy thereof, thinking it may be of service to your readers, should you think proper to give it insertion in your valuable publication.

Your obedient servant,
A Constant Reader.

Clapham, Jan. 29, 1845.

(*Copy.*)

Having carefully perused and considered the Metropolitan Buildings Act with reference to the two points submitted to me—namely, "What is a commencement of a building within the meaning of the Act?" and, "Who has the power to decide what is a sufficient commencement?"

I am of opinion that any acts which amount to a *bonâ fide* beginning, upon which it is intended to raise a superstructure, are sufficient to meet the object of the legislature; otherwise it would of course be very difficult to determine where the line is to be drawn, and say what acts just amount to a commencement and what are below the mark; I therefore have no hesitation in concluding that if foundations are commenced and a few courses of bricks laid (so as to denote absolutely an intention to build), it is "commenced" in terms of the Act.

On the second point,—The 82nd section gives power to the official referees to determine disputes *as to the effect of the provisions of the Act* in any case. This power must pertain *solely* to cases which are admitted to be within the operation of the Act, therefore they have no jurisdiction over such as are "commenced before Jan. 1, 1845," provided they are "covered in and rendered fit for use within twelve months thereafter;" but should they assume such jurisdiction, the remedy would be by action, or an application to the Court according to the act of interference.

Temple, Jan. 27, 1845.

[We have not the name of the party who gave this opinion, and can hardly believe that it proceeds from one "learned in the law." The 80th section, which provides for the ap-

pointment of the referees, shews that they are to superintend the execution of the Act, "and also to determine sundry matters in question *incident thereto*:" and the 81st section enacts, that they are "to perform the several matters to them respectively assigned by the provisions of this Act, and to determine all questions referred to them, whether expressly by this Act or at the instance of any one or more of the parties concerned."—Ed.]

METROPOLITAN BUILDINGS ACT—DEFINITION OF TERMS.

Sir,—Parties concerned in the operation of the Metropolitan Buildings Act having applied to me for my opinion of the construction of the words "*commenced before*" and "*commenced after*" in the sense applied to them by the said Act, I beg to hand, through your medium, my consideration of the words in the sense they are evidently intended to bear in reference to this question.

It is necessary to keep in mind that the general tenour and spirit of the Act is, amongst other objects, "to prevent the great diversity of practice exercised by the various officers appointed under the 14th Geo. 3, c. 78, whereby the operations of persons engaged in building is retarded, and expenses are increased" (*Vide* Preamble); and "that the following terms and expressions are intended to have the meanings assigned to them respectively." (*Vide* Construction of Terms.)

Now the terms of the Act are "*already built*," and "*hereafter to be built*," and the words "*commenced before*," or "*commenced after*," are merely constructive words to shew the intended force of the terms used.

The term "*already built*" being in the past tense, would, in its ordinary signification, imply a building completed and finished; but the term "*already built*," in the sense applied to it by this Act, is evidently intended to include all buildings or demonstrations of buildings which are "*commenced*" by any operative building demonstration being performed prior to the 1st January, 1845; and *vice versâ* "*hereafter to be built*," is intended to apply to such as have no operative demonstration whatever prior to that date, and such as having an operative demonstration of a building being about to be raised prior to the 1st of January, 1845, is omitted or neglected to be "*covered in and rendered fit for use within twelve months thereafter*."

Had the Act intended to renounce some commencements, and to have acknowledged certain other commencements, it would have been reasonable that in "*the construction of terms used*," such distinction of commencements would have been expressed; instead of which, the most open and unequivocal term is adopted, thereby acknowledging every demonstration of what kind soever, whereby a building is in visible progress of erection, shall be deemed to be "*already built*" within the meaning of this Act, provided it is "*covered in and rendered fit for use within twelve months thereafter*."

Had we heretofore been without any Act to regulate our metropolitan buildings, probably the limits and operations of the 7th & 8th Vict., now under consideration, might have been of a more stringent and arbitrary nature; but having been regulated chiefly by the 14th Geo. 3, c. 78, ever since the year 1774, which has been considered efficient hitherto, it is evidently the object of the legislature, in producing the present Act, to do so with as little inconvenience to building operations as consists with the nature of the subject-matter itself.

Trusting to your devoting space for these remarks in your next publication, with the hope they may be useful to parties concerned,—I am, Sir, your obedient servant,

CONSILIARIUS.

London, 22nd January, 1845.

RAISING OLD BUILDINGS.

Sir,—I have a five roomed house and shop, occupied (the walls of which are less than 18 in. thick), which I wish to raise another story, as also a kitchen adjoining at the back. Will any of your building friends inform me whether such can be done irrespective of the new Buildings Act. But should the new Act prohibit such addition being made, permit me to inquire further, whether I can raise the front by a parapet, without the interference of any surveyor appointed under the said Act.

I am, &c. A.

[The new Act provides that buildings already built may be raised to an additional height, not exceeding 10 feet, although the walls of such buildings be not of the thicknesses prescribed by the Act, if, *in the opinion of the district surveyor*, such walls be sufficiently secure to allow of the raising thereof.—Ed.]

WHAT CONSTITUTES A SHOP-FRONT?

Sir,—Can you define the difference between a window in the front wall of a shop and a shop-front? as the frames of doors and windows must be fixed at a distance of 4 inches at least from the face of the external wall, and shop-fronts come under a special clause of the New Buildings Act. By giving the definition, you will oblige ONE OF YOUR READERS.

January 21st, 1845.

[Such a definition in general terms cannot safely be given. Each case must be judged by itself.—Ed.]

Correspondence.

ARCHITECTURAL COMPETITION.

"My ears will not be charmed with sounding words,
Or pompous phrase, the pageantry of sounds."

Sir,—It may be necessary to inform your correspondent "T" that the length of time which has elapsed since the date of his letter to that of the present reply, is owing to a circumstance over which I had no control, and which is not yet satisfactorily accounted for; I shall, however, make no further apology for again alluding to the subject of competition, considering its paramount importance will prove a sufficiently ample one for making a few remarks on the letter of "T," at p. 622, vol. ii. of THE BUILDER.

I certainly think it savours of partiality in him to misrepresent that part of my former letter relating to Sir R. Smirke. If he possesses much candour, he must allow it to be extremely unfair of him to bring forward that gentleman as an *individual* illustration, when I distinctly mention him as a general one only: that is, that the same argument will hold good in the case of any other architect in a similar position. Nor has he by this quibble—for so I must consider it—answered any of my objections, but has, on the contrary, evaded a direct reply to them. The enigma he should have solved is, how in all cases an *impartial* architect can be procured, one whose unbiassed opinion will alike be satisfactory and just, whether the competition be for a poor-house or a palace? Does it not seem very absurd for a writer to bring forward as an argument for the superiority of a certain system, a competition for the chapels connected with a cemetery? Of what flimsy texture must the reputation of such an architect be who would fear such insignificant buildings—even if treated with the most artistic skill—interfering with that reputation, when he has designed and raised much larger and more important edifices. Is he so inexperienced as to suppose, that if in a competition for a town-hall, a club-house, or other large building, in which that architect was appointed umpire, he was to observe the name of a talented rival on a design the merit of which might seem calculated to dim the lustre of his own reputation elsewhere, that envy would not suggest a certain line of conduct? which I consider the principal objection to this system: or does "T" really suppose that a paltry fee would reconcile him to its loss? Common sense and past experience unfortunately prove the contrary.

We will, to prove the inferiority of "T's" system to others, notice a few of the objections to which it is liable, and then compare it with the proposed one, in which the competing architects constitute the judges, and one which, I contend, is the most fair, satisfactory, and just.

In certain designs a professional umpire is very apt to form previous ideas in his own mind as to what particular style, plan, or arrangement he would adopt; this certainly gives an unfair advantage to certain competitors. Also it is a very difficult and wearying task to inspect minutely a number of designs for a complex building; so much so, that it is very questionable whether the architect takes that trouble, generally fixing in a very superficial manner on a few which most accord with his own ideas on the subject, and totally neglecting the others. This appears to be the practice, many architects perhaps, remember instances in which the designs were sent in on Saturday and the result known on the Tuesday following! a length of time in which the designs could not all have received minute attention. Again, it is impossible for an umpire, however experienced, fully to comprehend the peculiar difficulties the site or plan may suggest; and, lastly, the opportunity for that hydra-headed monster—jobbing—still remains.

The before-mentioned objections, it will at once be seen, would not exist under the proposed system. The competitors being of all persons most intimately acquainted with the peculiar difficulties the site or plan may suggest, would ensure a correct decision; their number would neutralize any peculiar prejudices, and would most effectually preclude any attempt at jobbing.

"T" cannot see why I can object to writing the name and address on the plans, and is further strengthened in his opinion by your own approval of the practice. Leaving the suspicion in the case I instanced, entirely out of the question, to be brief, I object to it for two reasons: the first of which is, that a person observing the name of any talented or popular architect written on a design would naturally regard those plans with more than ordinary attention, which would frequently operate fatally against the claims of one perhaps equally great, minus the reputation; and the second, that by having the names of the competitors publicly before him, an umpire could with the greatest ease satisfy his revenge on any particular one,—and thus, by a wrong use of power, more effectually suppress talent than even the—often unwitting—blunders of an unprofessional committee. I admit that in many cases (where the architect is privately chosen beforehand) it is perfectly immaterial whether the names are written on the plans or not; yet at the same time it must be allowed that these objections do not exist when a private mark is used. I therefore decidedly object to the practice; in no instance will it *prevent* jobbing, while it frequently opens the door for the admission of evils far more flagrant and dishonest.

I have only to express a wish that architects generally will follow the example of your correspondent "R," inserted a few weeks back, and expose every competition the result of which is not perfectly just and satisfactory; and not only object by their pens to the whole system, but practically prove their appreciation of the insult offered by the paltry one premium of ten guineas!

It has been objected by some to this, that if an architect refuses to send in designs to ordinary competitions, the only means for promotion in the profession at once vanishes. To those who argue thus, I would merely hint at the inconsistence of crying down "the present system" at every opportunity that offers, at the same time they form the principal practical supporters of it, recommending them to study a treatise on "Probabilities," and carefully to note down the number of competitions they have been engaged in, as well as the necessary expenses (exclusive of their time) incurred; and if the amount of current coin of the realm paid in hard cash does not twenty-fold exceed the amount of premiums received or commission arising from that source, I shall have the only alternative of considering that architect a far greater rogue than an artist. To conclude this portion of my letter, I would mention, that the only ill-wish I wish towards "T" is, that he may never find himself at fault when he places so much reliance on the *impartiality* of an architect.

In your note to my last letter, you very plainly charge me with ignorance of the laws of architectural optics: now, to use a very expressive, but withal, perhaps rather vulgar proverb, "You have hold of the bull by the horns, and I by the tail." I contend only that flutes to columns give them a richer and more delicate appearance than when otherwise, thus removing the bare appearance an unfluted column in certain positions has. The question is not whether a fluted column appears thicker than when unfluted? What is heaviness and bareness, but misplaced solidity and simplicity? That I do not

stand quite alone in my opinion is evident; for if you turn to page 385, vol. ii. of THE BUILDER, you will perceive that your correspondent, "G.R.F.," quotes Mr. Hosking and another authority in support of the views I hold on the subject.

To those of your readers who are in the habit of perusing the pages of a certain journal, it will be remembered that some remarks have been made by a writer on the propriety or correctness of a comparison made by me in a former letter, between the windows of the Royal Exchange and picture-frames, and who is pleased to attribute the "questionable" comparison, to the "lively sallies of a funny imagination which some endeavour to palm upon us for *knock down* argument." What precise meaning the writer attaches to the term "knock down argument" I am ather at a loss to imagine; I would intimate, however, that I neither had the intention of knocking down the windows of the Exchange, nor to commit a breach of the peace on the persons of those who might differ from me. Is the writer serious, when he tells us, that if dressings similar to those of the windows of the Exchange were to surround a picture, they would still be termed *window*-dressings? Or supposing the same kind were to surround or ornament a niche, will he contend that they would still be called *window*-dressings? The writer very evidently, in attempting to prove too much, has over-shot the mark; and I have no doubt that the generality of your readers rightly judged, that the comparison was never intended to be translated literally—to the very letter—but, for the especial benefit of the writer, and I am sorry his dulness of comprehension should require it, I would state, that the heaviness and grossness in detail—the overcharged ornament—fully merit the comparison if made, if only for exaggeration and triviality. Though I cannot return the compliment to the writer that he has paid me, that of using knock down argument, he despatches the windows of the Exchange in such a strain as the following:—"Compared with the frigid things just alluded to," meaning the ordinary examples of window-dressings, "the windows of the Exchange are what the luxuriant vegetation of the tropical climes is to the eternal ice of the polar regions. They bespeak fulness and spontaneity of ideas, *gusto* and *con amore* relish with pains-taking—no, there we are wrong, not pains-taking, but pleasure-taking earnestness in the task." I am in doubt whether the luxuriance of imagination ought to be attributed most to the architect or writer. It is a great pity that the fulness of the architect's ideas were spent solely on the upstairs' windows; it is thought by persons possessed of very little luxuriance of imagination, that the shopocracy would have been benefited by a share, and if a little more "pleasure-taking earnestness" had been expended on them, the building would have been improved; at the present time they look any thing but *pleasing* when compared with the vegetation above.

I would merely add, that the Exchange as a whole presents not a single trace of genuine artistic feeling. If the purpose of architecture is to produce emotions of the *sublime*, the distribution of the mass is the aim of the master-mind. Detail alone can never produce grandeur; and it speaks not a little for the intrinsic merit of the Exchange that critics have generally been silent on the main point—confining their attention chiefly to the windows and sculpture.

It is this harmonious and effective distribution of masses, that has raised Barry to the proud eminence he deservedly occupies; at the same time it must be allowed he studies elegance of detail. What an opportunity was lost for *effect* in the view, from the quadrangle of the Exchange, of the tower, and what a positive blemish it is under the present aspect.

Critics have now got into a habit of continually harping upon *originality;* in my opinion, it would be better were they first to point ont the distinction between originality and caprice, and to fix the line of demarcation between them. Originality has taken the place of simplicity. A few years back the cry was simplicity; now the public want something new, and this has been changed for originality. I admit, however, that architects have been far more inclined to copy than to study.

I fear these remarks will not possess much interest to *some* of your readers; there are many, however, who will no doubt expect some kind of explanation. Not daring at the present time to trespass further on your valuable space, I beg leave still to sign myself, though many may be inclined to argue my right to the name of,

London, Jan. 14, 1845. SCRUTATOR.

[Relative to the first part of "Scrutator's" letter we are glad to say that our experience of mankind in general, and of architects in particular, leads us to entertain a very different opinion from his. In recent cases where architects have been called in to make the selection, the result has been entirely satisfactory.—ED.]

VERBAL CONTRACTS.

SIR,—A country builder has made his own plans and specifications for some buildings he has erected, with which his employer, now they are finished, is not satisfied, although the plans were deviated from to suit his wishes, and additions made. There was a *verbal* agreement that they were to be erected for a certain sum, which his employer now says is too much money, yet he will not agree to let a surveyor value the same, but says he will keep half the sum so agreed for, for twelve months, as also the amount of the extra work. I wish you would inform me in your next which is the best and most expeditious way of settling such an unpleasant affair, and you will oblige yours,

Jan. 28, 1845. X. Y. Z.

[Place the matter in the hands of a respectable solicitor.—ED.]

MISTAKES IN ESTIMATES.

SIR,—As I am referred to in Mr. Sugden's letter of last week respecting the quantities of Herne Hill Church, I shall feel obliged if you will insert the following statement relative thereto. At the time the drawings and specifications were open for the inspection of the builders, Mr. Alexander, the architect, was out of town, and I went to his office for the purpose of taking the quantities for some clients of mine. I commenced doing so, and took off the bricklayer's and slater's works only. On my return, the following day, Mr. A. had arrived, when I told him it was impossible to have the estimates delivered at the time stated in the advertisement, and wished him to postpone it for a week; with this request he said he could not comply, but stated, he had himself taken out the quantities, and they were correct. Of course I communicated this to my employers, and they agreed to accept the quantities taken out by Mr. A. I then made copies of them for the several parties, but I never took a single dimension except for the bricklayer's and slater's works. I am not able to state whether Mr. Sugden is correct as to the deficiency of stone, but he is as to the scantling of the buttresses. There were other builders who tendered for the church beside those for whom I was concerned, and they adopted the same course, viz., copied Mr. A.'s quantities. I have only to add, that I was not paid for taking the quantities, but merely for making the copies.

I am, &c.

W. M. BROOMFIELD.

118, Waterloo Road, Lambeth,
Jan. 27, 1845.

COMPETITION.

Sir,—In October last, I advertised for designs for laying out a plot of ground adapted for building in this borough, and in consequence of such advertisement an anonymous correspondent copied and sent me a letter, signed "Scrutator," which had appeared in your journal of the 31st of August last, recommending the adoption of a new mode of decision on the merits of the designs, by making the competing architects the judges.

There appeared to me to be so much of good sense as well as justice to those who were willing to compete and have their merit tested by so many competent judges, by the adoption of this mode, that I at once determined to try the experiment, and I have the pleasure to tell you that I am well satisfied with the result.

I had upwards of forty designs sent to me, and many of them displayed very considerable talent, and I confess, that on opening them, it appeared to me that so many were nearly equally balanced in point of merit, that it must be indeed difficult for one or two judges to arrive at a correct decision; and the result of the votes has fully confirmed me in this opinion.

With a view of shewing this, and also of satisfying the competitors who attended to give their votes, that such votes have been correctly recorded, I beg to send you the mottos to those designs which obtained votes, with the names of the competitors who voted for each, that you may, if you think proper, publish this in your next journal.—

I am, Sir, your most obedient servant,

J. J. BLENDY.

Land, King's Road, Reading,
Jan. 29th, 1845.

Motto on Design.	Competitors who voted in favour of its being entitled to 1st Premium.	Competitors who voted in favour of its being entitled to 2nd Premium.	Total No. of Votes.
A "Profit and Prospect"	F. Cooper, Bath J. Billing, Reading J. O. Cooper, Reading J. C. Gilbert, Nottingham J. Barnett, London	J. Cade, London	6
Je ne cherche qu'un	R. W. Wright, Hackney A. Artis, London T. Rumble, Reading	W. A. Papworth, London	4
Via Regis	J. Cade, London W. B. Hays, London	D. S. Shearman, London J. O. Cooper, Reading	4
Multum in parvo	Messrs. Mair & Westmacott, London. J. E. Gill, Southampton. J. Austin, Bedford		3
Spero	J. E. Gill, Southampton. J. W. Papworth, London. W. Brown Reading	W. F. Poulton, Reading	3
Nunc aut nunquam	W. Brown, Watford	J. E. Gill, Southampton G. Scratton Reading	3
Optimo	W. F. Poulton, Reading.	J. C. Gilbert, Nottingham J. Barnett, London	3
Foy en tout	W. A. Papworth, London	J. W. Papworth, London W. B. May, London	3
Nil desperandum		R. W. Wright, Hackney A. C. Bean, Hammersmith W. Brown, Reading	3
Vututes fortuna cornes	D. S. Shearman, London E. Sanders, London		2
Non quo sed quomodo	S. Noble, Greenwich	F. Cooper, Bath	2
H. B.	H. Drake, Reading	A. B. Wilcox, London	2
Stat veritas	B. W. May, London	E. Saunders, London.	2
Exfacto jus oritur		H. Drake, Reading. J. Billing, Reading.	2
Confido conquiesco		T. Rumble, Reading W. Brown, Watford	2
Dum vivimus vivamas	A. C. Bean, Hammersmith.		1
Tempus edax red gratia vivex	G. Scratton, Reading		1
Nec parvis sisto		S. Noble, Greenwich	1
Semper Idem		A. Artis, London	1

MR. TITE.—We understand that the directors of the Hâvre and Rouen Railway have appointed Mr. Tite (the architect of the Royal Exchange) to superintend the erection of the Hâvre station, and that many of the other stations on the same line have been built under his direction.

THE ELECTRIC TELEGRAPH from London to Portsmouth, by the South-Western Railway, is just completed. On Saturday last it lisped its first sentence. A shareholder at Nine Elms asked the keeper at Portsmouth—"How's the wind?" He was answered on the instant,—"South by west!"

Miscellanea.

A Primitive Dwelling Place.—In the township of Westhope, about eight miles from Ludlow, there is a man named Edward Howells, supposed to be about fifty years of age, who, for the last sixteen years, has had no other dwelling place than a hole or small cave scooped out of the rock; there is neither door nor any other convenience attached to it; he has not even a stool to sit upon; in fact, all this cave contains is a little moss and straw. Perhaps the most remarkable circumstance attending this eccentric being is, that every night, when he retires to his lair, he regularly undresses himself, as though about to enter ever so comfortable a bed. Howells is considered perfectly honest and inoffensive—he never begs, but stands daily a short distance from some farm-house gate, and thankfully receives whatever broken victuals, &c., may be compassionately given him. No one can ascertain his parish, or from whence he originally came.—*Ten Towns Messenger.*

New Church in Camden Town.—The newspapers state that it is intended to erect a new church in the Camden Town district of St. Pancras, the population of which is 16,000, with church accommodation for only 1,600. For this purpose a plot of ground has been given, free of all costs, by the Marquis of Camden and the Rev. Thomas Randolph. In addition to this gift, the Marquis has subscribed 500*l.* towards the erection of the church, and the Rev. Thomas Randolph a like sum. Amongst the other contributors are the Rev. Dr. Moore, vicar of St. Pancras; Lord Calthorpe, Captain Theaker, the Rev. Mr. Langdale, Colonel Moore, &c. The Bishop of London has signified his approval of the place, and the works will be commenced as soon as the necessary arrangements can be made.

Statistics of the Timber Trade of Canada for 1844.—We learn from the *Annual Circular* of Messrs. Forsyth and Bell that there has been a great increase in our consumption of Canadian timber during the last year. By the supervisor's return, the quantity received at Liverpool, is as follows:—White pine, 12,150,964 feet; red pine, 4,164,317 feet; oak, 709,540 feet; elm, 660,964 feet; ash, 128,458 feet; birch, 73,142 feet; maple, 821 feet; butternut, 3,040 feet; basswood, 7,919 feet; tamarack, 19,925 feet; round maple, 255 feet; hemlock, 1,001 feet; poplar, 45 feet; walnut, 3,489 feet. Taking into consideration a small quantity of timber, wintering over last year without being measured, and which of course is not included in the above return, our exports of square timber and that used in our shipyards will not vary much from the following:—White pine, 11,950,438 feet; red pine, 4,669,149 feet; oak, 1,213,110 feet; elm, 1,208,988 feet; ash, 122,346 feet; birch, 61,309 feet. The returns of deals and staves are not yet made up in the supervisor's office, but will be hereafter reported. The number of arrivals for the last four seasons have been as follows:—1844, 1,214 vessels, 458,971 tons; 1843, 1,185 vessels, 429,741 tons; 1842, 863 vessels, 307,448 tons.

Stock of Lumber in the Port of Quebec, December 1, 1844, with a comparative statement for the last five years.

	Oak Timber.	Elm Timber.	Ash Timber.	Birch Timber.	White Pine Timber.	Red Pine Timber.
1844	857,721	559,840	77,490	26,139	2,552,994	2,969,668
1843	1,361,281	1,107,864	71,378	14,358	3,352,472	3,474,500
1842	1,733,186	1,416,522	148,446	57,877	1,151,454	1,392,131
1841	1,743,156	1,768,416	169,969	9,552	4,150,527	1,292,350
1840	1,172,413	1,167,975	149,185	22,895	4,271,583	1,522,448
1839	604,285	200,395	40,131	1,584	1,773,603	2,343,696

Note.—The above includes shippable and unshippable lumber.

The King of the French.—The King of the French has given the sum of 20*l.* towards the funds of the new Roman Catholic Church now erecting in Lambeth.

Fresco Painting.—We are sorry to hear that the experiments in fresco-painting recently made in the summer-house at Buckingham Palace have, with one exception, proved failures, owing to the artist's want of experience in the manipulative treatment of this style of painting. We have much yet to learn and to do before we can decorate our Houses of Parliament on the scale proposed.—*Polytechnic Review.*—[We must inquire into this. —Ed.]

New Explanation of a Boiler Explosion.—Dr. Lardner having been appointed to investigate the cause of the explosion of a locomotive-engine on a railway in Pennsylvania, by which several lives were lost, has referred its cause to lightning, which, "passing on the boiler, raised some part of it to a high temperature; that the water taking up the heat was rapidly evaporated, as it would have been by contact with highly-heated or incandescent metal; that steam of great volume and very extreme pressure being thus suddenly produced, the boiler yielded to the force, and the catastrophe took place."—*Mining Journal.*

Institution of Civil Engineers.—We announced last week the re-election of Mr. Walker to the presidency of this institution, and at the same time stated that a change had been contemplated. It appears that, in accordance with a feeling very generally entertained in the council, that the office of president should not be held in perpetuity by any one gentleman, Mr. Walker declined to act, and Sir John Rennie has been unanimously elected in his stead.

Conversazione at Society of Arts.—The vice-presidents of this institution issued 800 or 1,000 cards for Tuesday evening last, and, in consequence, received a very numerous party. Drawings, bronzes, models, music, and conversation, formed the staple of a very pleasant evening, and kept many there till midnight. We are glad to find that this old and most valuable society is now again firmly established, and will continue its course of usefulness. Much praise is due to Mr. Wishaw, the secretary, for the zeal and energy he displays in his office.

NOTICES OF CONTRACTS.

For the formation of 4 Miles 56½ Chains (single line) of the Ashton, Stalybridge, and Liverpool Junction Railway.—John Jelleporse, Secretary of the Manchester and Leeds Railway Company, Palatine Buildings, Hunt's Bank, Manchester. February 3.

For the works required in erecting certain Farm Buildings at Badley Hall, Essex, and for alterations and additions to the dwelling-house.—Mr. George Sergeant, 27, Queen-street, Colchester; or Mr. John Eagle, Badley Hall. February 3.

For the erection of a Bridge, called White Bridge, at Grasmere, near Ambleside, Westmoreland.—Mr. George Robinson, Bridge Surveyor, Kendal; or Mr. Daniel Donaldson, Ambleside. February 4.

For the construction of the several Stations and other Buildings on the York and Scarborough Railway.—Mr. Andrews, Architect, York; or Mr. George Baker, Secretary, Railway Office, York. February 5.

For the erection of a Steam Boat Pier at the Quay on the north-east side of Blackfriars' Bridge, also for building a Decked Lighter or Dumby.—Town Clerk's Office, Guildhall. February 6.

For one Pleasure Carriage, four Milk Trucks, and fifty Box Waggons, with drawing and buffer springs, for the Manchester and Birmingham Railway.—Mr. John Latham, Secretary, London-road, Manchester. February 6.

For erecting and completing the Lower Sluice and Sluice-Pit at the top of the Eau, Brink Cut, about 4 miles above Lynn.—Messrs. Walker and Burges, 23, Great George-street, Westminster; or Mr. George Game Day, Clerk to the Middle Level Drainage Commissioners, St. Ives. February 10.

For the erection of New Buildings in Pembroke College, Oxford.—Plans, &c., prepared by Mr. Haywood, Architect, may be seen at the Master's House. February 11.

For the erection of two Fever Wards in the workhouse at Slough.—C. P. Barrett, Clerk of the Union, Eton. February 11.

For the erection of a Cast-iron Tank, 52 feet diameter and 16 feet deep; and for a double or Telescopic Gasholder, to work in the same. Also for a double or Telescopic Gasholder, 70 feet diameter, to work in a tank 18 feet deep.—Mr. John Rofe, Engineer, Gas Works, Preston. February 12.

For a supply of Railway Fastenings for the Great Southern and Western Railway, Ireland.—Mr. William Taylor, Secretary, 3, College-green, Dublin. February 17.

For the Mason's and Pavior's Works, supply of Guernsey Granite Chippings and Yorkshire Paving, for one Year, from the 25th of March next, for the parish of St. George, Hanover-square. Mr. R. Lees, Clerk to the Paving Committee. March 4.

For the supply of 11,000 feet of nine-inch cast-iron Pipes for a new line of Aqueduct to be laid in the Island of Malta.—Vin. Casolani, Collector of Land Revenue, Office of Land Revenue and Public Works, Valletta, Malta. March 31.

COMPETITION.

Plans and estimates are required for a Workhouse, to contain about 1,180 persons. The whole to be done in a plain and substantial manner, without any expensive embellishments. The plans and architects' estimates to be sent to Robert Mercer, the Clerk of the Clifton Union, Pennywell Road, Bristol, on or before the 17th of February next, and the Board of Guardians will adjudicate on the 28th. The architect producing the best plan in the estimation of the Board will be employed at a sum not exceeding 5 per cent. on the outlay, and a gratuity of 25 guineas will be given to the architect producing the second best plan in the opinion of the Board.

APPROACHING SALE OF WOOD, &c.

BY AUCTION.

February 25.—At the King's Arms Inn, Hemel Hempstead; a large Fall of capital Oak, Ash, Elm, and Beech Timber Trees, the greater portion of which are of very large dimensions and superior quality.—Mr. James Adams, auctioneer, Clarence-street, Staines, Middlesex.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

Monday, February 3.—*Entomological*, 17, Old Bond-street, 8 p.m.; *Chemical* (Society of Arts, Adelphi), 8 p.m.; *Medical*, Bolt-court, Fleet-street, 8 p.m.

Tuesday, 4.—*Linnæan*, Soho-square, 8 p.m.; *Civil Engineers*, 25, Great George-street, 8 p.m.

Wednesday, 5.—*Society of Arts*, Adelphi, 8 p.m.; *Geological*, Somerset House, 8½ p.m.

Thursday, 6.—*Zoological*, Hanover-square, 3 p.m.; *Royal*, Somerset House, 8½ p.m.; *Antiquarian*, Somerset House, 8 p.m.; *Metropolitan Improvement Society*, 20, Bedford-street, Covent-garden, 8 p.m.

Friday, 7.—*Royal Institution*, Albemarle-street, 8½ p.m.; *Botanical*, 20, Bedford-street, Covent-garden, 8 p.m.

Saturday, 8.—*Royal Botanic*, Regent's-park, 4 p.m.; *Westminster Medical*, 32, Sackville-street, 8 p.m.

NOTE.

We shall be glad to receive information from Publishers of all New Books on the subjects whereof we treat.

TO CORRESPONDENTS.

"A. B. (Northampton)," *wishes to know how the cells of the model prison at Pentonville are warmed, and by whom.*

"A Handrailist" *has made a mistake in his calculation; a plank* 4 *ft.* 6 *in.* × 10 *in.* × 4½ *in., contains* 1 *ft.* 3 *in. cube, not* 15 *ft.*

"H. S." *We do not desire to pursue the subject further.*

"Mr. Hood."—*Mr. Guthrie's address is* 3, *Downie-place, Edinburgh.*

"J. W. (Ipswich)" *must see that if we gave opinions on things we had not examined, our opinion would soon be disregarded.*

"The Builders' Price Book, for 1845, by W. Laxton." *received.*

"R. K," *and* "Decorative Art Society" *have reached us.*

"A Journeyman Carpenter" *wishes us to furnish a list of all builders who live in or around the metropolis. This may be found in any Directory, easily to be obtained.*

"Exeter Hall Great Room." J. F. *asks for a drawing and description of the roof of this building. We shall be happy to receive information upon it.*

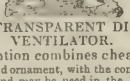
"J. T. L." *next week.*

ADVERTISEMENTS.

ANASTATIC PRINTING.—THE ART UNION, Part 77, published this day, contains Specimens of Letterpress, Woodcuts, and Drawings printed by this process—a process which threatens to completely revolutionize Literature and Art. The letter-press consists of a minute description of the manner in which the process is effected; the woodcuts are of various dates; and the drawings have been executed on purpose for publication in these pages. The examples supply indubitable evidence that a new power has been obtained which must inevitably lead to wonderful results.

Published by Chapman and Hall, 186, Strand.

By Her Majesty's Royal Letters Patent.



DR. GUYS TRANSPARENT DISPERSING VENTILATOR.

THIS invention combines cheapness, transparency, and ornament, with the complete prevention of DRAUGHT, and may be used in the Bed-rooms of the most delicate invalid at all times and in all seasons with perfect safety. Sole Manufacturers, COTTAM and HALLEN, 2, Winsley-street, London.—Estimates furnished for the Ventilage and Warming of Hospitals, Schools, Churches, and all Public Buildings.

The Builder.

No. CV.

SATURDAY, FEBRUARY 8, 1845.

FROM the large number of letters that we continue to receive on the subject of the Metropolitan Buildings Act, and the eagerness with which all we say on is canvassed, we find it necessary to rn to that subject. As might have been xpected, opinions differ as to the precise eaning to be attached to certain parts of the ct, and there seems to be this difficulty, that oubts cannot be resolved without expense. he point most discussed at the present mo- ent, is the meaning of the word "com- enced." We inserted two letters upon it in e last number of the journal, and have re- ived many more since, the writers of which sist, that if an intention to build has been peratively demonstrated before the time spe- fied in the Act, the building is commenced, d does not come under the control of the strict surveyor. The following, which is gned "An Old Surveyor," may serve as an ponent of those who, regarding the word its widest sense, hold this opinion :—

"SIR,—Above all controversies of the present y, disturbing the metropolitan building com- unity, the most vexatious and absurd is the esent unnecessary discussion upon the con- uction of a word which of all others is rhaps the least susceptible of quibble or asion. Can any ambiguity attach to the m '*commenced before*,' in contradiction to e term '*commenced after*,' a certain date? e they not the most comprehensive and finitive terms that can be employed to describe o opposite conditions? And these words, it remembered, are employed in '*the con- uction of terms used*' in the above Act to ine these two opposite conditions. Never- less, upon these words a very absurd dis- ation has been raised by parties desirous of posing the operations of builders; and some the district surveyors have been called upon assume the power of giving these words ght and force, or of divesting them thereof, ording to the locality in which such build- s are 'commenced before 1st January, 5;' thus requiring a construction to suit the erest or inclination of persons who call the interference of those gentlemen. But t is more strange and unaccountable is t this extra-official duty has been regarded ome of the old-fashioned district surveyors proper point for dispute, and consequently heaping additional labours unnecessarily on official referees appointed by the new Act.

In order to avoid the delays and uncer- ties attendant on all new systems before are thoroughly understood, many persons rous of proceeding with their building, had *mmenced before the 1st January*, 1845,' rding to the provisions of the Act under circumstances; but, in some cases, im- ments having arisen to prevent the entire ings of *some part* of their building being down before the 1st January (though aps ten times more brick-work had, in ty, been built than would have been done the whole of the footings inclosing area of the proposed building been pleted), yet, notwithstanding such a sub- ial demonstration of a building being in ress, so that he who runs may see that a ding is '*commenced*,' some of the surveyors been pleased to cause the suspension of buildings, and thus to set at nought the tion of the Act of Parliament, the terms reof are so definitively settled by 'the truction of terms and expressions used in Act;' which construction is evidently ded to rescue from all interested feelings ever both the time and property of builders, who might otherwise have been exposed to the mercy or caprice of any party."

Another correspondent writes, "It is a settled axiom that words employed in the construction of terms used in any Act to define the intention and meaning of such terms, are always to be read in the most comprehensive and general signification, as all Acts of Parliament are intended to be understood by those whom they purport to regulate, and not to become clap-traps for any body. This is more particularly the case in all penal statutes, which the Buildings Act, sec. 18, most unquestionably is, and no person has power to put any other construction on the terms of any Act contrary to or differing from the construction of terms forming part of such Act, and in no case are the *words* used to construe the terms of any Act, to be subject to any variation of reading or to any construction whatever, other than the general and universal sense and bearing of the words employed to construe the terms of such Act.

"In proof of the position here taken, you will observe that the terms used to describe the reverse of 'already built,' namely, '*hereafter to be built*' *are to apply to all Buildings to be built or commenced after*,' *&c.*; consequently, whatever is '*commenced*' in any way 'before,' cannot be left to share the fate with those Buildings which are '*to be commenced after*,' *&c.*; there really is no ambiguity about it.

"The more these words are looked at, the more *comprehensive* and *absolute* they become in the eyes of, Sir, your obedient servant,

"SENEX."

Now, the referees have given as their general opinion that "the erection of the footings, with two or more courses of the walls themselves, built in a workmanlike manner," is a *bonâ fide* commencement.* Having regard to their judicial capacity, however, they consider it necessary that each case should be judged of under its particular circumstances; and it is much to be desired that a certain number of cases should at once be submitted to them and decided, by the result of which district surveyors and the public might be guided.

Shooting a load of bats on the proposed site of a building, or digging a few trenches, or even laying a few bricks, cannot surely constitute the commencement required by the Act; yet either of these is an "operative building demonstration," said by our correspondent, "Consiliarius," last week, to be all that is necessary to avoid the control of the surveyor. A hod of mortar made up, and a couple of bricks laid, might be termed so with equal truth, and called the commencement of a church, a theatre, a villa, or a union workhouse, yet no one would venture to assert that this was sufficient.

Something more is required, then, than an "operative building demonstration" to constitute the commencement required by the Act, and the question is, how much? The answer really seems obvious; THE FIRST COMPLETE STEP MUST BE TAKEN; we must be able to see that a *house* is commenced, not merely that a wall is built: and this is the view we have little doubt that the official referees take of the matter.

In many cases where builders *have* exemption, we do not hesitate to say, they would do wisely were they to throw it up, and proceed under the Act, rather than complete structures badly begun. Buyers will be found more easily for houses constructed under its provisions, than for those which have been built in evasion of them. Knowing human nature, however, we hardly hope to persuade many to adopt this course.

We mentioned at the commencement that the construction to be put on doubtful points in the Act could not be decided without expense. This is unquestionably an evil, and will tend to prevent the due administration of the law. In the first instance the official referees were willing to answer generally such questions as were put to them by the surveyors, but having regard to their judicial capacity, before alluded to, and knowing that these general replies might act injuriously, they asserted the necessity of hearing in each case the parties whose rights might be affected, before deciding; so that, if we are correct, in order to obtain a decision on any point, the surveyor must run the risk of having the costs of the inquiry to pay out of his own pocket. This, when the Act is understood, and the exact meaning of its various clauses has become established, may work satisfactorily; but it does not seem to do so at the present moment. An intermediate party appears to be required, and perhaps the best step the district surveyors could take under the circumstances would be the appointment of some person to act in all cases on their behalf, who might acquire the views of the official referees, and so save much trouble and expense.

Before leaving the subject, we would contradict a statement which has appeared in some of the newspapers to the effect that numerous families have been already ejected, under the provisions of the Buildings Act, from cellars and under-ground rooms not constructed in accordance with its provisions. The Act does not operate in this respect till the 1st of July, 1846.

* See letter on this point from Mr. Greenway Robins.

ARCHITECTURE FOR THE POOR.

BY GEORGE GODWIN, F.R.S.

PUBLIC attention is at last aroused to the necessity of inquiring into and alleviating the condition of the poor, and men of all classes and in all counties are *talking* of improving the dwellings of the labouring classes and increasing their enjoyments. Whether or not they will do more than talk remains to be seen, for at present there is little of the "positive" to be appealed to as the result of the movement. Certain, however, it is that so much on the subject has never been said continuously before, nor so extensive a machinery organized to effect it. There is a society for improving the condition of the labouring classes, there is a metropolitan association for improving the dwellings of the industrious classes, a proposal to open public nurseries for their children, an association for promoting the health of towns, country labourers' improvement societies, and committees for obtaining baths and wash-houses, parks and public gardens. Her Majesty the Queen calls on Parliament to promote the comfort of the poorer classes :* all the newspapers are advocating the same noble cause; every landowner who expresses sentiments in favour of such improvements may rely on having his speech quoted, and every chairman of a committee whose report contains allusions to the dreadful state of the hovels occupied by the agricultural labourers, or the cellars and garrets crowded with the families of operatives in great towns, is certain of public sympathy and public applause. "Let us look at the cottages about us, and see how we can repair them, and make them comfortable at little expense," said his Grace of Norfolk at the late Arundel Christmas Show. "Let us make their cold cottages warmer than they are; let us look to their windows and their doors, and see if they keep out this desperate cold wind that is blowing, and even if we do no more, we shall add to their comforts. Put the poor man's cottage in order, and as quickly as you can, and he will bless you, and we shall all be united together; and the more we are united, the stronger we shall be, and the more able to meet our difficulties." And

* "The health of the inhabitants of large towns and populous districts in this part of the United Kingdom has been the subject of recent inquiry before a Commission, the Report of which shall be immediately laid before you.

"It will be highly gratifying to me if the information and suggestions contained in that Report shall enable you to devise the means of promoting the health and comfort of the poorer classes of my subjects."—*Queen's Speech*, Feb. 4th.

approving crowds repeated, and still repeat, "put the poor man's cottage in order." That it needs to be put in order all admit. What Sir Henry Bunbury said in his recent report to the Labourers' Improvement Society of one county will apply to the others:—"Under the head of *cottages* the reports are in general painful. In a few parishes, where opulent landowners are resident, the cottages are represented to be good. But, speaking of the great majority, it appears that there are few parishes in which the cottages are even sufficient in number; and generally they are stated to be small, crowded, in bad repair, ill drained, and unfit for the decent accommodation of the families which inhabit them. Those which are the property of landowners appear to be the best; but almost everywhere, speculators have acquired small patches of land on which they have built what our ancestors called 'silly cottages,' with little or nothing in the shape of a garden attached to them; and these they let at rents which are ruinous to the labourers."

And then again,—"the reports on cottages exhibit generally the melancholy picture of a population ill-lodged, exposed to influences which engender diseases, and crowded to a degree which is not only likely to produce filthy habits, but gross indecency and vice. But this unhappily is a branch of our inquiries on which we are nearly powerless. All that we can do is to endeavour to open the eyes of landowners as to the insufficiency of the dwellings intended for the labourers on their estates, and the evil effects, both physical and moral, which result from the want of decent and wholesome accommodation. At the same time we may draw attention to the injurious consequences which spring from speculation in cottage building. The heavy rents exacted by these griping speculators contribute largely to depress the condition of the labourers, who are left without an option, if the owners of estates neglect to provide sufficient dwellings for the families of those by whom their estates are to be cultivated."

All that he said has been known long and long ago, through sanatary reports, which present an account of distress, disease, and demoralization, resulting from inattention to the dwellings of the poor, that cannot be contemplated without horror; but the wealthier part of society were not then so alive to its importance as they are now, and therefore it excited less attention. A kindlier feeling than was formerly exhibited towards the poor is springing up in the hearts of their superiors, and all classes will unquestionably benefit by the exercise of it.

Feeling and saying, however, are not enough, there must be *doing*, efficient doing; and it is to be hoped that the willingness which exists, and the large sums of money that in various shapes have been subscribed, will be applied in the best manner.

The importance of providing healthful and well-arranged dwellings can hardly be overestimated. As the writer observed some years ago, when urging the same point:—"Order will not engender disorder, nor disorder, order: but its like; and the man who passes his time amidst inconvenient and tasteless arrangements, exposed to continual discomforts, and utterly unable to maintain an appearance of respectability, will gradually lose any desire to do so which he formerly felt, and find the external disorder result in a moral disorganization, lamentable in its consequences, if not fatal. 'Slaves, through alavery, lose even the desire to be free:' so men, becoming accustomed to badly-constructed, inconvenient, and ill-arranged habitations, lose their perception of excellence and goodness; and are lowered, not merely in their physical state, but mentally. Watch the progress of many a respectable and industrious young couple, placed in one of the miserable hovels still dignified with the title of a labourer's residence in some parts of the kingdom—damp, ill-drained, ill-ventilated, pervious to the rain, and void of every thing which could make home happy. For a time, strenuous efforts are used to remedy the evils; but, as they are gradually found to be unconquerable, the wife, abandoning the task, becomes inevitably a slattern herself; habits even of decency are disregarded by the children; and the husband, finding no enjoyment in his own house, seeks it in the beershop, and becomes a drunkard and a desperado. On the other hand—a tidy, well-arranged dwelling leads to observances of better manners and feelings of self-respect, induces neatness and industry, and elevates in tone the character of all its occupants."

In all cases perfect ventilation is of the first importance. The deadly effects of breathing an impure medium would seem to be too generally admitted to require observation, and one would expect to find in all new dwellings the best arrangements for obtaining a free current of pure air. Unfortunately, ignorance and cupidity still operate to prevent this. At Liverpool lately, the writer observed with regret in one district more than a dozen narrow courts in progress, *closed at one end*, and lined with ill-ventilated houses; and took occasion publicly to point out the evils of such an arrangement in the strongest language he could command. The policy which prompts it is as short-sighted as it is unchristianlike. A fever, when generated, is no respecter of persons; and the landowner far removed from the immediate seat of contagion, might none the less surely fall one of its victims. The injurious effects of closed courts have been proved by numerous competent parties, and the new Buildings Act very properly forbids the erection of such within its limits. How distressing it is, then, to find that the first houses built by the "Society for Improving the Condition of the Labouring Classes," model-houses to be recommended for adoption, are actually made to form a court closed at one end, and less than 23 feet wide!* It is difficult to guess what could have led the committee into this unfortunate mistake, which is a practical contradiction of what many of its members have often urged, and will probably prevent for several years to come, the abandonment of this most defective and injurious mode of laying out ground in localities not within the control of the Act. It is seriously to be desired that the committee may be induced to modify their present plan, and so avoid the reproach which the consummation of it would unquestionably bring to them.

At the present moment houses for the lower classes are especially needed in the metropolis. The recent formation of new streets has driven out hundreds of poor families without furnishing another place of retreat; and, by the operation of the Buildings Act, still greater numbers of persons will be ejected next year from kitchens and cellars (damp, unwholesome holes) not constructed in accordance with its provisions. Now is the time, therefore, to provide them with well ventilated, substantial, and healthful dwellings, and to teach them the importance of cleanliness, and the value of order.

ELECTION OF SURVEYOR TO THE HORNSEY DISTRICT IN THE ROOM OF THE LATE ALFRED BARTHOLOMEW, ESQ.

(*January 30th*, 1845.)

		No. of Votes.
Elected—	Rawlinson Parkinson ..	41
	Henry John Hammon ..	30
	Thomas Bird	23
	Witherden Young	5
	James Harrison.....	4
	William Frederick East..	0

PURCHASE OF THE FLEET PRISON.—A report from the City Lands Committee on the subject of the reference made to them to open a communication with the Commissioners of Woods and Forests to ascertain upon what terms the Fleet Prison could be purchased, has recently been presented to the Court of Common Council. The report states that the committee had offered 23,000*l.*, but that the Commissioners of Woods and Forests had declined to accept less than 25,000*l.*, the sum at which the property had been valued by three eminent surveyors. The commissioners had given the corporation an option of making the purchase at that sum until the 28th ultimo, and the committee, by their report, unanimously recommended that the purchase should be effected. Mr. Dixon, in moving the Court to agree with the committee in their report, bore testimony to the courteous manner in which the deputation had been received by the Earl of Lincoln, who came to town expressly to meet them. The motion was agreed to.

* In the Bagnigge Wells-road, as already pointed out in this journal. See p. 1 of present volume.

CHIMNEY-SHAFT AT THAMES BANK.—EXPANSION OF BRICKWORK BY HEAT.

EVERY school-boy knows that heat expands bodies. A rod of metal made to fit an opening when cold, will not enter the opening if it be heated; and a glass vessel cracks if hot water be poured into it, because, as all are aware, the portion in contact with the heated fluid is expanded, while the other parts remain at rest. This property of heat was made available years ago in forcing upright the walls of a gallery which leaned outwards at the top. Bars of metal were passed across the gallery through the two walls, and were secured outside by a plate screwed on to each end of the bar tightly against the wall. The bars were then heated, and, being expanded by the operation, protruded slightly through the walls, and allowed of the plates being screwed farther on, the effect of which of course was that when the bars, being cooled, collapsed, the walls were drawn together, and by repetitions of the operation were ultimately made perfectly upright. The force exerted is immense.

All this we say is well known, and opportunities occur every day to observe the effect of heat on such substances as are here alluded to. Some bodies, however, expand much less than others, and the effect can seldom be observed, and *alumina*, or argillaceous earth, is an exception to the general rule, and *contracts* when heated. Brickwork it would seem is nevertheless expanded by heat, and it is to an instance where the expansion is to be seen and can be measured, that we direct the attention of our readers.

At Mr. Thomas Cubitt's fine establishment at Thames Bank, mentioned in the last number of our journal, the chimney-shaft for the steam-engine is constructed in a peculiar manner. The chimney, which is circular, 5 feet in clear diameter all the way up, and 105 feet high, is built of very thin brickwork; that is to say, it is 14 inches thick at the bottom, and 6 inches at the top, the bricks having been moulded for the purpose; and it stands in the centre of a tower, 17 feet square on the outside, formed of 14 inch walls all the way up with hoop-iron bond in the centre of the walls at certain intervals. The first tier of this bond is 18 feet from the ground; the other tiers are put closer together as they approach the top. Around the shaft, but in no case touching it, are stone steps leading to the top with landings at certain intervals.

The chief reason for adopting this mode of construction was, to obtain a more striking object for appearance' sake than a chimney shaft, and Mr. Cubitt is of opinion that its ultimate cost will be less than that of the latter: it economises the fuel to a considerable extent, and, moreover, the shaft must have been formed much more expensively if there had been no tower around it.

Now this shaft, standing independent of the surrounding building with the means of access to it at any part, afforded the most perfect facilities for ascertaining the effect of heat upon this height of brickwork, and an index having been set up on the topmost landing under cover, which is 80 feet from the ground, it was found that this length of shaft becomes ⅝ths of an inch longer when the fire is lighted than it is when cold. The construction of the shaft offers facilities for several other interesting and important inquiries, which will doubtless be pursued by the excellent and able owner of it.

FALL OF A HOUSE IN WESTMINSTER.—On the 16th of last month, a house at the corner of Old Pye-street, Westminster, fell down, but fortunately without injuring any person. The occurrence having excited much comment, we thought it our duty to inquire into the occurrence. It seems that Mr. Howell, the district surveyor, having received intimation that the building was in a dangerous state, repaired to the spot, and finding that it was so, gave orders that it should be shored up, and then dispatched information to the official referees. Before any thing could be done, however, the house fell. It seems that Mr. Howell had overstepped his duty in ordering it to be shored up, but if he had not done so, lives might have been sacrificed.

MR. COCKERELL'S FOURTH LECTURE ON ARCHITECTURE.

The professor commenced his lecture on Thursday, the 30th ult., by stating that he proposed on that occasion to make some further observations on the subject of the last lecture, namely, the civil architecture of the ancients. He should treat of plans; concealment and intricacy, adopted with the view of increasing the effect of a structure; palaces; curvilinear fronts; architectural character; and the angle of vision; and terminate by exhibiting, for the first time in this country, drawings of a temple at Xanthus discovered by the late expedition. To penetrate the merit of ancient works, and understand the principles on which they were formed, was the great business of the student: to establish these principles was the great business of the master. This was a difficult task, and could hardly be achieved: it was best done by discussion, examination, and comparison of opinions. A consciousness of delight from the examination of fine works was necessary before taste could be acquired: those persons who had not this consciousness never would acquire taste. Being delighted, we should at last be able to discover the cause of delight. One course was, to accept the dogma of the master blindly: advantage always resulted. A builder with whom he was acquainted once produced an exceedingly fine portico, so much so that the professor inquired of him how he had designed it. "Why," said the man, "I opened Sir William Chambers' book, and copied it exactly." If the job had been his, the professor's, he would have been led probably to do something of his own, or to have altered parts, and so have injured it. The builder, he felt, was the wiser. He once, when designing a portico of a church, had doubts as to two things taught him by Vitruvius, to place the main door to the building in the centre of it, and to use the attic base. He hesitated, but a friend shewing him a number of drawings from actual examples corroborating the doctrine, he followed Vitruvius, and never regretted. He again urged the necessity of implicit faith in the master on the part of the student. To establish principles, numerous examples must be compared: this was the course also pursued by the lawyer and the historian. He then drew particular attention to Canina's work mentioned in the last lecture. It contained 200 plates, and presented the whole body of architecture recovered, and in many cases restored with wonderful erudition. We were able, by means of that work, to penetrate the principles which the ancients followed, and discover the secret of their success.

Relative to concealment; he said we found temples surrounded by a peribolus, the temple only partly seen, and were struck by the effect obtained. The Parthenon was partially concealed by the Propyleum and the walls. The best distance from which to view a building was one equal to about three times the height of the elevation. When we get within the inclosure, to find this best position. The imagination is excited by partial concealment. If, according to the modern practice, the building be stuck pretentatiously before us, we see at once the whole of it, and are tired before we approach. There is nothing to be imagined or discovered. This partial concealment, then, he considered of high importance. It prevailed in Gothic architecture equally. The introduction of the organ at the east end of the nave, sometimes complained of in our cathedrals was, he thought, advantageous to the effect.

Architecture regarded with these considerations is the fine art. The successful architect must be a painter. The most efficient masters of effect were scene-painters, for example, Inburgh and Servandoni, who designed St. Olpice, the most effective modern building in Paris. Perspective was much studied at the time of these masters, until indeed it became almost a vice. We must study it if we would produce effective buildings, or even if we wish to comprehend drawings of ancient buildings. If one could form an idea of the baths of Diocletian, for example, stretching out equal to the whole length of Pall Mall, or comprehend the effect of the magnificent *Exhedra*, which occur in the plan, 60 feet high, with a semi-dome, 84 feet in span, without this knowledge. Some idea of the effect produced by the vistas in this extraordinary pile may be obtained at Greenwich Hospital, Chelsea Hospital, and Blenheim. An architect should endeavour to excite a succession of new ideas. It was expensive—a painter might do it more cheaply, but less permanently. Extraordinary merit was displayed at Blenheim in this respect.

It was condemnatory of a building to say, as you were obliged to say of St. Peter's in Rome, that it appeared smaller than it was; yet some had considered this a merit. He would as soon think of applauding a general for gaining a small victory with a large army, as of praising a building for such a reason. It was a great reproach to the architect.

The professor said he always dwelt with pleasure on the plan of the baths then before them as one of the finest buildings ever erected for the public advantage. Our country was remarkable for its hospitals and places of refuge, but had neglected means of affording elevating gratification to the masses. A better spirit was manifesting itself, and he was delighted to hear of public gardens at Manchester, and elsewhere. By denying the poorer classes such luxuries, they had been led to throw themselves into grossness. We might hope to see gardens, statues, and fine works of art provided for the general gratification. Considering these signs of the times, we should devise plans for arranging such.

The professor then spoke at some length on the necessity for calculating the point of view in which buildings were seen. Vignola always repaired to the spot, and drew imaginary lines to arrive at the best position. He proceeded to speak of palaces, and described that of Augustus. The disposition of the plan was the source of all character. Character for a building was the most difficult thing to be obtained, and the most essential. Palladio studied it especially; no one could mistake the purpose of his buildings. George Dance had great merit in this respect. No one could mistake the purpose of the front of Newgate; and Guildhall, although any thing but Gothic, was, nevertheless, evidently municipal. In Canina's work palaces were largely discussed. In decoration and magnificence they should stand next to temples; and it would be well if they were accessible to the people. Our French and German neighbours set us a good example. The palace of Augustus had a curvilinear front, a form which gives many varieties of light and shade. Bramante, Vignola, and Palladio employed it. In modern times it had been used with good effect at Bath. Speaking of the Adams', the professor said they were deservedly the first architects of their day; they drew their examples chiefly from Diocliesian's baths and Diocliesian's palace. Sion House and Lord Bute's were the best specimens of their skill.

He would now have the pleasure of exhibiting for the first time a restoration of a tomb at Xanthus, drawn by Mr. Hawkins. Whether considered historically or artistically, it must be regarded as a most interesting structure. It was a monument of the Lycians, of whose country Xanthus was the capital, and shewed a high state of civilization at a very early time. There was every reason to believe that it was erected in the year 546 before our æra, a century earlier than the Parthenon. The temple was not large, 52 feet by 30 feet, and consisted of an Ionic peristyle inclosing a cella, on a lofty basement. The frieze of the order occupied the place of frieze and architrave, and was sculptured with four separate groups. The first represented a fight; the second, Greeks bearing offerings; the third, Persians bearing fruits; and the fourth, a wild-boar hunt. There was another frieze under the base of the columns sculptured to represent the capture of Xanthus. Between each of the columns at the sides of the temple was a female statue standing on emblems. The pediments were adorned with sculpture, and the roof covered with Parian tiles. It was interesting to find in this ancient building, 2,390 years old, the progenitor of the Erectheum, all the refinements of art. The intercolumniation, however, it was worth while noting was *arœostyle*;* the more beautiful system of incolumniation, the *eustyle*, was not used till later, probably just before the time of Vitruvius. In the next lecture Mr. Cockerell will treat of interior arrangements.

* That is, the columns were placed widely asunder.

STONE ALTARS AND CREDENCE TABLES.

The long pending case between the incumbent of the parish of the Holy Sepulchre, at Cambridge, and the Cambridge Camden Society, relative to the right of the latter, in the name of the churchwardens, to erect a *stone altar* and *credence table*] in the well-known round church of that parish, was decided against the latter in the Arches' Court, by Sir Herbert Jenner Fust, on Friday, 31st of January. Under a faculty obtained in the names of the churchwardens "to repair the church, and, as to such parts thereof as had been rendered unsightly by injudicious repairs, to restore the same as near as may be according to the original design, and according to a design and plan deposited in the registry of the court," the stone altar and credence table were erected without the knowledge of the incumbent. When aware of what had been done, he objected to allowing them to remain, and when a second faculty was applied for in the Consistorial Court to ratify the proceedings, he opposed it. The chancellor of that diocese, however, issued the faculty, and it was on an appeal against this that Sir Herbert J. Fust delivered his sentence, and has reversed it.

Relative to the altar he said, "It appears that this stone structure consists of a slab, supported by three upright slabs, all of stone, resting upon a lower slab, also of stone, and that the weight is about two tons; that the lower part is imbedded in mortar or concrete, about an inch below the floor of the chancel, which is built up to the table, and covered with encaustic tiles; and that the table was also made to adhere to the east wall of the chancel. This structure, Mr. Faulkner contends, is a stone altar, or altar table, such as is erected and used with the credence table for idolatrous and heretical purposes in Popish countries; that the rubrics and canons require that the communion-table should be of wood and moveable. On the other hand, the churchwardens deny that it is an altar, or such as is used in Popish countries for idolatrous and heretical purposes; and that it is essential to the preservation of uniformity in the internal arrangements of the church."

In order to arrive at the true meaning of the expression "table," he referred to the alterations made in the rubrics at the time of the Reformation, and from that time down to the passing of the present Act of Uniformity in 1662, and found that the word "altar" has been changed to "table." We all know, said the judge, that after the Reformation one of the doctrines of the church of Rome which was renounced by the church of England was the doctrine of transubstantiation; and it will be found that the material and the form of the altar in the Romish church are connected with this doctrine of transubstantiation, and with the eucharist as a sacrifice. It was contended that by the rubrics of the Roman Catholic, church altars must be built of stone, and must be immoveable, and various canons from the body of the canon-law were cited to shew that the altar must be of stone, and fixed; and, if not, it must be re-consecrated. The Court does not think it necessary to go through all these authorities on this part of the case, because it is not incumbent upon the Court to pronounce whether this is or is not an altar At the same time, it may not be inexpedient to consider what was the origin of the altars as used in the Roman Catholic churches, of what material they were constructed, and of what form, in order to arrive more readily at the meaning and intention of those who directed the removal of stone altars and the substitution of tables. From the authorities cited by Cardinal Bona, in his work *De Rebus Liturgicis*, we learn that the altars used in the early ages of Christianity were made of wood, and in the form of a table; that about the year 509 they began to be of stone, although the wooden tables were not altogether abolished. The form altered with the material. Sometimes the altar or table was supported by one pillar, sometimes by four or two, and latterly they assumed the form of a tomb, as of the Sepulchre of the Martyrs, whence they derive their name; and there is no doubt that at the time of the Reformation the altars in the English churches were of stone, fixed and immoveable.

At the time of the separation of the church of England from that of Rome, amongst the

many points of difference between them, one of the most important was that respecting the doctrine of transubstantiation in the supper of the Lord, which, as is declared by the 28th article of our church, "cannot be proved by holy writ, but is repugnant to the plain words of Scripture." In the reign of Henry VIII. the feeling against this doctrine was not so decided as it afterwards became; nor did any material change take place in the early part of the reign of Edward VI., for we find in his first Prayer-book, 1549, that the mass was still to be celebrated in the order for the Supper of the Lord, "commonly called the Mass;" and the word "altar" was used in different parts of the service as set forth in that book. But in his second Prayer-book, 1552, the terms "mass" and "altar" were altogether omitted. The order was for the administration of "the Lord's Supper or Holy Communion." The table was to stand in the body of the church, or in the chancel, where morning and evening service were appointed to be read; and the priest, instead of standing in the midst of the altar, was to stand at the north side of the "table," and so on through the service. But in the interval between the publication of the first Prayer-book in 1549 and the publication of the second in 1552, certain events had taken place, and certain orders and injunctions had been issued, to which it is necessary to refer. In 1547 an order had been issued to take away and destroy all tables, images, and other monuments of feigned miracles, pilgrimages, idolatries, and superstitions; and in 1550, Ridley, Bishop of London, issued an injunction to the same effect. These injunctions were of course confined in the first instance to the diocese of London and to the form of an exhortation. But there was an Order in Council issued to Bishop Ridley strictly charging and commanding him, for avoiding strife and contention, to take down altars and place communion-tables in their stead. And it appears from Burnet's *History of the Reformation*, that on the 19th of November, 1550, letters were sent to every bishop throughout England to "pluck down altars" for the avowed purpose of "moving and turning the simple from the old superstitions of the Popish mass." The change intended, therefore, must have been something more than nominal; it must have been substantial. In the short reign of Mary, which followed, one of her first acts was the repeal of all the statutes passed in that of Edward VI. respecting religion, and things reverted to the same state as they were at the end of Henry VIII.'s reign; altars were to be re-erected in the churches, and penalties were imposed upon those who, of their own accord, pulled down or destroyed them, and mass was again celebrated. But in the year 1558, Queen Elizabeth ascended the throne, and when she repealed the statutes of Queen Mary the statutes of Edward VI. were revived. In 1559 orders were issued by Queen Elizabeth for substituting the communion of the sacrament for the high mass, and for placing tables in the churches, to the same effect as those issued by Edward VI. From this order it is manifest that the tables here meant were something very different from the altars, and that they were moveable; for the direction, that it was to be placed where it stood before could not apply to an immoevable stone altar. In 1564 it appears that Queen Elizabeth issued advertisements directing, amongst other things, that parishes should provide "a decent table standing on a frame" for the communion; an expression applicable rather to a wooden table, than one made of stone. In 1569 Archbishop Parker's visitation inquiries go to the same fact as to the communion-tables and taking down of altars. In 1571 Archbishop Grindall's injunctions are remarkable for their expressions:—"All altars to be pulled down to the ground and the altar stones defaced, and bestowed to some common use; the prayers and other service appointed for the ministration of the holy communion to be said and done at the communion-table." Nothing can more clearly demonstrate the determined manner in which the measures for the utter subversion of the superstitions connected with the Popish mass were carried on than these orders and injunctions, the great object being the annihilation of the fixed, immoveable stone altars, and the substitution of wood moveable tables in their place.

We now approach a most important period, when the contest raged between high and low church in the reign of Charles I. Its origin may be found in Lord Clarendon's *History of the Rebellion*. It has been shewn that the stone altars were removed, and tables of wood set up; the questions then agitated were as to the place in which the table should stand, and its position. The Puritans contended that the proper place for the table when the communion was administered was in the body of the church before the chancel-door; and afterwards in the chancel, but placed tablewise, and not altarwise, that is, that one of the ends of the table was to be placed towards the east, so that one of the larger sides might be to the north, the priest being directed to stand at the north side, and not at the north end of the table. The high churchmen, on the contrary, contended that as the injunctions ordered that the tables when not in use should stand where the altar used to stand, it should consequently be placed as the altar was. These apparently unimportant matters were the source of violent contentions. (The learned judge then proceeded to consider the case of Archbishop Laud, who became involved in these unfortunate disputes, by introducing many of what were at that time called "innovations," an unfortunate term, as Lord Clarendon called it, and which formed part of the articles of impeachment against him.) We now come to the time of the Restoration, when the present Prayer-book and rubric were framed, when the term "table" was introduced, and the communion-table remained in the same situation as from the time of Elizabeth; that is, that it was of wood, not stone; and moveable, not fixed. The next question is, has any alteration been since made? In the rubrics of the present Book of Common Prayer the term "table" is repeatedly introduced, and in several places consistent only with the idea of an ordinary table of wood, which is moveable.

He was of opinion that the article set up in the present case, was not a communion-table within the intent and meaning of the rubric, and therefore reversed the sentence pronounced by the Chancellor of Ely.

As to the credence table, the Judge said, "I do not find any sufficient information to enable me to judge when this article was first introduced into the Romish church or into our English churches. It is clear that they were in use at the time of Archbishop Laud and before his time. It is admitted by the learned counsel on both sides that the term is derived from the Italian language; but in Adelung's German Dictionary we have the following definition of the word:—'*Credenzen*, verb. reg. act., from the Italian '*credenzare*,' to taste beforehand the meats and drink before they were offered to be enjoyed by another: an ancient court practice, which was performed by the cupbearers and carvers, who for this reason were also called '*credenzer*.' Hence, also, the *credenz teller*—credence plate—on which the cupbearers *credenced* the wine; and, in general, a plate on which a person offers any thing to another: *credenz tische*, credence table, a sideboard, an artificial cupboard with a table for the purpose of arranging in order and keeping the drinking apparatus therein.* In the Greek and Latin churches, something of the same kind was in use under another name, as I find from two of the tracts to which I before alluded. The word used to describe it is 'προθεσις,' that is, table, or preparation, or proposition, as on it were placed the elements before they were placed on the high altar for consecration. I am of opinion, therefore, that the credence table must fall under the same principle as the other, as it is immediately connected with the other structure, and does not appear to be required or sanctioned by any law, canon, or constitution. I shall, therefore, not include that in the faculty."

The delivery of this judgment, which gives evidence of most patient deliberation and careful research, occupied five hours: the question is one of extreme importance.

Victoria Park.—Park palings, to upwards of a mile in length, have been laid down as the boundary of the park, in Wick-lane and Grove-street, Hackney and Old Ford. Workmen are busily engaged in the formation of new roads, and making preparations for planting.

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* See The Builder, p. 30.

DECORATIVE ART SOCIETY.

At a meeting held on Wednesday, the 29th ult., at 11, Davies-street, Berkeley-square, a paper was read by Mr. Crabb, containing a general notice of colour and its application to decorative purposes. After a concise exposition of the laws of colour, he explained the principles which regulated Persian art, restricting it to the use of the three primary colours, gilding supplying the place of secondaries, and that the Persian temples might be considered fine specimens of decorative colouring. The character of Grecian art was remarked upon, and the excess of colour adopted by the Romans leading to the abuse and decadence of art. The new era under Constantine was next noticed, and the grand specimens remaining to us of fine Italian art in the works of Raffaelle in the Vatican, where the use of rich dark blues round the windows presented, he thought, evidence of his consummate skill in decorative effects. In the Casina of the Ducal Palace at Mantua, by Giulio Romano, the utmost perfection of classic beauty was exhibited, the exquisite execution of which rendered his fame pre-eminent. A recommendation of a study of the old masters followed; the Caracci for graver purposes, and Titian and the Venetian school for beautiful examples of sumptuous and harmonious colouring. These remarks were illustrated by coloured copies of the works of Gruner, Owen Jones, Pugin, &c.

A discussion took place on the suitableness of our extended use of rich colouring in this country.

In May next, Mr. Crabb, in continuation of the subject, will read a paper "On the application of colour to manufactures."

And on Wednesday, 12th February, a paper will be read, "On the Physiology of Timber Trees considered with reference to manufacturing purposes." L.

[The object of the Decorative Art Society is to diffuse among those engaged in the design, superintendence, or execution of interior decoration, a knowledge of the true principles of taste, and to lead them to investigate the nature of the various arts and manufactures connected with the subject.—Ed.]

CHURCH NEWS.

The parish church of *Woodford*, near Salisbury, is about to be almost wholly taken down and rebuilt on an extended scale, the present edifice being in a dilapidated state, and not sufficiently commodious for the parishioners. ——At *New-passage*, Devonport, it is proposed to erect a new church. An application is to be made to the Admiralty for assistance. ——A new chapel for the use of the Unitarians in *Leeds*, is about being erected on the site of the present one, properly known as "Mill Hill Chapel." We understand that the proposed new chapel is to be built on a considerably enlarged scale, and to have extensive school-rooms attached, in a modern style of architecture. The subscriptions for this purpose already received, amount to several thousand pounds.——The restoration of the interior of *Chesterfield* Church has been completed by two very important alterations. The old reading desk, which formed so unsightly a contrast with every other part, has been removed, and a new one substituted, the sides of which are open, and correspond with the fronts of the galleries. The other alteration is in the chancel, where a railing of carved oak and of the oblong form has been added.——Extensive reparations are now in progress in the parish church of *Stratton St. Margaret*, near Swindon, Wilts; the edifice having been found, upon the survey of an experienced architect, in an insecure state.——A church is in progress at *Little Dawley*, in Salop. The Queen Dowager has contributed 20*l.*——Mademoiselle D'Este has given a piece of ground adjoining some premises formerly occupied by her at *Ramsgate*, as a site for a new church, which will be completed in a short time. The funds necessary for the erection have been derived from voluntary subscriptions, and include the sum of 100*l.* from the donor of the ground.——Prince Albert, in his capacity of a Knight of St. Patrick, has given 100*l.* in addition to the gift of 200*l.* by her Majesty, towards the repairs and restoration of St. Patrick's Cathedral, Dublin.

ARCHITECTURAL PROCEEDINGS ABROAD.

In Belgium, during the last two or three ears, great efforts have been made to restore ncient buildings. The west front of the church St. Gudule, at Brussels, which has been in e mason's hands for some time, is now com- eted. The niches have been re-filled with atues, and all the decayed parts of the stone- ork renewed. The spire of the Town-hall Brussels has likewise been repaired, as also ave the town-halls of Ghent, Bruges, and ouvain, and several churches in various parts the country.

The cathedral of Tournay, at the western ex- emity of Belgium, has been restored through- it, under the direction of M. Renard, and approaching completion. This is one of the ost interesting buildings in Belgium, and is ell worth a journey to view it. In form it is Latin cross, with five towers; namely, two at e end of each transept, and one at the centre the cross. The transept is terminated at ch end by a semi-circular absis. A very mote date has been claimed for Tournay athedral by local historians, but it seems to that the earliest remaining parts belong to e 11th century.

At Cologne, the works at the cathedral are oceeding steadily, but not so much so as to nable us to prophesy an early completion. e are told that the model of the pulpit in- nded for this cathedral is exhibiting at Ber- n, and astonishing the public by its magni- ence. The pedestal is a bundle of columns, out two feet in height, imitating in their nstering the pillars which sustain the build- g. These are terminated by a capital of anthus leaves and scrolls artistically dis- sed, out of which spring a system of ribs at embrace the pulpit, developing themselves exact resemblance to those which climb wards the key-stones of the vault. Bas- liefs, and niches containing the figures of e benefactors of the cathedral, or saints, con- tute the principal decoration of the monu- ent. At its base is Conrad of Hochstaden, d higher up, surrounding the pulpit, the elve Apostles, and our Saviour bearing the nner of the redemption, and blessing his sciples. The canopies, beneath which these ures stand, form so many little steeples of rid workmanship, in whose upper portions e sculptured the arms of the principal Ger- n cities. The pulpit is covered by a sound- g-board, on which sit the four Evangelists, th their recognized attributes. Over them, a carved niche, is the Holy Virgin: and e cupola is closed in by a crown of flowers, which sculpture has lavished its resources. e pulpit is ascended by a spiral staircase, nding round the pillar before mentioned. e cannot say that we have formed a high inion of its *fitness* from this description.

At Treves, we learn from the *Art-Union* the present month (an admirable number, l of information), a grand work is in com- plation, which will be one of the most gnificent architectural monuments of modern es; we mean the Roman structure of the called Constantine Palace, which, according the unanimous opinion of the connoisseurs, he remainder of an ancient colossal basilica. e side-front and a grand round structure of e tribunal of the whole, which, till now, has en made use of for various purposes—at esent a barracks—are still existing. Of no cient basilica are there extant so important l considerable portions, so easily to be re- red. From an authentic report it appears t these remains, by an order of the ng of Prussia, will be restored in their ginal condition, and are intended for a rch of the united Protestant civil and litary commune. This church will vie with grandest and most beautiful of those which e once been possessed by the primitive ristians, to whom, as we know, basilicas, ginally forming courts of justice, were igned as churches, and which have ever en used as models. The fabric will, after completion, form a single colossal nave, 0 feet long by 88 broad, and about 100 feet gh, with a semi-circular tribunal of 62 feet ameter, separated from the nave by an arch 59 feet span, with walls 9 feet in thickness, which the still remaining ones are built of l best Roman bricks; and with a double w of windows, each 12 feet broad. Likewise, order of the king, the ancient church of Maximinius, at present forming a barracks, will be restored, and is intended for the temporary use of the Catholic military con- gregation.

At Berlin, the inauguration of the new Opera-house, on the 7th of December, has been an event of great moment in the annals of our city. Meyerbeer's inauguration opera—an excellent composition—was received in the splendidly decorated house with much applause and interest by the royal family and an immensely crowded audience. The whole structure is said to have cost 600,000 dollars (87,500*l*.). The architect was M. Langhans, counsellor of the Board of Architects, a son of the architect who built the celebrated Brandenburger Thor (Brandenburg Gate). The Breslaw theatre is one of his buildings, which is little inferior to that of Dresden. The Berlin Opera-house, however, is superior to both, and one of the most magnificent buildings of that description in the world. The lobbies are less splendid; but halls of that kind are generally little made use of in Germany, and deprive the indispensable localities of a theatre of the necessary extent.

At Gottingen a new art-museum has been established and inaugurated, in commemoration of the celebrated Winklemann. The localities of this museum are on the ground-floor of the university, containing a grand collection of gypsum models, which the late Professor Muller used to employ for the illustration of his lectures on the classical antiquities, together with those which formerly were placed in the rooms of the university library. The university owes most of these treasures to British munificence. Besides these are to be mentioned the Vienna sarcophagus and several relievos, of which the famous "Sacrifice of the Citharoedes" is the most eminent.

At Hamburgh an exhibition of the plans for the re-erection of St. Nicholas' Church has taken place. Thirty-nine architects, German and foreign, have sent for this purpose their works, several of which are reported to be first-rate plans. Nos. 7, 32, 39—the first with the motto, "The success of the work, not its estimation, is its real value;" the second with the motto, "The work, not the architect or master;" the third with the motto, "*Labor ipse voluptas*"—are looked upon as the most eminent. The most valuable is said to be by an Englishman.

The ravages which were committed by the terrible conflagration in May, 1842, are now fast disappearing; and the great improvements which are taking place in consequence of that calamity will, in a few years, obtain for Hamburgh a degree of architectural celebrity it would else have hardly aspired to, as it now does, all at once. Many splendid hotels and shops, fitted up in a style of elegance, bespeak a degree of luxury hitherto unthought of at Hamburgh. The same may also be said with regard to newly erected private houses, a considerable proportion of which are upon such a scale and of such character as to be suitable only for wealthy families, who can afford to maintain an establishment in accordance with them. Dr. Abendroth's mansion, erected by M. de Chateauneuf, who has given the designs for it in his "Architectura Domestica" (published a year or two ago in this country), fortunately escaped destruction, although so near the scene of devastation.

Statue to Mr. George Stephenson.—The directors of the Liverpool and Manchester Railway, acting in concert with the Grand Junction Board, have determined upon erecting a marble statue in honour of the above gentleman. It is proposed, that the statue shall be erected in St. George's Hall, Liverpool, now building in front of the Railway Station. The eminent sculptor, Gibson, has been engaged to execute the work, and the price, delivered and set up, is not to exceed 1,800*l*.

The Fountains in Trafalgar-square.—These long-expected ornaments will soon be put into operation. The boring is complete, and a very good supply of water has been obtained. For several days past the two engines have been employed in raising water, which has been found quite equal to the supply required, and a jet of water has been forced to a height of about 30 feet in one of the basins. During the past week, workmen have been erecting poles, &c., to raise the stones composing the eastern fountain.

DISASTROUS EFFECTS OF THE LATE STORM.

The papers during the past week have been teeming with accidents which occurred during the storm of the 25th ultimo.

At Blackburn an entirely new and unfinished mill was blown completely down, the crash of which is stated to have been heard throughout the town as of the sudden discharge of distant artillery. The mill was what is called an "eight bay" mill, the area of the spinning part of the premises being 60 feet by 80 feet in extent, and the mill four stories high. Attached to the spinning-mill was an engine house, next to that a large boiler room, and then came an extensive foundry shed. The first floor of the mill was completed, the boards of the other floors were not down, all the windows were in, and the mill roofed over. The engine house was arched over, and the boiler room covered in. In these two latter places the buildings were partly iron; great iron beams from 15 to 18 inches across, were erected in the engine-house; the roof, &c., of the boiler room was supported by iron pillars, stout iron bars, &c.

It appears that at about a quarter-past nine o'clock, some men employed upon the premises, and living close by, observed one of the walls of the mill to bulge out; and they were discussing the readiest means of propping it up, when the gable end wall of the mill, against which the full force of the wind bore, was seen to bend inwards, and becoming thus loosened from the roof, the latter was lifted up by the wind, and falling back again with great violence, went to pieces, and carried down to the foundation every thing with it. The destruction was instantaneous and complete; part only of some of the walls remaining. The roof, first floor, beams, supporters, and the walls that fell with the roof were all smashed to pieces. The roofs of the engine-house and boiler room were destroyed, the thick iron beam ends being broken like glass. Part of the roof of the foundry shed was destroyed, as also part of some premises adjoining another side of the mill. The damage done cannot be calculated at less than 2,000*l*. Upwards of 300*l*. worth of glass was destroyed. It is said that the whole building was not to be surpassed for strength and compactness in Blackburn. In a short time the three upper floors would have been put in, and then this disastrous accident could hardly have happened.

At Derby various buildings sustained considerable injury, the Messrs. Holmes, coach-makers, had just completed the erection of a large chimney on their premises, for the purpose of having steam applied to a part of their extensive establishment, the building of which had been intrusted to Mr. Edwin Thompson. This chimney was 60 feet high, and was only waiting for the iron capping. It was surrounded by a very heavy and substantial scaffolding, a circumstance which there is every reason to believe to a considerable extent contributed to produce the accident which we have to record. On the night mentioned above, fears were entertained that the chimney so largely encompassed with scaffolding (and which had been round it for some time past, awaiting the finishing of the chimney from the cause alluded to, that of the cast-iron capping), was in danger of falling from the severity of the gale, and as early as between 5 and 6 o'clock on Sunday morning, Mr. E. Thompson went to ascetain how far this really was the case. When there the tremendous squalls of wind waved the ponderous mass of woodwork to and fro in a very alarming manner; so much so as to induce those persons who resided in the house immediately connected with Messrs. Holmes's premises, to leave them immediately, though the chimney itself appeared entirely unmoved. Fortunate, indeed, was it the residents did quit them, for at a quarter-past 8 o'clock 40 feet of the 60 feet chimney fell with a terrific crash on one side of the roofs of the five houses, literally cutting them in two, and demolishing them to the very foundations, and destroying every piece of furniture they contained.

At Chesterfield three or four pinnacles were blown down from the tower of St. Thomas's Church, and burst through the roof, destroying the gallery, and doing considerable injury to the church. Fortunately, divine service had not commenced, otherwise a fearful loss of life must have ensued, as the children of the Sunday school occupy that part of the edifice

INTERIOR VIEW OF ST. JOHN'S CHURCH, NOTTING HILL.



ST. JOHN'S CHURCH, NOTTING-HILL.

In the last number of our journal we entered into a description of this church, and gave an engraving of the exterior as seen from the south-east. In compliance with our promise, we now present a view of the interior from a drawing made by the architects. By thus giving a perfect notion of the appearance of the building and the extent of decoration, the size, materials of which it is constructed, and ultimate cost, we consider we are supplying very important data for all who are concerned in church-building operations.

The engraving represents the church as viewed from the west end, and shews the rood screen at first proposed to be erected, but which was very properly abandoned, as were also the coloured decorations in the spandrils of the arches which appear in the engraving. The pewing is omitted in the view for the sake of clearness.

BRONZE GATES FROM THE BAPTISTRY AT FLORENCE.

We mentioned last week, that through the kind offices of M. Guizot, casts from the celebrated bronze gates of the Baptistry of St. John at Florence, had been presented to the School of Design at Somerset House. Some of the newspapers said there was no room there large enough to receive them, but this was an error. They are about 17 feet high and nearly 10 feet wide, and are fixed upright in the figure room, where we recommend such of our readers as delight in fine works of art to repair some Monday morning, when the school is open to the public, and examine them for themselves.

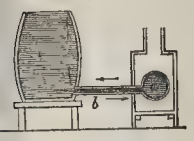
They are the work of Lorenzo Ghiberti, who competed for the commission with six other artists, including Donatello and Brunelleschi, and consist of ten panels filled with compositions from the Old Testament, and surrounded by a framework of great beauty, adorned with figures under niches, flowers, and fruit. The Creation, Noah leaving the Ark, Joseph and his brethren, and David's victory over Goliah, form some of the subjects. Those who have seen the originals say that these casts do not give a full notion of their great beauty, and it is evident to the least practised eye that the mould from which they were taken was either badly made or worn out. Michael Angelo, it is asserted, said they were worthy to inclose Paradise; if the author of them had been alive at the time, he would probably have been less eulogistic. Ghiberti died about 1455. He first studied as a painter, and seems to have had some skill as an architect, for he was associated with Brunelleschi in the construction of the cupola of a church at Florence.

Relative to works in bronze, it is to be hoped that opportunities will be afforded for the use of this material in the new Houses of Parliament and elsewhere. The art of working it has been sadly neglected in England.

THE HISTORY OF HEATING BY HOT WATER.

Sir Hugh Platt, who was the first to int out steam as a medium for heating the r of a room, suggested that hot water ght be used to avoid the danger then run, one of the processes of the manufacture of npowder. "To drie this substance without danger of fire, you may cause," says Sir ugh, "a vessel of lead, pewter, latten, or pper, to be made, having a double bottome, tween which bottomes you may convey lding water at a pipe, which water may be o heated at another roome, and then you ay lay your powder upon the uppermost ttome till it be drie, and when the water ginneth to cool, you may let it out at a cock the bottome of the vessel, and soe give ssage for more scalding water by another ck." And in another part he says, "a ssel may be made to brew or boil in, by aking a fire under a brass boiler, *a*, fig. 1, and conveying the steam or water into a wooden tub or receptacle, *b*." Rudolph Glauber, also, proposed heating a brewer's vat, by a brass ball ed with water and placed in a fire, a pipe m which was carried into the vat. "A trivance," says Hooke, "which if prosed, might be very beneficial to those who uire great quantities of hot water, by enabl- them to use wooden casks instead of copper lers."

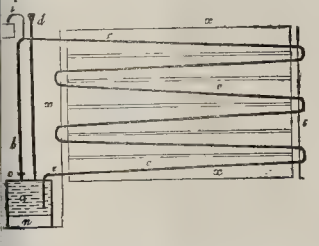
Fig. 1.



Sir Martin Triewald, a Swede, who lived many years at Newcastle-on-Tyne, before finally settled in his native country, about 6, described a scheme for warming a green- use by hot water, instead of by fermenting etable substances. The water was boiled side of the building, and then conducted a pipe into chambers formed under the nts.

Prior to the French Revolution, an ingeni- application of the same medium for diffus- heat was made by M. Bonnemain, in an paratus to hatch chickens, to supply the ris market. In this water-stove, a transverse tion of which is shewn in fig. 2,; *a*, boiler,

Fig. 2.



on its furnace, furnished with an *expansion-* to regulate the opening and shutting of the i-pit door; *d*, a pipe for supplying water to boiler, and keeping the pipes always filled h water; *o*, stop-cock, for regulating the ntity of the ascending hot water; *b*, pipe communication between the boiler and ating-pipes, *c*, which traverses the hatching- mber, *x*, with a slope towards the boiler, o which it is inserted, and its lower end ried nearly to the bottom of the vessel. The disengaged from the water by boiling, and ich would accumulate in the tubes and ob- uct the circulation of the hot water, escapes the pipe, *i*, and the water that rises along h it from the tube falls in the receiver, *k*. As the water in the boiler gets warm, and comes specifically lighter, it rises upwards the pipe *b*, and its place is occupied by the der and heavier water, which flows from pipe, *c*, and enters the boiler at its lower remity, *e*. A current is thus established from boiler upwards, through the pipe, *b*, and n downwards, through the range of pipes, into the boiler, with a velocity depending the difference between the temperature of water in the boiler, and that in the descending or heating-pipe at its insertion into the boiler. By this means a very equable temperature was kept up in the series of compartments in which the eggs were placed to be hatched.

For many years after this period, M. Bonnemain was in the habit of describing his apparatus to others, and a few years later a good account of it, explained by figures, was given in a French publication.

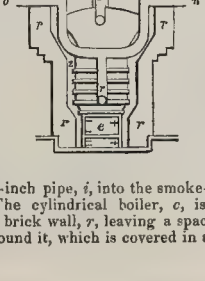
About 1812, hot water was used at St. Petersburg in the manner practised by Triewald; and shortly afterwards, in the same capital, by Count Zubow, in a similar but more roundabout method. The water made to occupy the space commonly filled by the fermenting substances, was heated by steam raised in a boiler placed on the outside of the conservatory. It is not clear whether this was before or after Mr. Braithwaite, at Kendal, warmed his counting-house by a small rectangular boiler, having its furnace included in a rectangular cast-iron case, which had the appearance of a chest placed against the wall. From the boiler a small pipe proceeded to the condenser, which was a copper vessel, 18 inches in diameter, placed under a double writing-desk. The condenser was formed on the plan of the improved cylindrical refrigeratories. A very small quantity of steam was allowed to escape at the top, which was however condensed against the lid, so that none of it escaped into the room. The steam gave out its heat to the water in the condenser; which was found, when once warmed, to retain the heat for many hours.

The Marquis de Chabannes, in 1816, introduced M. Bonnemain's method into this country; and in drawing the public attention to the hot-water system he claimed the merit of being its inventor. "The most perfect definition I can give of it," says the Marquis, "is by comparing a boiler to the human heart, and the effect of caloric on liquids to the circulation of blood in our veins. The fire is the power which gives motion to the water, as the admission of oxygen into our lungs causes the circulation of our blood. A pipe is placed at the top which may have any length or winding, but must finally return to the bottom of the boiler. The caloric which rises into the upper pipe, and communicates itself to the liquid in it, which loses that heat as it flows through the pores of the metal, or any reservoirs which may be placed in its passage for the purpose of extracting it, becomes gradually colder, and in that state pressing on the rarefied pipe which issues from the top of the boiler, re-enters at the bottom in proportion to what goes out above—thus causing a continual circulation; and the liquid coming in contact with the fire at a colder temperature, and besides with friction extracts a still greater portion of caloric."

In reducing his speculation to practice, he proposed to fix a small boiler behind the kitchen fire, and connect it by two pipes with a cylinder, containing twenty or thirty or more small pipes, open at both ends, and surrounded with hot water. This cylinder he placed under the stairs. The rarefaction in the small open pipes produced a current of warm air in the staircase, and the water which was cooled in the cylinder falling into the boiler, forced the warmer water upwards into the cylinder with a continuous circulation.

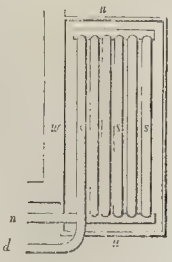
Since his time, warming by hot water has been much extended, and some variety introduced into the apparatus. That indicated by fig. 3 heats by the circulation of the water, and by warm air in the manner of a stove. The furnace is contained within the boiler, and its flue passing through it at top, is led by a 9-inch pipe, *i*, into the smoke-flue in the wall. The cylindrical boiler, *c*, is surrounded by a brick wall, *r*, leaving a space of four inches round it, which is covered in at top, and forms a small air-chamber. Into this inclosed space the air is admitted from a culvert, *v*, which communicates with the atmosphere under the porch in front of the building, and rising in the circular cavity, is heated by contact with the external faces of the boiler, and finally flows through the valved openings, or regusters, *m*, into the hall.

Fig. 3.



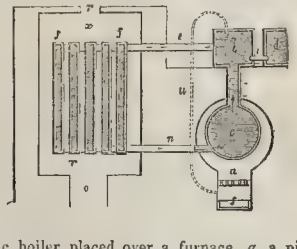
The hot water for warming the passages and staircases is conveyed from the boiler by the pipe, *a*, fixed under the ceiling of the basement-floor, with branches, *b d*, carried to each end of the building, which terminate in a series of heating-pipes, *s s*, arranged as shewn in fig. 4. These pipes are inclined from their point of junction, with the branch pipes to the exit by the descending pipe, and the whole are inclosed in a case, *u*, that has the bottom perforated with holes, to allow the cold air to rise and come in contact with the hot pipes, and then to percolate, when heated, through the holes made in the top of the case into the passages in the floor above, *o n*, the descending pipe from each heating-case connected with the return-pipe, and inserted in the bottom of the boiler. Small cocks, *u*, placed at the highest points, to emit the air that is extricated from the water. The mean temperature of the enclosed pipes Mr. Bramah stated to be 185°, when the temperature of the water in the boiler was 270°.

Fig. 4.



Mr. Manby's apparatus is a good example of flat parallel, heating surfaces, arranged as a hot air-stove. It is shewn in fig. 5, *c*, a cylindric boiler placed over a furnace, *a*, a pipe rises from the upper part, and terminates in a square inclosed vessel, from which a pipe, *e*, branches to the upper end of a series of flat hollow vessels, *f f*, that communicate with each other; another pipe, *n*, on their lower end, forms a communication with the bottom of the boiler. The flat hollow vessels are inclosed in a chamber, *x*, into which the cold air is admitted through an opening in its floor, and the heated air is conveyed through an opening, *r*, in its roof into channels, which distribute it at the points where it is wanted. The water is supplied to the boiler from a reservoir, *d*, and the water, which may be expelled by the expansion from heat, is conveyed by the small pipe, *u*, into a vessel, *s*, which forms the bottom of the ash-pit, to assist by its evaporation, as Mr. Manby thought it would, the combustion of the fuel placed on the grate over it.

Fig. 5.



The operation of this apparatus is very simple. The water heated in *c*, flows through *e*, into the air-heaters, *f*, where it is cooled by the current of cold air rising through the opening, *u*, and falls to the lower part of the heaters into a pipe, *n*, which conducts it to the lower part of the boiler, and by this means a continued stream of hot water flows from the boiler into the heating vessels, and preserves their surfaces at a certain temperature.

There is no practical objection to this neat and compact apparatus, except the greater difficulty of keeping the joints in order, when compared to a similar arrangement, where pipes are substituted for the flat vessels.

The preceding methods shew the ventilating and warming processes to be kept separate,

which are combined in the apparatus indicated in the diagrams, fig. 6 and fig. 7, *c*, a boiler, from which proceeds the circulating pipe, *s s*, placed beneath the floor of the room in a nearly horizontal direction, but with a general inclination from the highest point towards the boiler, *c*. The fresh air is admitted at *n*, and descends in the vertical channel, *a*, into the space beneath the floor, and coming in contact with the heated pipes, is emitted through holes in the floor into the room, and the effete air escapes by the opening, *i*, in the ceiling. This is a very favourable disposition of the heating surface, and one that is often adopted in drying-houses: one of which is shewn in the figure.

Fig. 6.

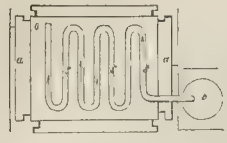
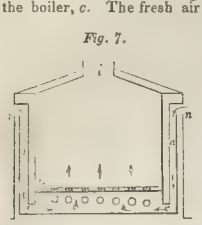


Fig. 7.

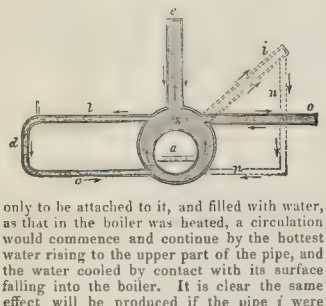


It is apparent that a similar series of pipes may be placed in a basement-chamber, from which channels may branch to the rooms which are to be heated in the floors above.

In all the apparatus which have been described, the circulation of the water is promoted by what is technically called a return or descending pipe. But in many cases, in which the difference of level is small, the effect does not appear to have been improved by this arrangement.

In the diagram, fig. 8, *a*, is a furnace in the inside of the boiler, *s*, with various pipes proceeding from it. If we suppose the pipe, *e*,

Fig. 8.

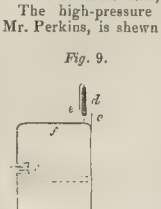


only to be attached to it, and filled with water, as that in the boiler was heated, a circulation would commence and continue by the hottest water rising to the upper part of the pipe, and the water cooled by contact with its surface falling into the boiler. It is clear the same effect will be produced if the pipe *i* were substituted for the pipe *e*; and it is also clear that the circulation would be less impeded than if the hottest water rose to *i*, and descended when cooled through the pipe, *n n*, to the bottom of the boiler, *s*, supposing in both cases an equal quantity of heat to be dissipated. If the heating pipe, *o*, was nearly horizontal, the same effect would take place from the molecular action, the water in the pipe would be somewhat warmer than if it flowed along *b*, descended by *d*, and returned by *c* into the boiler, as less of the velocity due to the temperature would be lost from friction in the straight pipe than in the return-pipe. In most cases, the return-pipe might be altogether omitted, with manifest advantage to the simplification and consequent certainty of the circulating process, the lightest water will always find the highest level, and the less it is impeded the circulation will be the more perfect, and the heating effect will be greater. The arrangement, for instance, would have been as effective had there been no return-pipe; each floor or room might have been heated by a separate pipe proceeding from the boiler, and the expense been considerably less by the simpler method.

There are two ingenious devices for continuing a circulation in cases where there is a small difference of level—the rotary float of Mr. Eckstein, and the syphon apparatus of Mr. Kewley. In some instances they are effective; but perhaps the cases where their use is necessary are not those in which hot-water heating is the most proper; they require more attention than can at all times be had from domestic servants, and are easily deranged.

The high-pressure method, contrived by Mr. Perkins, is shewn in the diagram, fig. 9. A coil of wrought-iron pipe of small diameter placed in a furnace, *a*, is continued and conducted through the building, and the necessary quantity of surface is given by forming coils, *n*, of the pipe which are placed in the rooms to be heated, and the pipe is finally returned, as at *s*, into the furnace, where it is joined to the coiled pipe, *a*, and thus forms an endless pipe. At the highest point of the heating pipe, *f*, in another pipe, *d*, of a larger diameter, placed either in a vertical or horizontal position, and which has a capacity from $\frac{1}{150}$ to $\frac{1}{170}$ of all the water in the endless pipe. This is called the expansion-pipe, and into which the water rises as it expands in heating to prevent the apparatus bursting. The filling pipe, *o*, rises to the level, and no higher, of the lower part of the expansion or safety-pipe.

Fig. 9.



The tubes being thus arranged, the whole series, except the expansion-pipe, is filled with water by means of a force-pump applied to the filling-pipe, *o*; and as it is of importance to free the endless-pipe thoroughly from air, the water is pumped several times through the tube until it is accomplished. The endless-pipe being thus filled with water, and the expansion-pipe empty, every part of the apparatus is then strongly and hermetically closed. The endless-pipe, having a bore of about $\frac{1}{2}$ an inch, and being $\frac{1}{4}$ of an inch thick, the apparatus is capable of sustaining a very great pressure.

Its action is the same as that of the chicken-stove of M. Bonnemain. The water heated in the furnace-coil rises into the upright pipe, and then flows on a declination towards the coils placed in the apartments, and gradually giving out its warmth to the air of the spaces it flows through, returns, greatly reduced in temperature, through the pipe, *s*, into the lower part of the furnace-coil, to be heated and rise upward again continually; the difference in temperature between the ascending and descending columns producing a continuous circulation throughout the apparatus.

From the manner in which the pipes are closed from the air and placed in the furnace, the water they contain may be raised to a very high temperature Mr. Perkins states the average at about 350°, but in practice it has been observed this is considerably exceeded.

The three following diagrams will give some idea of the way in which the furnace was constructed to heat a portion of the British Museum: fig. 10 is a plan of the furnace taken above the grate; fig. 11 a longitudinal section taken through the centre of the furnace; and fig. 12 a section, supposing the front wall of the furnace to be removed; *r r*, a wall of common bricks, 9 inches thick, which incloses the furnace on its four sides; *b b*, a wall 9 inches thick, formed of Welch fire-lumps, that inclose the fire-chamber on three sides. From the face and ends of this wall fire-bricks project, to support the coiled pipe, *o*, placed in the flue. The intention of this wall is to prevent the too rapid abstraction, by the coil, of the heat from the fire which thus comes in contact with it at the opening in front only, where the hot gases turn into the back and side flues in which three-fourths of the furnace or boiler-coil is placed. The roof of the furnace is formed of Welsh lumps, in which is an opening, *m*, fitted with a moveable cover, for supplying the furnace with fuel (coke or anthracite coal being preferred). The ash-pit, *o*, is inclosed with a door, *n*, in which there is a register, *k*, double fire-door to an opening in the wall, for clearing the fire-place and furnace-bars from dust and scoria. This has a dead plate to separate the ash-pit from the heating flues; *x*, heating-pipe, rising from the boiler-coil, which passes round the internal wall in the flue, *v*, and is thus defended from the radiant heat of the fuel on all sides but one. This heating-pipe is continued from the upper part of the fire-chamber into the building; *z*, the return-pipe which enters the lower part of the furnace, and passes through the bearing bars of the fire-grating, to prevent their overheating. The dust and soot fall to the bottom of the heating flue, and prevent the coil being clogged.

Fig. 10.

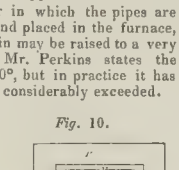


Fig. 11.

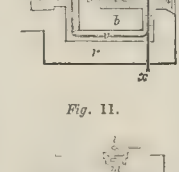
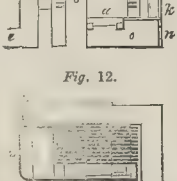


Fig. 12.



The furnace is placed in a vault in the basement-story, and the pipes, *x z*, are carried up to a height of 40 feet in a flue to two coils of pipe; one containing about 300 feet of pipe, and the other 400; about 140 feet being used for the ascending and descending pipe in the flue, and 150 in the furnace for the coil-boiler. The room containing 360 feet of pipe is 43 feet long and 30 wide, and lighted by large sky-lights in the ceiling, is raised in winter to 65° which is a high temperature to be maintained in a room on this construction, even with this liberal allowance of heating surface.

Mr. Perkins made several skilful arrangements of his pipes in adapting his apparatus to different situations. In one example he substituted a series of pipes for a cockle, with excellent effect. The pipes were arranged in an inclosed chamber, from the roof of which channels branched to the several points that required heating, and cold air was admitted into this chamber through perforations in its floor (similar to that shewn in fig. 6), which was thus brought in contact with the hot pipes, and rose in a warm stream into the building; a disposition perhaps the most favourable that could be practised with such highly-heated surfaces, as the hot air could be properly attempered by the cold air drawn from an underground culvert about 300 yards long before its admission into the building.—*Bernan's History and Art of Warming and Ventilating Rooms and Buildings.*

Salisbury and Winchester Cathedrals.—The points which rivet our attention when surveying the cathedrals of Salisbury and Winchester are so essentially different, that we are induced to place them in juxtaposition. At the first glance at the exterior of the former, we are delighted with its elegant lightness, the appropriateness of its ornaments, and its perfect uniformity of design, whilst we gaze with mixed feelings of awe and adoration on its "heaven-directed spire;" but when we view—steadily view—the exterior of the latter, though it command not all those pleasurable emotions, we are struck by its solemn grandeur, its vastness of extent, and its immovable solidity. When we enter the nave of Salisbury, we are still pleased with its elegance and grace, and wonder how the slender shafts of its columns sustain its massive roof; but the flood of light poured in destroys those sensations of sublimity which the darker nave of Winchester, with its ponderous pillars, admirably sustain. Salisbury Cathedral must be taken as a whole: Winchester Cathedral must be examined in its several parts. If the exterior of the one delights and charms us, the interior of the other commands our admiration and reverence. Salisbury appears as if it had sprung into existence at the touch of the wand of some mighty magician, as perfect and as beautiful as it now appears to an enraptured eye; Winchester, on the contrary, bears on its brow the marks of age, and presents to the antiquarian the most perfect specimens of the growth of the pointed style, from the period of unadorned simplicity, till at last it became encumbered, nay buried, beneath heaps of ornaments.—*Wiltshire Independent.*

STITUTION OF CIVIL ENGINEERS.

n Tuesday last, Sir John Rennie, the president, on taking the chair for the time since his election, addressed the ing at some length. After thanking the bers for the honour conferred upon him, regretting that their choice had not rather n upon one of the numerous able men by n he was surrounded, he alluded briefly to causes of the recent changes, and the ress of assimilation towards the constitu- of other flourishing societies. A well- ted compliment was then paid to the able ner in which Mr. Walker had filled the r, and by which he had rendered himself opular. This rendered the task of im- ately succeeding him very arduous; but ohn hoped, that with the support of the cil, the countenance of the members, and rdent devotion to the welfare of the ession, he should be enabled to ad- e the objects of the institution, and to note its prosperity. He then proceeded, hen we look around us, and see the vast es which our profession is making on y side, and the deservedly high place it s in public estimation, we cannot but feel y proud, for without the slighest dispa- ment to the pursuits of duties of other pro- ons, I may confidently ask where can we nobler or more elevated pursuits than our ; whether it be to interpose a barrier ost the raging ocean, and provide an m for our fleets; or to form a railway, by means of that wonderful machine, locomotive engine, to bring nations to- er, annihilating, as it were, both space time, or to construct the mighty steam l, which, alike regardless of winds or s, urges onward its resistless course; or urb and bring within proper bounds the tuous torrents, converting its other- destructive waves to our use and fit, whether for navigation, trade, or do- ic comfort. Again, the drainage of the un- esome marsh, and converting it into fields aving corn; or, illuminating our cities with changing, as it were, night into day; or abrication of machinery of endless form ngenuity, by means of which every article h can tend to man's comfort can be pro- d in the greatest perfection at the smallest ; or to recover from the bowels of the , nature's exhaustless treasures, and con- them to our use. In fact, we may almost hat there is nothing in the whole range of material world which does not come under observation, or where the skill and science e engineer is not required in a greater ss degree to render the bounties of Pro- nce subservient to the good of mankind. h such splendid prospects before us we every inducement to stimulate our zeal, o press forward in the career of improve- . He then impressed upon the members necessity of not only communicating good ers themselves, but of engaging the junior bers of the profession in their employment ep journals of the proceedings, and to use materials so obtained as the basis for rs which would be of a most interesting acter. The members of all classes were estly urged to banish all other feelings pt those of unanimity, harmony, and kind- ; and to make the institution a rallying t, where individuals, as well as the pro- on generally, should meet with sympathy support on all occasions."

HE NEW MECHANICS' HALL AT NOTTING- .—The foundation-stone of this building completion of which was celebrated last day week) was laid on the 12th of June, . The erection is of brick, and stuccoed, he front and side elevations are Grecian. capitals of the columns are Corinthian. external dimensions of the edifice are 124 long, 62 feet extreme width, and 46 feet . The one pair is almost entirely oc- ied by a noble hall, 80 feet, by 45 feet, and et high. Under the orchestra is an upper ry for natural history, 50 feet long, 8 6 inches wide, and 12 feet high; also a mittee room, apparatus room, music library, The ground, was presented to the mem- by John Smith Wright, Esq., of Remp- , president of the institution.

REPEAL OF THE WINDOW-TAX.

SOME of the largest and most influential of the metropolitan parishes have determined upon petitioning Parliament to abolish this most pernicious impost. At St. James's, Westminster (the royal parish), resolutions were passed strongly condemning the tax, principally on the ground of its interfering with light and ventilation, and consequently with the health and happiness of the great mass of the population. At the Marylebone vestry last Saturday, the subject was brought under discussion; the Rev. Dr. Spry presided. Sir C. Napier said, that although the Government had a surplus revenue, and although he would support a total and immediate repeal of the window-duties, still he despaired of success—at least, he despaired that they should get a removal of the impost further than so far as it affected the poorer classes. The claims upon the Government, now that there was a surplus revenue, were pressing in the extreme, and there was one to which his attention had been called which affected the poorer classes, namely, a repeal of the duty on soap. The reason he was afraid that the Government would refuse to grant a total repeal of the window-duties was the vast amount they brought to the revenue—he believed no less than 1,200,000*l*.

On Tuesday last, a very numerous and respectably-attended vestry-meeting was held in St. Anne's parish, Westminster, Mr. W. B. Bird, churchwarden, in the chair. Resolutions in favour of a total repeal of the tax were adopted, and a petition to Parliament, founded on the resolutions, was also agreed to.

Mr. Matthew Humberton, of Clifton, near Bristol, has lately drawn up a memorial to the Premier, in which the objectionable nature of the tax is forcibly pointed out. He says, "Many and various are the claims for relief which are now being pressed upon the attention of the legislature, but of none of them, excepting the window-tax, can it be said that 'this is an absurdity in principle,'—this is an anomaly in taxation which defies the power of human ingenuity to reduce to reason—it is like some *unreal* thing which we cannot understand, for although it is a tax upon windows, it is not primarily a window-tax, neither is it a house-tax, nor a property-tax, nor a landlord's-tax, nor a tenant's-tax, nor a tax upon wealth, nor a tax upon poverty; but it is a compound of all these, and something more—it is essentially a tax upon LIGHT, and that not an artificial one, but the LIGHT OF NATURE, the enlivening, the pure, the holy light—an article beyond the reach of human commerce—an article beyond all price—an article as essential to our existence as the air we breathe, and, by consequence, it is also a tax upon AIR, upon VENTILATION, and upon HEALTH."

IMPORTANT TO ARBITRATORS.—Recently, in the Court of Queen's Bench, Mr. Pashley shewed cause against a rule which had been obtained by Mr. Godson to set aside an award that had been made in the case Plews against Middleton. The objection to the award was that the two arbitrators, who were lay gentlemen (a builder and an architect), had received some evidence not taken in the presence of the two contending parties. They had gone to certain persons whom they knew to be informed on the subject of the arbitration, and had received their statements without giving the contending parties any information of their intention to examine those persons. The learned counsel contended at some length that the arbitrators here had merely been guilty of an irregularity in their procedure; that there was no pretence for charging them with fraud and corruption; and that their error in proceeding was not a good ground on which to set aside their award. The Court, without calling on Mr. Godson to support the rule, said that it must be absolute. This was not a mere irregularity in procedure; it was something against the first principles of justice. Nothing could be clearer than that a man was always entitled to hear all the evidence on which his rights and liabilities were to be decided, and where they were decided without his having that opportunity, the decision must be treated as invalid. The award must be set aside.

FIRES FROM THE OVER-HEATING OF FLUES.

THE inhabitants of Edinburgh were thrown into great consternation last Sunday week by its being discovered that the Old Gray Friars Church was in flames. The whole of the interior was destroyed, and the flames communicated with the New Gray Friars Church, adjoining, which shared the same fate,—nothing but the walls of the two edifices remain. The fire was caused by the over-heating the flues of the old church. Among the property destroyed was a table once in the possession of the Reformer John Knox.

An extensive fire broke out last Saturday week in a steam flour-mill, situate in Gallowgate, Newcastle-upon-Tyne. The premises were nearly new, and had been fitted up at great expense with all the recent improvements, the model being supplied by one recently erected in the United States. The fire originated in the upper part of the building, it is supposed from the heating of the flues, whence it had communicated with some of the beams in the vicinity. The damage done is estimated at 2,000*l*.

Last Sunday morning before the commencement of service an alarm was created at Chiswick, by the outbreak of a fire in the parish church. The beadle, while repairing one of the bell-ropes, had his attention arrested by a piece of burning wood falling upon his head from the spire of the church. Upon making his way into the belfry he found the spire, which was composed principally of wood and lead, in a blaze. Having procured assistance, the parish engine was drawn out and set to work, and the fire was confined to that portion of the steeple where it originated; but it was not entirely extinguished until considerable damage had been effected, the spire being much burnt and injured by the molten lead flowing down. The ceilings are also damaged. The cause of the fire is supposed to be the over-heating of one of the flues.

From a similar cause, St. Paul's Church, Covent-garden, was in great danger of being destroyed last Thurday morning. The beadle was fortunately on the spot, and by prompt exertion the fire was soon extinguished.

THE BURIAL GROUND NUISANCE.—Mr. Geo. Alfred Walker, in pursuance of his long-continued and praiseworthy endeavours to abate the injurious practice of burying in towns, has recently drawn attention to some disgraceful proceedings at Spa Fields Burial Ground. He says:—"This ground is surrounded by houses, many of them tenanted by respectable individuals. On the right is a one-story erection, called a bone-house. For some months past the neighbouring inhabitants having observed flame and sparks issuing from the chimney, entertained apprehensions that improper practices were in progress, and on a recent occasion, called upon the engine-keeper of the parish for his assistance in extinguishing what they believed to be a fire. He demanded admission, but was refused and resisted by the grave-digger. Being determined, however, to execute his duty, he seized a crow-bar, and having threatened to break in the door, it was opened. He observed a great quantity of coffin wood piled round the room drying, a fire made entirely of coffins in the grate, and portions of human bones also. The engine keeper particularly noticed the appearance of the chimney, and charged the grave-digger with having used water to extinguish the flame, which was denied; and he was told that what he "thought was water—was pitch;" and this was the fact. Thick flakes of pitch were adhering to the inside of the chimney, thus giving palpable evidence of the material consumed, —viz., coffin wood, about two pounds of pitch being used in 'pitching' round the inner joints of an ordinary coffin. The inhabitants of Exmouth-street, Fletcher-row, Vineyard-gardens, and Northampton-row, in the immediate neighbourhood, have frequently complained of 'a tremendous stench' of a peculiar kind, which they say proceeds from the burning of human remains and coffins."

NEW STREET TO LONG-ACRE.—We receive great complaints against the bad and inconvenient form of many of the houses lately erected between Leicester-square and Long-Acre. We must look at them.

Correspondence.

BUILDERS' TENDERS.

SIR,—During the last year, I have been a constant reader of your valuable miscellany, and it is with considerable pain I have from time to time observed inserted under the head "Tenders" much to detract from that high tone of moral feeling and action which it otherwise inculcates? In what respect, I would ask, can your readers be edified, or that system of fair and honourable dealing which you so properly advocate be promoted, by such announcements as are frequently to be found there? Talk about competition amongst architects, why it sinks into nothing when compared with an announcement of last week as to estimates; for we are informed that some half-dozen (I hope not builders) had met together near Wisbeach in most unworthy contest to scramble for the repewing "Leverington Church;" and what is the result? why THE BUILDER is made the channel through which to inform the public that these worthies are ready to *undertake* work, I suppose from the same plans and specification (as nothing is said to the contrary), at sums varying from 25 to 60, aye 80 per cent. over or under each other; and thus builders as a body are held up to the world as men destitute of those common principles of action by which honest men are guided, and that degrading, demoralizing system of competition, so much practised in the present day, although condemned by all good men, is perpetuated. Now, Sir, THE BUILDER during the past year has been made the medium through which this sort of advertisement has been announced to the world, and I really feel a degree of disgust when I see the names of architects parading these puffing announcements which frequently, from the humble amounts, tell a sad, humiliating tale, but nevertheless are calculated to feed the cupidity of exacting employers, and damage the reputation of honest men; for the man whose estimate so far exceeds that of a speculator or needy adventurer is sure to be set down as dishonest, when nine times out of ten it is the only real honest offer amongst them, and the principle upon which it is founded the most fair. How do you account for these discrepancies (to call them nothing worse), in estimates for the same work, frequently published in your paper? It is true, Mr. Sugden has thrown some light on the subject in his letter of last week, wherein he states the quantities for the work were handed to him by some irresponsible party; on inquiry, he is informed they are *correct;* they contain 1,000 feet less of stone than he was called upon to use; the amount of the building is to that extent kept down, he signs the agreement and now (perhaps properly), complains of the consequence. I do think, Sir, your readers have some claim on you to exhibit in their proper colours such transactions when forced upon your attention, and not to allow those specious announcements "Tenders" to be published to the world with a sort of advertising impunity.—I am, Sir, yours, &c. TRUTINA.

January 30th, 1845.

[If the publication of tenders, often shewing ruinous differences between the highest and the lowest, have the effect of drawing attention, as it has drawn the attention of our present correspondent and many others, to the evils of the system, it may lead to some change, and so effect good.—ED.]

MODE OF HEATING CELLS.—PENTONVILLE PRISON.

SIR,—In reply to "A.B.," Northampton, I beg to state that the cells at Pentonville Prison are warmed by the fresh air passing over an iron case filled with hot water, previous to its being conveyed through the vertical flues leading to each cell. The apparatus was fixed by Messrs. Haden, of Trowbridge. The same system is now being adopted at the new prison at Northampton. The ventilation of Pentonville prison has been noticed more than once in THE BUILDER, but not favourably. We have, however, excellent health here, there being very little sickness amongst the prisoners, which would not be the case under a bad system of ventilation. — I am, Sir, your obedient servant,

THOMAS LAURIE,
Clerk of the Works.

CORRESPONDENCE ON NEW METROPOLITAN BUILDINGS ACT.

WIDENING STREETS UNDER THE BUILDINGS ACT.

SIR,—There is a very narrow part of High-street in consequence of the houses having been originally built thus ⟍ ⟋ opposite a straight line. The freeholder and the commissioners of pavement are willing to join in the expense of pulling down the fronts and setting them back, so as to make them parallel. Now the new Act, under the head "Front," says, if one front be taken down the height of one story, party timber partitions and walls under and over the same are to be taken down, and party walls substituted.

If I read this right, this great improvement cannot be made; your view of this case is respectfully requested.—Yours,

Shadwell. J. T. L.

["For the purpose of preventing the express provisions of this Act from hindering the adoption of improvements," &c., the official referees are required by the 11th section to set forth to the Commissioners of Woods any grounds for a modification of its rules that may be submitted to them, and the commissioners are empowered to direct the official referees to make such an order in the matter as may appear to them to be requisite. The application would not be expensive, and might readily be made: it does not seem likely, however, that it would be successful in the present case.—Ed.]

TEMPORARY BUILDINGS.

SIR,—Can you inform me, through the medium of your valuable journal, whether I am at liberty to build in my garden a shed, to be used as a temporary joiner's shop for ten or twelve months, with just room for one bench, without being obliged to build according to the new Building Act? It would be clear of any other building by about 10 feet, and could not interfere with the landlord's insurance.—I am, Sir, yours,

AN OLD SUBSCRIBER.

Dover-road, February 5th, 1844.

[It must be built in accordance with the provisions of the Act.—ED.]

JURISDICTION OF OFFICIAL REFEREES.

SIR,—In your paper, 25th January, you give an extract from a decision, or rather an opinion of the official referees, as to the construction of the term "already built," with reference to buildings commenced before 1st January last, in which it is stated, "the commencement must be a *bonâ fide* one; and that our present impression is, that the erection of the footings with two or more courses of the walls themselves built in a workmanlike manner, is such a commencement." From the vast number of houses so commenced, the question becomes a most important one. With every respect and deference to the legitimate authority of the referees, I cannot understand how they at present assume to act in the matter—they are an Appellant Court from the district surveyors, called into action only upon ground of complaint by or of such surveyors. Who has the power, or what would be the course taken to insist upon parties proving the *bona fides* with which such operations were commenced? And still less do I imagine they could insist that such commencement should be done "in a workmanlike manner." The Act from the 1st January last, evidently controls workmanship and construction; but the exceptive clause distinctly implies that parties up to that period may adopt the course they have heretofore pursued. It would, from the opinion of the referees, appear that what they term a *bona fide* commencement would not be controlled as to any extent of work. They then define what would be sufficient under any circumstances. And, I presume, the inference to be drawn is, that where *bona fides* cannot be proved, a less quantity of work than they have defined would be considered an evasion of the Act, which is a term I cannot admit. It would seem, the only course that can be taken to raise the question would be by complaint of the district surveyor (treating the alleged commencement as nugatory), that he had received no notice of the commencement of the building. If resisted, by an appeal to a court of law upon the construction of the clause, I take it, the *onus probandi* would be on the district surveyor. I cannot imagine the equitable juri diction, given to the referees for all matte arising after the 1st January, would be pe mitted to operate upon questions in differen arising from acts done before such perio Another important point is involved by t quoted opinion of the referees as to the pr gress of works so commenced, in which th say, "the parties concerned are at liberty pursue what course they please, so that t buildings are finished on the 1st Januar 1846." To this opinion I would demur, as appears to me, the finishing of the building not in any way controlled. The clause trea ing of what is to be deemed "already built states, houses so commenced are to be "cover in and *rendered fit for use* within twelve monti thereafter." But this is merely a permissi clause, not made liable to any penalties und the Act, which only accrue for acts of omissi or commission in respect of works beg after the 1st January. The following claus which is inactive as to the term "hereafter be built," distinctly states that it is "to app to all buildings to be built or commenced aft the 1st day of January, 1845, or which bei commenced shall not be *covered* in with twelve months thereafter." I would therefo inquire with whom is the power of compli or what penalty attaches for their not bei "rendered fit for use within twelve monti thereafter?" I will not further trespass your columns, although I consider the opini of the referees as to streets "*formed after t passing of the Act*" would admit of questio

Yours, &c.

GREENWAY ROBINS, Architect.
Hill-street, Peckham, Feb. 4th, 1845.

JURISDICTION OF OFFICIAL REFEREES.

SIR,—Referring to your note appended to th letter of "A Constant Reader" in your last No in which you doubt the doctrine therein la down, in respect to jurisdiction of official ref rees, there cannot arise a doubt that the offici referees have jurisdiction in all matters upo which a difference may arise upon any poi in "all buildings commenced after the 1st January, 1845;" the question at issue is as buildings commenced before that day. T officials have themselves admitted that th have no jurisdiction in a new district, vi their reply and directions in answer to M Allen, and published in your No. 103.

As to old districts, the Act 14 Geo. 3, c. 7 is still in operation in all cases of beginni before the 1st of January, 1845, and will continue to January, 1846.

Now, as there is very great doubt upon th point, it would be very satisfactory to me a many others to be enlightened, and the que tion settled, before we recommence our build ing operations, having "already commenced so as to come within the terms and conditio of "already built," as laid down in the co struction of words, 7 & 8 Vict. Trusting th yourself or some of your readers will gi attention to the question at issue, and enlight your readers thereupon,—I am, Sir, &c.,

AN OLD SUBSCRIBER.

5th February, 1845.

FALLING OF THREE NEW HOUSES i LIVERPOOL.—Last Thursday week three ne and unfinished houses in Upper Canning street, fell with a tremendous crash, the wal carrying nearly the whole of the joists, floor &c., into the cellar, and smashing the timbe into comparatively small pieces. The build ings were of four stories in height, of brick and formed the eastern end of a new row houses on the south side of the street. Luckil no one was by at the time of the acciden We find that the lower or cellar portion of th walls to the datum level was roughly built broken pieces of soft freestone calle "nobling," and so imperfectly put together to be inadequate to support the superincum bent weight rising to an elevation of 46 fee The walls were but 9 inches in thickness which were quite inadequate for buildings that size. The houses are upon what w formerly Mosslake-field, in which the unbroke ground is yet a black moss to the depth of 2 3 feet. The foundations, however, were sun below this to apparently a stratum of so sandstone, and the probability is that the hous gave way from the cause assigned.—*Liverpoo Courier.*

Miscellanea.

SPONTANEOUS COMBUSTION OF GUANO.—Our impression of the 28th of last September, stated on the authority of Professor Kland, that two churches in Italy had been royed by fire, in consequence of an ac-ulation of guano in their towers. This ement was at the time considered by many l-informed persons to be extremely doubtful. following account of the destruction of a , which we extract from the *Hull Packet* ast week, will go far towards proving at t the possibility of such a catastrophe.—he steam-packet *Waterwitch*, arriving at l from London, on the 15th inst., brought port the master and crew of the barque a, Storey, of Sunderland, who had been ed up by the packet in an open boat, to ch they had taken on the destruction of r vessel near Hasborough Sand, on Tuesday ning. It appears by the statement of the wrecked men that the *Ann*, a new barque, he first voyage, was returning from Ichaboe a cargo of guano, and unfortunately ck on the sand, and, while beating over, ped a quantity of salt water, which, pene-ing the cargo, caused almost instantaneous bustion. A volume of smoke rising ugh the fore hatchway warned the crew his new danger, and induced their taking hediately to the boat, without saving any g but themselves; and scarcely had they e so, when a tremendous explosion of the engendered by the partially-fired guano, v the stern out of the vessel, which then d, and sank in deep water."

FALL OF A HOUSE AT LIMERICK.—A most ealing and fatal accident occurred in erick last Sunday night. A woman named unessy, resident in Sheep-street, off lunkard-street, had died in the morning, her husband, conceiving he had not suffi-nt room to wake the corpse in his own se, applied to a man named Mason, who d opposite, for the use of the upper part is house for the purpose. Mason, know-the rottenness of the timbers, and fearing consequences, strongly objected. Even the her of deceased, offered her house, which no lofts, and where no accident could have urred. But all was of no avail, Shaunessy isted in having the wake at Mason's. The se consisted of three stories, and the upper ttic one being unoccupied, the wake was there. A large number of women and men were collected in the evening, when, t 8 o'clock, the floor gave way in the re, and the entire were precipitated to the beneath, which also gave way, and all e to the under floor or kitchen with a endous crash and wild shriek, which was d at the distance of several streets. By this ancholy accident eleven persons were killed from sixteen to twenty grievously maimed ome with legs and arms broken, skulls ured, and one man had his back broken.

PUBLIC NURSERIES FOR CHILDREN.—An itution has been opened in Glasgow for reception of children, from one to four s of age, belonging to the working classes, is calculated to be of great service. A e building has been taken in an open part the city, furnished with an extensive green play-ground for the recreation of the ren. The *Glasgow Examiner* says, "the und floor contains a large kitchen, and a in which the juvenile community are mbled at meal hours. On the next floor e is a range of sleeping apartments, fur-ed in a plain, but neat and comfortable mer, and a room in which the children are ed by nurses, and, if competent, taught e useful lesson by means of drawings or ares similar to those used in infant schools. inmates are from one to four years of age. e of them, whose mothers are employed ng the day, remain in the institution from n in the morning till the same hour in the ning. During that time they are carefully ded and supplied with nutritious food for rifling sum of twopence. Others, such as ans, receive, in addition, comfortable ing at night, for the same insignificant Every thing, in short, is done, and done fully, 'to supply, as far as possible, the e of the absent parent;' and this is abun-ly manifested by the appearance of the ren, who seem contented, happy, and fortable."

HEATING GREEN-HOUSES.—At the Hope Nursery, Leeming-lane, Bedale, is a small propagating-house, which is heated in an ingenious manner. The top of the furnace of the stove having been removed, it was replaced by a small boiler, from which two iron pipes, of 1½ inch in the bore, proceed in the usual way, pass to the propagating-house, and enter what may be called the propagating-box, the one at the top near the front corner, the other near the bottom of the back corner; the box occupies a pit having a path before and behind; it is three inches in depth in the inside, and is formed of 1½ inch deal, having a division up the centre for the circulation of water; the top is covered about three inches in depth with sand, there being an edging of wood that height all round, and in this the pots are plunged. The temperature of the house is kept up by zinc pipes, which issue from the front of the box at the corner near where the flow iron pipe enters. The whole is found to answer very well, especially in autumn and spring, when heat is most required; it is all gained heat. A span-roofed house here is glazed in a peculiar manner; the glass, after being placed on a bedding of putty in the usual way, is not puttied down, but painted with white lead of the consistence of rather thick paint; two or three coats of this are said to answer admirably; the white lead does not give way and peel off as putty often does.—*Correspondent of Gardener's Chronicle.*

FIRE ANNIHILATOR.—Dr. Ryan, of the Polytechnic Institution, has recently delivered a lecture "On Fire," for the purpose of explaining an apparatus lately invented by Mr. Phillips, of Bloomsbury-square, called the "Fire Annihilator." After explaining the *phlogiston* theory of the earlier chemists, and the more modern views of Lavosier and others, the lecturer proceeded to prove, that combustion under all circumstances is the result of chemical action. A considerable portion of his lecture was afterwards devoted to the consideration of supporters and non-supporters of combustion, or to those conditions which are necessary either to maintain fire or to prevent its action; he more especially pointed out the effect of volumes of free nitrogen or free carbonic acid upon the flame of coal gas; and, after shewing that combustion instantly ceased in an atmosphere containing but a small per centage of these gases, he proceeded to explain that Mr. Phillips used a mixture of coke, nitre, and sulphate of lime, with a little water —the products of its ignition were principally free nitrogen, carbonic acid, and water vapour. To illustrate the office of the apparatus, which for a large house is only the size of a small stove, Dr. Ryan kindled a fire of patent wood, to which he added about half a pint of spirits of turpentine, in an iron house; when the flame was at its height, he introduced a small apparatus, holding not more than two ounces of his material, and in half a minute the fire was completely extinguished. As the apparatus is small, and may be kept charged, requiring only the action of a trigger, on the alarm of fire it may be carried to any part, and immediately used. It will prove of vast utility in ships, as it may be placed in the hold, and on an alarm of fire, the trigger may be pulled, and the gas will escape, thus putting a stop to the ravages of the devouring element.

The new bridge at Besons, over the Seine, composed of seven arches of 80 feet span each, has been opened to the public. It is said to be a remarkably light and elegant construction in iron, built according to Mr. Neville's system of horizontal trussed girders, and was completed in six months.

ARTESIAN WELLS IN AFRICA.—M. Fournel has suggested to the Paris Academy of sciences, that by sinking artesian wells it would be practicable to have a constant and abundant supply of water throughout the whole extent of the desert.

STATUE TO SIR H. FLEETWOOD.—The inhabitants of Fleetwood are about to erect a statue to Sir H. Fleetwood, the founder of the town, and originator of the Preston and Wyre railway.

NEW PLASTER.—A new plaster has been invented by a lady named Marshall. It is said to dry with great rapidity, to present a good surface for painting, and to be cheap.

THE ROYAL EXCHANGE.—The merchants of London have felt themselves so seriously inconvenienced by some of the peculiarities of the Royal Exchange, that a petition, of which the following is a summary, has been presented to the Gresham Committee:—"The undersigned merchants of the city of London are of opinion that, in the construction of the new Royal Exchange, sufficient attention has not been paid to the comfort of those who attend the same, and beg most respectfully to submit to the Gresham Committee the following alterations, which are necessary before they can assemble there without danger to their health and personal comfort. The alterations suggested are—1. That the area be covered in. 2. That some remedy be provided to remove the cold damp from the pavement. 3. That a remedy be also provided to protect them from the currents of air." The above petition has been signed by Messrs. Barings, Rothschilds, Heath, Morris Prevost, Doxat and Co., Lemme and Co., and some hundreds of the first firms in the city. After much discussion in Committee, the clerk was directed to communicate to the memorialists, "That in the month of September, in the year 1838, before the Gresham Committee took any steps whatever as to the erection of a new building, they applied by circular to most of the leading merchants and brokers, requesting their opinion as to whether the new Exchange should be a covered hall or partially open, as in the original Exchange of Mr. T. Gresham, and in the one recently destroyed; that besides, the committee took every opportunity, by personal inquiry, of ascertaining the wishes of their fellow-citizens on the subject; that the result of the circular and of these inquiries was, that a large majority wished the Exchange to be partially open, as heretofore, alleging the great noise in the Bourse at Paris, and the necessity for ventilation of the most free kind, as their reasons for the decision; that in consequence of this determination they directed a part of the merchants' area to be left uncovered as before, but that, for greater shelter, they further directed that the covered space should be increased from one-half (the proportion of the space covered in the late building) to two-thirds, and that the architect of the present edifice had strictly followed out these instructions: and for these reasons the committee could not comply with the wishes of the merchants; that with regard to currents of air, the committee had directed such inner doors to be put up at the north and south entrances as might check the draughts, at the same time providing that such doors should not interfere with the extensive uses of the area of the Exchange as a thoroughfare to all the neighbouring streets, the Bank, the Stock Exchange, and the other important public and private buildings of the neighbourhood."

THE QUICKSAND UNDER THE NEW HOUSES OF PARLIAMENT.—Our readers may not be generally aware that the foundations of the new Westminster Palace actually float on a quicksand. Westminster Hall and the old palace for many centuries (upwards of eight) have done the same, so there would seem to be no reason for apprehension. This quicksand unless confined, has a tendency to rise, spread, and shift itself. It is thoroughly surrounded by walls of solid concrete, and above it, keeping it down like the cork of a bottle, is a deep nest of concrete. The foundation, however, of the Victoria or Record Tower, as it is called, has passed through the quicksand; because of the great weight the tower will have to sustain, a very ticklish operation was performed last week near the ventilating shaft of the present houses. To prepare for new buildings, it was necessary to excavate immediately close to this shaft, and even below it. The workmen proceeded, almost inch by inch, stopping down the quicksand the instant it began to rise. Fears were entertained for the safety of the shaft, which weighs 200 tons, but no accident whatever happened. The danger is passed, and the works are nearly done. It was curious to see the excavations exhibiting at once the old and new Houses of Lords and Commons, Westminster Hall, the crypt of St. Stephen's, the foundation of the ventilating shaft, &c.—*The Bristol Mirror.*

A CEMETERY AT HULL is talked of, and a public meeting is to be called to consider the proposition.

Tenders.

The tenders for Twenty-four Engines—sixteen of 43-inch cylinder, or about 45 h. p., and eight of 12 h. p.—were received at Exeter by Mr. Brunel and the authorities of the South Devon Railway. The contracts were taken by Boulton and Watt, and Messrs. Rennie—the amount from 40,000*l.* to 50,000*l.* The principal Cornish engineers and founders were in attendance.

Tenders delivered for Finishing a House, commenced by J. Brown at Walworth, for Mr. Ireland. Charles Foster, Esq., Architect, 3, Northampton-street, Islington.

Pickford	£960 0
Hawkins	894 10
Brake	890 0
Barnesby (for Mr. Flower) ..	795 0

Opened in the presence of the parties.

NOTICES OF CONTRACTS.

For erecting and completing the Lower Sluice and Sluice-Pit at the top of the Eau, Brink Cut, about 4 miles above Lynn.—Messrs. Walker and Burges, 23, Great George-street, Westminster; or Mr. George Game Day, Clerk to the Middle Level Drainage Commissioners, St. Ives. February 10.

For the erection of New Buildings in Pembroke College, Oxford.—Plans, &c., prepared by Mr. Haywood, Architect, may be seen at the Master's House. February 11.

For the erection of two Fever Wards in the workhouse at Slough.—C. P. Barrett, Clerk of the Union, Eton. February 11.

For the erection of a Cast-iron Tank, 52 feet diameter and 16 feet deep; and for a double or Telescopic Gasholder, to work in the same. Also for a double or Telescopic Gasholder, 70 feet diameter, to work in a tank 18 feet deep.—Mr. John Rofe, Engineer, Gas Works, Preston. February 12.

For a supply of Railway Fastenings for the Great Southern and Western Railway, Ireland.—Mr. William Taylor, Secretary, 3, College-green, Dublin. February 17.

For such Mason's and Pavior's works (stone paving only) as may be required by the Commissioners of Sewers of the City of London, for the term of three years, from the 25th of March next. Joseph Daw, Esq., Guildhall, London.—February 25.

For the supply of Granite or other hard stone for the service of the Stone's End district of the Surrey and Sussex Roads.—Road Office, Charing Cross, and W. S. Gaitskell, Esq., 21, Stamford-street, Blackfriars' Road.

For supplying the Great Western Railway Company with such quantity of the following articles as may be required from the 1st of April, 1845, to the 31st of March, 1846; viz. Bar and Pig Iron—Castings—Bolts and Rivets—Copper (sheet and ingots)—Ironmongery, screws and nails—Brass and Iron clasp, closet tacks and wirework—Lead and Zinc—Steel for springs—Timber—Tubes, brass, copper, iron and zinc—Patent Wheel-tire, and various other articles.—Chas. A. Saunders, Esq., Secretary, Paddington. February 27.

For the Mason's and Pavior's Works, supply of Guernsey Granite Chippings and Yorkshire Paving, for one Year, from the 25th of March next, for the parish of St. George, Hanover-square. Mr. R. Lees, Clerk to the Paving Committee. March 4.

For the supply of 20,000 tons of Iron Rails, and 7,000 tons of Iron Chairs, for the Newcastle and Berwick Railway.—George Hudson, Esq., Railway Office, York, and at 24, Great George-street, Westminster. March 4.

For the supply of 100,000 Railway Sleepers for the Newcastle and Berwick Railway.—George Hudson, Esq., Railway Office, York. March 4.

For the supply of 11,000 feet of nine-inch cast-iron Pipes for a new line of Aqueduct to be laid in the Island of Malta.—Vin. Casolani, Collector of Land Revenue, Office of Land Revenue and Public Works, Valletta, Malta. March 31.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

February 10.—At the Gun Inn, Eridge Green; 4,300 superior Fir Trees of various kinds, long length, large size, and clean growth; also a large quantity of capital Larch, 32 large Ash Trees, about 900 smaller ditto.—Mr. Hart, auctioneer, 1, Wilton-place, Grosvenor-road, Tunbridge-wells; and Mr. H. Hickmott, Eridge Castle.

February 13.—Under the Arches in the Railway Path between the Spa-road and Greenwich: A large quantity of Portland, Granite, and Bramley-fall Stone in blocks, coping, caps, steps, sleepers, paving, foot stones, Bath blocks, &c. &c.—Messrs. Southey and Son, Auctioneers, 191, Tooley-street.

February 14.—At the Cock Inn, Rocester, Staffordshire; various lots of Oak, Ash, Elm, Alder, Aspen, Willow, Poplar, Larch, Chesnut, Fir, and Beech Trees, all lying on the banks of the Cauldon and Uttoxeter Canal.—The office of Sir William Horne, Southampton-buildings, Chancery-lane; or Mr. William Pegg, auctioneer, Uttoxeter.

February 17, at Bristol; Feb. 18, at Dorsley; Feb. 19, at Cirencester; Feb. 20, at Leominster,—a number of Maiden and Pollard Oaks, and Maiden Elms.—Messrs. Clark, Medcalf, and Gray, solicitors, 20, Lincoln's-inn Fields; and Messrs. J. P. Sturge and Co., surveyors, Bristol.

February 20.—At the back of St. George's-terrace, Dalston Rise; 300,000 sound new Stock and Place Bricks, and a large quantity of Burrs and Bats.—Messrs. Humphreys and Wallen auctioneers, 68, Old Broad-street.

February 21.—At Garraway's Coffee-house, Cornhill: 300 loads Quebec Red Pine; 100 loads Yellow Pine; 100 loads of Ash; 80 loads of Oak; 10,000 Yellow Pine deals and battens; 10,000 Spruce deals and battens.

February 25.—At the King's Arms Inn, Hemel Hempstead; a large Fall of capital Oak, Ash, Elm, and Beech Timber Trees, the greater portion of which are of very large dimensions and superior quality.—Mr. James Adams, auctioneer, Clarence-street, Staines, Middlesex.

COMPETITION.

Plans and estimates are required for a Workhouse, to contain about 1,180 persons. The whole to be done in a plain and substantial manner, without any expensive embellishments. The plans and architects' estimates to be sent to Robert Mercer, the Clerk of the Clifton Union, Pennywell Road, Bristol, on or before the 17th of February next, and the Board of Guardians will adjudicate on the 28th. The architect producing the best plan in the estimation of the Board will be employed at a sum not exceeding 5 per cent. on the outlay, and a gratuity of 25 guineas will be given to the architect producing the second best plan in the opinion of the Board.

TO CORRESPONDENTS.

"Ignoramus" *asks if "such a work is to be had as a dictionary of all terms used by architects and surveyors as applicable to buildings?" An excellent glossary of such terms* (170 *pages*) *is to be found in Gwilt's "Encyclopædia of Architecture." We are glad of an opportunity to say this Encyclopædia is a monument of ability and industry.*

"Scrutator."—*The correction is not advisable.*

"Honestas," "A Builder," *and other correspondents who have favoured us with communications on those stir-exciting words in the Buildings Act, "commenced before," must pardon us for not publishing them. They would occupy the whole of the journal. The subject is discussed in more than one part of the present number.*

"J. H. (Pontypool)" *wishes to know the materials used for polishing marble, and how they are to be applied.*

"G. R.," *if he will kindly refer to former numbers of* The Builder *will find that the fallacies of London Building Societies have already been fully exposed in our pages. The pamphlets and his request shall be forwarded. We shall be happy to hear from him on other subjects.*

St. Bartholomew's Hospital views next week.

"J. K. (Gorey)."—*The drawing he refers to did not reach us.*

"W. C." *wishes to have the address of a timber-merchant in London who has some well-seasoned oak-plank.*

"Antiquarian" *wishes information respecting an ancient pavement found in Lad-lane two or three years ago; supposed age, &c.*

"Enquirer" *should take the opinion of a surgical friend.*

"Constant Subscriber" (Hand-rails).—*We have no definite intention to continue the subject.*

"W. Hawley" *is thanked for his communication; it shall appear.*

"T. H. Cash."—*His request shall not be lost sight of.*

"E. C. L."—*The address arrived too late for examination. It shall be read.*

"G. W." (Hackney), *must give notice to the surveyor in both cases.*

"J. Pickard."—*The sketch shall be engraved forthwith.*

"A Subscriber" (as to undersetting) *next week.*

"An Early Subscriber" *is anxious to have "an analysis of a good brick, shewing the exact proportion of each material used in its composition."*

"An Observer," *seeing our notice of the frescoes at Buckingham Palace, refers us to two works of that kind executed by an English artist in the spring of* 1842, *at the Literary Institution, Gravesend.*

"One of your Subscribers" *shall have consideration.*

*** *We have to acknowledge several very co plimentary letters on the improvement visible our columns. We are not insensible to pra and will endeavour to deserve it. Arrangemen are in progress for still further increasing efficiency of the journal.*

BOOKS RECEIVED DURING THE WEE

The Quarterly Journal of the Geological S ciety—Old England, part 14—*Supplement Penny Cyclopædia—Professor Byrne's Report the proposed Great Western Irish Railways.*

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

Monday, February 10. — *Geographical*, Waterloo-place, 8½ P.M.; *British Architects*, Grosvenor-street, 8 P.M.; *Medical*, Bolt-cou Fleet-street, 8 P.M.

Tuesday, 11.—*Medical and Chirurgical*, 5 Berners-street, 8½ P.M.; *Civil Engineers*, 2 Great George-street, 8 P.M.; *Zoological*, Hanove square, 8½ P.M.

Wednesday, 12.—*Society of Arts*, Adelphi, P.M.; *London Institution*, Finsbury-circus, 7 P.M *Graphic*, Thatched-house Tavern, 8 P.M.; *Pha maceutical*, 17, Bloomsbury-square, 9 P.M.

Thursday, 13.—*Royal*, Somerset House, P.M; *Antiquarian*, Somerset House, 8 P.M *R.S. Literature*, 4, St. Martin's place, 4 P.M *Medico Botanical*, 32, Sackville-street, 8 P.M.

Friday, 14.—*Astronomical*, Somerset Hous 8 P.M. (Anniversary); *Royal Institution*, Alb marle-street, 8½ P.M; *Philological*, 49, Pall Ma 8 P.M.

Saturday, 15.—*Asiatic*, 14, Grafton-stree 2 P.M.; *Westminster Medical*, 32, Sackville-stre 8 P.M.

ADVERTISEMENTS.

TO STONE MERCHANTS, MASONS, CONTRACTOR AND BUILDERS.

CLIFF and HUNLER take this oppo tunity of acknowledging the very favourable enco ragement they have received since opening their Sto Wharf near the Ferry-house, Isle of Dogs; and, wh expressing their gratitude, would assure their numero customers that no exertion shall be spared to render t wharf a depôt where at all times their orders can be suppli with Stone of the best quality, and with promptitude a dispatch.

There is now a large stock of Self-faced and Tooled Yo Landings and Paving, Tooled Steps, Sinks, and Copi fine Slabs for Chimney-pieces and Hearths. All kinds Yorkshire Block Stone, Bromley Fall, Harehills, Parkspri and Robinhood. A large and choice selection of Portla and Bath Stone from the best quarries. Fire Bricks, Lum Tiles of every description; Lump and Ground Fire Clay.

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This is the most efficient Machine that has been invent for the purpose of making Drain Tiles. Any shaped T can be made by merely changing the die, which can be do in a few minutes. It requires but few hands, viz., o man and three boys. With this amount of labour, the pr duct of a day of 10 hours is as follows, viz:—

1 inch diameter of Tile,	11,000
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1½ ,, ,, ,,	6,000
1½ inches diameter of Tile,	5,0
,, ,,	3,5
2½ ,, ,,	3,0

The Machine is moveable down the drying-sheds, so t it requires no extra boys to carry the Tiles, nor are shel required in drying. It has been in full operation upwards of four months at Hempstead Park, near Cr brook, Kent. No charge made for Patent dues or licen The purchase of the machine includes free use of it.

TO BRICKMAKERS AND OTHERS.

JONES'S PATENT BRICK and TIL MAKING MACHINE.—With the view of maki the public more extensively acquainted with the Advanta resulting from the use of his Machines, the Patentee h had a Brick-making Machine, with all the recent Impro ments, erected by Messrs. Easton and Amos, Engineers, the same may be viewed at work at the Patentee's premi Queen's Wharf, next the Star Coal Wharf, King's Road, Street, Pancras Road, on and after the 12th inst. between hours of eleven and three. These Machines will enable Brick-maker to mould cheaper and better Bricks, which dry in one-third less time, require less straw and a ground, and burn better, and will save the expense of p mills and moulds. Machines supplied or let on hire, licences granted on application to the Patentee at the abo address, where Prospectuses may be procured, as also on a plying by letter (post paid) to Messrs. Cardale Cardale Jliffe, Solicitors, 2 Bedford Row.

The Builder.

No. CVI.

ATURDAY, FEBRUARY 15, 1845.

IT is much to be desired that the construction of our ordinary dwelling-houses should be improved. The system at present pursued in row after row, and square er square, is defective in the extreme, and tradicts very strangely our assumed adces in scientific knowledge. Use begets ifference: whatever has answered the purmen go on year after year in the same ective course, without once thinking of its ficiency or making any efforts at improvet, which in many cases might be effected out any immediate increase of expense, in all with a positive saving ultimately. assistance of architects is seldom sought he construction of small houses; their ntion, therefore, is hardly called to the ect, and the result, unfortunately, is even in cases where they are emed, the same beaten track is pur; additional effect, if any thing, is alone ed at, and the employer sometimes finds that houses have cost him more money, but are improved in stability, arrangement, or enience, by the interference of the man of . It is a study that would amply repay us consideration, and loudly demands it; that not merely as regards sound conition, but as to the mode of heating, venng, draining, and lighting houses, to which or no attention is ever paid. Let us look e of the "eight roomed houses," of which reds are in progress towards completion in uburbs of the metropolis at this moment. ell of 9 inch brickwork forms it, divided e centre by a few upright pieces of timber ing from floor to floor, and framed into a and cill:—in some there is no cill, the of the lower partition forming the cill of above it, and the omission is a gain. At op of the building a gutter plate, supporthe rafters of the roof on either side, from the front wall to the back in the e of the house, and rests in the centre of ngth on the head of the upper par. The timber in the partitions, which is y saturated with water, necessarily shrinks ing, and reaching in lengths, as it does, the bottom of the house to the top, of allows the roof and floors to sag very derably; and the mischief is further ted by numerous cracks in the plaster aper in every room. In the front-wall enings are usually so placed as to bring pper masses over the lower voids, and ways covered by an arch of such defective uction as to be literally useless. When, dition to these and numerous other errors, e the mode in which the brickwork is executed—mortar-joints, or rather mud three-fourths of an inch thick, upright one over another, and scarcely any s running through the wall—it becomes ing that so few accidents are heard of. it not, however, be supposed, that none walls are constantly falling, houses not uently, but very few of these mishaps e known to the public. We have ed two or three fallen 9-inch walls this last week, and have found them consist of two half-brick leaves, which had separated, bulged, and fallen; and we do not hesitate to assert, that there is a tendency to this same result in the greater number of walls now raised by speculative builders. Nothing, indeed, can be worse than the greater part of the brickwork raised in and round London, and we cannot too strongly condemn it or too loudly call for an alteration. The use of Flemish bond has greatly aided to make bad workmanship general, and it is much to be desired that the prejudice which exists against the appearance of English bond could be overcome, as it is certain that by this mode the greatest strength is attained. A nine-inch wall properly executed in English bond, with only just enough mortar (of stone-lime and Thames sand) to connect the bricks, is stronger, and more effectually keeps out the weather and keeps down the damp, than a wall double that thickness of brickwork such as is too generally found in ordinary buildings. An improvement in the construction of houses concerns us all: we shall lose no opportunity to revert to the defects of the present system, and to suggest the means of remedying them.

MR. COCKERELL'S FIFTH LECTURE ON ARCHITECTURE.

MR. COCKERELL commenced his lecture on Thursday, the 6th inst. (at the Royal Academy), by saying he should treat of the distinctions made by the ancients between civil and sacred architecture, and which, unfortunately, were not regarded by the moderns; and afterwards speak of various buildings used by the Romans —mural decorations, arrangement of ceilings, &c. The method he had adopted in this course, namely reviewing ancient buildings, and more especially Greco-Roman remains, was not for the purpose of displaying erudition, but from conviction of the practical advantages that would result to the students from pursuing it. The last half-century had greatly increased our materials for such an examination, and there was no excuse if we neglected it. To make these lectures merely antiquarian, would have been waste of time; his object was to make them practical. In examining the works of the ancients, we should strive to graft their ideas on our own. The architects of the sixteenth century confessed the superiority of ancient works over those of the middle ages. Bramante practically studied Vitruvius, so did Palladio and others, and laid down principles which have been received, and raised works that are models for imitation. The professor mentioned Colonna as being imbued with love for ancient art, and spoke of his imaginative work on the arts, which took you into the solitude of ancient cities, and raised beautiful visions of ancient skill. If reading Robinson Crusoe had made many sailors, Colonna's work should make many architects. Mr. Wightwick's "Palace of Architecture" was formed on this model, but he had omitted to enlist the feelings.

Genius afterwards became fettered by the rules which had been laid down, and the result was a revolt in the time of Bernini. He again referred to Canina's work, as affording materials for study. The more completely ancient works were investigated, the greater would the reputation of Vitruvius grow. With Canina for a guide they could not fail to be improved.

The recent devotion to Greek art had done good, but had been exclusive. Practically, architecture had suffered since Vitruvius had lost his credit. The want of distinction between civil and sacred architecture, to which he had referred, was a crying sin in modern practice, as also was the manner in which interiors were treated. Vitruvius expressly stated that the entablature should be diminished in interiors, but we used the same mass as if it were in the air, which always had the effect of reducing it. The architects of the Revival had observed these distinctions, but not by rule. He then examined the Palace of the Quai d'Orsay, at Paris, and some of the works of Schinkel, in whose ability he professed to have great faith. Going on then to treat of civil buildings, he described the Theatre of Pompey, 1,000 feet long, and 532 feet wide, and a few of the porticoes at Rome. The magnificence of some of the theatres was almost incredible: they were used as a sort of Parliament House. In the centre of the scene in theatres of late date an apse was formed, probably to aid the voice. He described the magnificent velarium or awning put up by Nero.* Sir Christopher Wren had taken a hint from this for his theatre at Oxford. The velarium at one of the theatres was 550 feet by 450 feet. It required great skill, and was managed by sailors. Its principle was that of the suspension-bridge. The professor remarked that when he restored the ball and cross at St. Paul's Cathedral they were obliged to employ sailors in the operations.

Returning to the subject of proportions for interiors, he ridiculed the practice of applying details from the exterior of the Parthenon in a drawing-room, or executing in joinery the doorway from the Temple of Erectheus for a small chamber. It was illogical to employ the same proportions for two different purposes. When speaking of large rooms, he mentioned the Bank parlour as a very admirable apartment. By pictorial art we might make rooms seem much higher than they really were. The appearance of extent given by using a number of small parts is shewn in Gothic works. The Adams', considered the side of a room as much as the front of a house. It was desirable that it should be represented on paper to a large scale, so as to induce the introduction of greater number of parts to fill the space. When speaking of courts of justice the professor remarked that modern courts of justice were very badly arranged, especially as regarded ventilation.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AN ordinary meeting of the institute was held on Monday evening, the 10th inst., Mr. J. B. Papworth, vice-president, in the chair, when Mr. John Burley Waring and Mr. Nathaniel Thomas Randall were elected associates. Herr Gruner acknowledged the honour of his election as corresponding member, and invited all members of the institute to visit him when they came to Rome.

Mr. George Hawkins read a description of King's Scholars' Pond Sewer, particularly with reference to some recent constructions at Pimlico, which will be found at length in another part of the journal. The paper led to an interesting conversation. Mr. Poynter remarked on the badness of the drainage in Paris. As late as the year 1832, when the cholera was talked about, there was no sewer in the Rue Castiglione or in many other equally important streets, although there was every facility for discharging them into the river. Mr. Fowler said, that Berlin was even now quite destitute of a system of sewers. Being built on a sandy flat, little or no fall was to be obtained: deep gutters were dug in the streets, and into these the soil was allowed to run and to remain there for some time. At Hamburg since the great fire, they have adopted a most complete system, under the direction of Mr. Lindley. A plan for the whole was laid down in the first instance, and would be gradually carried out. It was such an extensive work, that thousands visited it, as one of the lions of the place. In order to carry the main sewer across the river, it was made to dip about 4 feet; the accumulation of deposit was prevented by periodically allowing a flush of water to pass through it.

Mr. Rode Hawkins then submitted some drawings of a restoration of one of the edifices at Xanthus, from sketches taken on the spot, accompanied by an explanation of the sculptures and architecture. A description of the building will be found in our report of Mr. Cockerell's fourth lecture.

Relative to cleaning the sculptured portions of it, now in the British Museum, Mr. C. H. Smith said he had observed a labourer at work upon them in a very injurious manner, and hoped greater care would be taken. It was understood that Sir R. Westmacott had been deputed to superintend the operation, and we may, therefore, rest quite satisfied that it will be properly performed.

* See THE BUILDER, p. 18, *ante*.

ON THE DRAINAGE OF A PART OF LONDON.

WITH A DESCRIPTION OF THE KING'S SCHOLARS' POND SEWER."*

At the present day it would be superfluous to dwell at any length upon the benefits derivable in a social point of view from a complete and efficient system of drainage. Its necessity and importance are now universally recognized and admitted; a fact not only evidenced by the very generally expressed desire upon the part of the community to promote its extension, but likewise by several recent legislative enactments framed for its special provision and regulation, and the still increasing interest elicited by the subject.

The wisdom of ancient Rome was not the less conspicuous in her external policy than by those internal arrangements and municipal regulations by which the health, comfort, or convenience of her citizens appear to have been specially studied; and certainly among those public edifices and monuments, whose magnificence is recorded by the historian, or whose ruins now arrest the attention of the traveller, there are none which more forcibly exhibit to us the wealth, magnitude, and extent of the Roman city, than the remains of those subterranean adits formed to receive and convey away the sewage and refuse of her immense population.

In a warm climate, and among a people where the bath may be considered the almost indispensable luxury and appendage of every dwelling, it is obvious that, next to providing the requisite supply of water, the most important consideration was to secure a ready and expeditious means of discharging the waste from each, as well as from the numerous public fountains and aqueducts of the city: we accordingly find the arrangement and conservation of the sewers to have been at all times an object of especial care on the part of the Roman government.

The laying out and construction of the Roman sewerage upon any definite and regular system is said to have been first commenced in the reign of Tarquinius Priscus, about 600 years before the Christian era. To the same period is ascribed the building of the Cloaca Maxima, a work of both historical and architectural interest, since in its date is involved the question of the antiquity of the arch. Some writers, however, are disposed to attribute the present covering of the Cloaca Maxima to a much later period, probably when the sewers generally were repaired by M. Agrippa. But a monument which still continues to exist, after the lapse of nearly twenty-five centuries, may, independent of any other circumstance, still excite our interest and admiration, more especially when we consider that in the midst of the degradation and ruin attending her proudest works of art, this great and useful structure of the Roman city retains in some degree its original purpose, and may still be supposed to minister to the health and comfort of her modern citizens.

The arch of the Cloaca Maxima is formed in three concentric semicircular rings, with an aggregate thickness of 5 feet 11 inches. It is built of Peperino stone, and there are occasional introductions of large blocks of Travertine, which no doubt have been inserted in some of the later reparations of the sewer. The interior is perfectly regular, and for so much as remains in continuation, which is about 44 feet, is generally in good preservation; it is about 13 feet in width, and as many in height. In the walls are stone brackets to support the ends of the waste pipes of the fountains; each block of stone measures 7 Roman palms 3 inches in length, and 4 palms 4 inches in thickness. The course of the Cloaca Maxima corresponded nearly with what has been considered to be the most ancient limits of the city. It had its origin very near the site of the arch of Severus, then it passed under the Via Sacra to the Temple of Julius, turning thence under the Via Nova, and skirting the Palatine Hill to the Forum Boarium, which it crossed; it proceeded in a straight line towards the Tiber, into which it discharged a little below the Ponte Rotto, and nearly beneath the "little Temple of Vesta," the whole length being altogether about 1,800 feet (2,500 palms).

As affording some notion of the importance and extent of the Roman sewerage, it is recorded by Dionysius of Halicarnassus that upon an occasion when they had become neglected, the censors concluded a contract for their cleansing and reparation for the sum of 1,000 talents, equal to 193,000*l.* For the maintenance of the public sewers, there was a tax levied called the cloacarium, and in the time of the emperors they were placed under the control and charge of the public officers specially appointed for the purpose. In regarding the extent of these works and the great expenditure which must have necessarily been incurred by the Romans in the perfecting and maintaining such a system of sewerage, we must not lose sight of their extreme and vital importance to a city, of which the ordinary daily supply of water by the various aqueducts alone, irrespective of that derived from wells and other sources, has been estimated at 50 millions of cubic feet, a quantity nearly ten times the present supply of the metropolis by the different water companies, and of which some adequate notion may be formed when we consider that it is more than equivalent to that contained by a lake 380 acres in extent, and 3 feet in depth. However large, therefore, the capacity of the Cloaca Maxima may appear, it cannot be considered much more than adequate to the ordinary duty it had to perform even in dry seasons, and without the concurrence of those sudden and violent storms to which the climate and latitude of Rome are subject.

In England the earlier statutes and laws, upon which the constitution of the different commissions of sewers is based, appear to have had more particular reference to the drainage of open fen-lands, and the protection of districts subject to inundation, or the overflow of the tide. In fact, in the establishment of the various commissions, little else was contemplated beyond providing a quick and ready conveyance of the surface-waters to their respective outfalls. The circumstance, however, of several of the commissions of sewers embracing within their jurisdiction large portions of town districts have, in complicating their functions, necessarily induced an extension of the objects for which they were originally founded.

Before the general adoption of arched sewers, London was subject to the plague and other periodical endemics; and the accounts of contemporary writers of the filthy and disgusting state of the public streets, arising from a want of proper municipal regulation and defective drainage, even so recently as towards the close of the seventeenth century, are scarcely at the present time credible; and the surprise is not so much at the often times fatal and devastating effects of these visitations, but that the city should ever have been free from their influence.

The intimate connection between the sanatory condition of a town and its state of drainage was strikingly illustrated by Dr. Southwood Smith in his evidence before the committee of the Health of Towns. "If," said he, "you were to take a map, and mark out the districts which are the constant seats of fever in London, as ascertained by the records of the fever hospital, and at the same time compare it with a map of the metropolis, you would be able to make out invariably, and with absolute certainty, where the sewers are, and where they are not, by observing where fever exists; so that we can always tell where the Commissioners of Sewers have been at work by the track of fever."

From a strict and perhaps necessarily limited interpretation of the original statutes on the subject, it was not before the commencement of the present century that soil-drainage was allowed to be passed into the public sewers; previously to that period each house had its system of cesspools, into which not only was discharged the whole of the excrementitious matter of the inhabitants, but the almost equally offensive suillage of the sinks and scullaries of the dwellings, the cleansing of which cesspools was a regular and periodical operation, entailing great expense not only to the occupiers, but likewise much annoyance to the inhabitants of the vicinity. This system, however, is happily almost superseded, and the business of nightman, formerly so offensive, is now scarcely known.

But upon closer investigation, and taking into consideration the circumstances of the period, the necessity for cesspools, and consequently these restrictions, were not without some reasonable ground; the limited supply of water for domestic purposes was considered insufficient to drive the more solid matter through the drains into the sewers. This objection, however, can no longer hold, since the water supplied by the different companies is both abundant and sufficient to act as an effectual scour not only to the private drains of the houses, but also to the public sewers into which they are discharged.

The metropolis and its immediate vicinity is divided among seven different commissions or trusts, in whom are vested the charge and control of the public sewers, with the power of raising rates for their maintenance and improvement. Among these the most important, both from the value of the property within its operation and the extent of country subject to its administration, is the Commission for the "City and Liberty of Westminster and part of Middlesex," the active jurisdiction of which extends from Temple Bar, along the northern shore of the river Thames to Fulham, and northwards from the Thames as far as Hampstead and Willesdon.

This district, comprising an area of nearly 18 square miles, is divided into four divisions or valleys, upon which separate assessments of the sewers' rates are levied. These are known as the eastern and western divisions of the Westminster Sewers, the Ranelagh, and the Counter Creek. The above arrangement is not arbitrary, but is indicated and marked out by the natural configuration of the country itself, being in fact four distinct levels of drainage, each discharging, independently by its own outlets, the waters collected on its surface.

With these few general observations I shall at once proceed to the main object of the present paper, which is to give a brief description of some of the most important improvements effected within the last few years in the sewerage of the second or western division of the Westminster Sewers, more particularly as connected with its main line of outfall—the "King's Scholars' Pond Sewer," which receives by its various collateral branches nearly the whole drainage of this district. The course of this main sewer is pretty nearly through the centre of the valley or district drained by it, and almost in the channel formerly occupied by a rivulet known in early days as the Aye brook, having its source at Hampstead, from the overflow of a spring still in existence, called the Shepherds' well. This before its stream had become polluted by the encroachment of buildings on its banks, supplied a pond used in those times by the King's Scholars of Westminster for bathing, and supposed to be situated somewhere near to the present site of Vincent-square, from whence is believed originated the present name of the sewer. The whole area of the western district is about 2,300 acres, of which nearly 2,000 are drained by the King's Scholars' Pond sewer; of this surface about 1,500 acres are covered by streets and houses, the number of assessments being about 16,000.

In considering the King's Scholars' Pond sewer as a discharging line of drainage, it must be borne in mind that there belongs to it the essential feature peculiarly distinguishing it from the Fleet, the Ranelagh, or other main outfalls of the metropolis, and which involves a principle of operation entirely differing from them. I allude to the fact, that the whole of the lower portion of the district drained by the sewer, including the larger section of Westminster, comprising an area of nearly 1,000 acres of valuable house property, is below the ordinary high tide level of the Thames.

As a security to this low district, it is therefore essential that a free emission of the sewage into the river be restrained always at a point by which it might through the ingress of the tide be affected, and consequently the action of the discharge is necessarily limited by gates at the outlet to a short period preceding and subsequent to the flood, being altogether scarcely six hours in the twelve. As an additional protection against any sudden and accidental irruption of the tide, each of the collateral sewers and drains of the main line is carefully guarded, as far as the high-water level, by self-acting flaps.

Thus it is obvious, that independently of receiving and discharging the drainage of a surface amounting to upwards of 2,000 acres

* Read by Mr. G. Hawkins, at the Institute of Architects.

is sewer has to retain at its lowest end, at a sure level to the district, for a period of six urs in the twelve (during the rise and recession of the tide), the whole of the sewage accumulated in that time.

The usual quantity of water thus held back, dry weather and under ordinary circumnces, is about 100,000 cubic feet; but during rms and falls of rain, this, it is evident, must far short of the actual quantity passing down sewer, which, to act effectually as a reser-r, ought to be of sufficient capacity to meet ry emergency, otherwise upon the concurce of a heavy storm of rain with a high flood , the same liability would arise of submergthe district; but in this latter case, by the er pent back within the sewer.

This consideration has been the chief difty attending the question, and has oned what may at first view appear to have n an unnecessary enlargement of the sewer s lower end. When, however, we take into unt the extent of surface drained, and mate the quantity of rain falling upon it ng the six hours when the gates are closed alf an inch in depth over the whole surface ich is a moderate computation), and supng even one-half of this quantity absorbed he ground, there would still remain nearly millions (1,815,000) cubic feet of water ing down the sewer, requiring a reservoir early seven acres in extent, and six feet in h,—we are not surprised to learn that even present large capacity has been occasionally d insufficient, that more than once the r within the sewer has risen to the height e external tide, or nearly 14 feet above ill of the gates.* It is evident, therefore, those few and general principles applicable e drainage of ordinary districts are, from peculiar circumstances already alluded to, ficient for the relief of the one under deration, and consequently the question s efficient drainage has at all times been tter of frequent and earnest considerwith the Westminster Court of Sewers. t the commencement of the present ury the attention of the court was seriously more particularly drawn to the subject, to the necessity of providing an improved ll for the general relief of the district, ng the reasons which more particularly rred to urge this, not the least was the that, in consequence of the recent great ase of buildings and paved streets in istrict (independent of the proportionate ase of sewage thereby occasioned), any n fall of rain, from there being less bing and retaining surface, was carried diately into the main sewer. This was nly found to be altogether insufficient in ity, but, from its irregularity of levels and nely tortuous course, had the effect of so mming back the stream, as to occasion, than once, considerable damage to the ing property. It was, moreover, in exceedingly old and dilapidated, and the sing value of the ground near Pimlico, ll as towards the lower parts of the t about Westminster, called strongly for more efficient protection.

the present object is more to describe improved state of this sewer than its al capacity or condition, I need merely e that, in consequence of these reasons representations from the inhabitants, comng more or less of the inconvenience and uacy of the relief afforded by the old he court was induced to seek the proal assistance of the late Mr. Rennie, whose report, and that of the late surMr. Tredgold, much of the subsequent rements have been effected. These have sed within the last forty years an entire nstruction of the old line, from the s to St. John's Wood, at a lower level and derably enlarged capacity, a diversion of se where it passed under buildings, or was ise objectionable, with new outlets, gates, te-house, including at the lower end a ir for the back-water, these last carried out under the direction of the eminent engineers Messrs. Walker and Burgess.

It was before observed that the King's Scholars' Pond sewer was originally known as the Aye brook, a small rivulet, which, in common with the Fleet and others of the now scarcely remembered streams of London, and recorded by the old chroniclers as being both the pride and recreation of her citizens, had its source in the hills near Hampstead, and, following the valley of the western district in a direction nearly north and south, discharged itself into the Thames at no great distance from the site of the present outlets.

The King's Scholars' Pond sewer runs very nearly in the original channel of the Aye brook; commencing at Hampstead, it still receives the overflow of the Shepherd's well, and for nearly a mile through the meadows, as far as the Marylebone and Finchley road, is open, and preserves yet much of its primitive and rural character. Thence it begins to be covered, and to the Primrose Hill road is 5 feet in height and 2 feet 6 inches in width; along the latter road to the bridge over the Regent's canal it is enlarged to 6 feet in height by 4 feet in width, receiving in its progress the drainage of Portland Town and St. John's Wood. The surface of the roadway not admitting of the last height, the sewer for a short distance is somewhat reduced, and for the sake of headway is covered with cast-iron plates. From the south side of the canal it continues with a gradually increasing capacity along the Park-road, Upper Baker-street, York-place, Dorset street, and Manchester-street, where it is 7 feet 3 inches in height by 6 feet 6 inches in width. Proceeding then across the centre of Manchester-square, it passes along Duke-street to Oxford-street, when, turning to the eastward as far as Avery-row, along which continuing in a direction nearly parallel to Bond-street, it cuts the south-east corner of Berkeley-square at the foot of Hay-hill; thence, turning to the westward, it passes under Lansdowne-passage, Bolton-row, Sun-court, White Horse-street, across the Green Park, and through the court in front of Buckingham Palace, where its dimensions are 8 feet in height by 9 feet 6 inches in width. Beneath the south wing of that building, under which the sewer passes, is a vaulted chamber or subway, and within it is fixed a simple contrivance, of a cast-iron valve and pentstock, by which the water from the main line may readily be diverted for the purpose of cleansing the flat sewers of Westminster lying between the palace and Millbank.

The line now continues along the Pimlico road as far as Charlotte-street, between which to the Stag Brewery its dimensions have enlarged to 10 feet 9 inches in height, and 9 feet 6 inches in width; beyond this it passes between the back of the houses in Trelleck-terrace, and the premises of J. Lettsom Elliott, Esq., as far as the intersection of the Vauxhall-bridge-road. This last portion is open and is 16 feet wide, and confined on each side by retaining walls 12 inches above the level of the highest known tide of the river. Beyond the Vauxhall-bridge-road, the sewer is open to Warwick-street, but with a greatly increased sectional area for the waterway, the form being an inverted elliptical arched bottom, with a chord line of 19 feet 7 inches, and a versed sine of 3 feet 4 inches, confined by sloping earth embankments, whose superior edge is raised 12 inches above the highest tide level. From Warwick-street to White's-bridge the sewer is again covered, being 19 feet 7 inches wide at the springing, with a headway of 13 feet 4 inches; and for 140 feet beyond this last point the size is again increased, being 20 feet in width and 14 feet 2 inches in height; whence to the gates at the outlet, passing to the eastward of the works of the Equitable Gas Company, the sewer continues open with retaining walls carried above the highest tide level, being, however, for a length of 250 feet from the sluice gates further enlarged to a width of 40 feet, for the purpose of obtaining additional reservoir capacity.

The gates, of which there are two pairs, are of the ordinary lock construction, 28 feet wide, inclosing a chamber built of solid masonry; they incline to the river, and present a superficial aperture towards it of 274 square feet; they are placed under the charge of a gate-keeper residing on the spot, whose duty is to close and open them each tide. The object, I should observe, of the second pair is merely precautionary, and used only in the event of the first being out of order or under repair.

The whole length of the King's Scholars' Pond sewer, thus described, from its source at Hampstead to the river Thames, is rather more than 5¾ miles, of which distance about 4 miles are arched over. The total fall from the Park-road, at the end of Baker-street, to the cill of the gates is 79 feet, giving an average current of about 1 in 220 for the whole distance. Until the last year the arched portion of the King's Scholars' Pond sewer terminated at the part near to Charlotte-street, Pimlico, but upon the application of Mr. Thomas Cubitt, whose property abuts upon the line, to arch over certain portions of the same, the Court of Sewers was induced to concede its permission conditionally upon a public roadway being preserved throughout the entire length so covered. This was guaranteed, and the work was executed according to a section furnished by the commissioners, and under the direction of their officers. It was at the same time decided that Mr. Cubitt having completed the portion undertaken by him, the remaining length of 500 feet down to White's-bridge should be covered over at the expense of the district; the contract for which was subsequently taken by Mr. Cubitt for 1,350*l.* being at the rate of 2*l.* 14*s.* per running foot inclusive of shafts, &c. The section shews a semicircular arch two bricks in thickness and 19 feet 7 inches span, raised upon the old elliptical arched bottom, with counterforts or buttresses at every 10 feet, 2 feet 3 inches wide by 1 foot 6 inches projection. The whole backed with concrete to the height of the haunches of the arch; the first few courses above the old work are in cement.

The above portion of the sewer presents a superficial area of water-way, amounting to 210 square feet, being nearly one-third greater capacity than the Cloaca Maxima of Rome. At certain intervals there are inserted in the crown of the arch cast-iron gratings, for the purpose of giving vent to the air liable to accumulate with the descending water, which otherwise, if confined, might be apt, upon any sudden rise of the stream, to blow up the arch of the sewer. There are also, at intervals of about every 180 feet, descending shafts for the purpose of occasionally inspecting and repairing the work.

It may readily be supposed that the reconstruction of so important a work from the Thames to St. John's Wood, a distance of nearly 18,000 feet, undertaken in the crowded thoroughfares of a large city, subject to the hourly interruptions of its business and traffic, has not been accomplished without a considerable degree of labour, perseverance, and expense. The total outlay upon this sewer alone, within the last thirty years, I may venture to say, has been little short of 130,000*l.* But the benefits have more than compensated even this vast expenditure. Property of the most valuable description in the neighbourhood of the sewer, including Buckingham Palace, the lower floors of which are below the high tide level, and many of the streets adjacent to the sewer, between Piccadilly and the Regent's-park, have been improved to an incalculable extent. Formerly, many localities in the neighbourhood of the sewer were inundated by every sudden heavy fall of rain, so that many of the houses in Berkeley-square, Bruton-street, Avery-row, South Moulton-street, Wigmore-street, South-street, Baker-street, and Spring-street, were greatly depreciated in value, and some houses in Berkeley-street and Bruton-street remained unoccupied for many months together, in consequence of the well-known fact, that in the summer months those premises were subject to have their lower floors blown up during thunder storms, and their kitchen fires extinguished by the waters descending the sewer. If, however, farther proof were required of the extreme value of a good and efficient system of drainage, such as that adopted by the Westminster commission, I need only instance the very important property now rendered available between the Pimlico road and the river Thames; in fact, the district below the high tide level, and formerly subject to its periodical irruption, which, from being heretofore little better than a swamp, perfectly valueless, and most injurious to the health of the neighbourhood, now promises to become one of the most splendid and luxurious quarters of the metropolis.

ing the total number of houses drained by the Scholars' Pond sewer at 16,000, the ordinary daily of back water would give about 22 cubic feet of or each house in the twenty-four hours, about ort of the average supply to each tenement by the r and other water companies. The deficiency may e taken as an approximate measure of that lost by on and absorption before passing into the public ut in the case above assumed of a fall of rain, the of the quantity absorbed would, no doubt, be ply higher.

As affording some idea of the extreme delicacy of the operations requisite to carry into effect these improvements, I need merely refer to one or two circumstances connected with its progress to prove that even in a constructive point of view its difficulties were of no slight character. I more especially allude to the entire removal of two immense stone piers, which had at some former time been built in the water-way of the sewer, and which piers supported certain parts of the heavy and lofty walls of the houses in Grafton-street, St. George's. These piers, one measuring 53 feet in length, the other of a more square form, divided the water-way into two channels, and were considered formerly advantageous to the property lower down the line of sewer, by penning back the torrent in times of storms. The work of taking out these obstructions, as also removing two great projections, and putting in a new bottom throughout the whole length of the sewer (which here ran under buildings), between Hay-hill and Bruton-street, in length 550 feet, at a greatly reduced depth, was noiselessly, unseen by any one other than the workmen employed, and even without the knowledge of the inhabitants of the houses above, wholly performed from withinside the sewer.

Another operation of scarcely less nicety was to pass the sewer, which was 8 feet wide in the clear, with side walls two bricks thick, at a depth of 22 feet and upwards, beneath White Hart-street, Piccadilly, a street only 20 feet wide, and again carrying the same sewer through Sun-court, Curzon-street, which is in width less than the external dimensions of the sewer itself; and farther on, the sewer winds its course under and close to buildings of great magnitude nearly the whole way from the end of Berkeley-square to Oxford-street, in most instances at depths of from 10 to 12 feet below their foundations. These instances will suffice; but I may, in concluding this notice, perhaps venture to make the remark, that whether we consider the importance, the magnitude, or the beneficial results of the works carried out in this portion of the Westminster Commission, the King's Scholars' Pond sewer may justly be entitled one of the most magnificent and extensive in the structural sewerage of a great city, executed in this or any other age.

FREEMASONS OF THE CHURCH.

Feb. 11.—The Rev. G. Pocock, LL.B., in the chair.

The minutes of the last meeting were read and confirmed. Mr. Thomas Halifax was elected treasurer, and the Right Hon. the Earl of Cadogan was unanimously elected one of the vice-presidents.

Professor Cull moved that a testimonial detailing the services rendered to architecture by the late A. Bartholomew, Esq., F.S.A., be emblazoned on vellum, and framed and glazed, to hang in the council room of the college; and that a duplicate copy of the same similarly emblazoned, framed, and glazed, be presented to the founder's widow.

Mr. J. W. Archer delivered a preliminary discourse on ancient monuments. The lecturer stated his reasons for prefacing the subject of monuments by a general discourse on ancient monuments, as he found the one in all cases intimately connected with the other. He alluded to the perfection of the earliest existing brasses as something different from other early conditions of art.

After going into some speculations on the source of this branch of art, he proceeded to describe the knowledge of the Saxons in the art of working in British metals, the analogy between some Saxon remains of goldsmiths' work, and the transition of the early engraver from the occupations of goldsmith and chaser.

He distinguished between certain factitious Saxon monuments and such as were undoubtedly genuine, and instanced many early forms of monumental decoration.

After mentioning the brasses of foreign countries, and their inferiority to those of England, he made a remarkable exception in favour of Denmark, and urged the probability of a Scandinavian origin for the art, which he illustrated by a description of the decoration of Scandinavian monuments.

HEALTH OF TOWNS.

At a public meeting held at Exeter Hall, on the 11th of December last, the Marquis of Normanby in the chair, an association was formed for the purpose of diffusing among the people the information obtained by recent inquiries, as to the physical and moral evils that result from the present defective sewerage, drainage, supply of water, air and light, and construction of dwelling-houses; and also for the purpose of assisting the legislature to carry into practical operation any effectual and general measures of relief, by preparing the public mind for the change.

The Committee have recently published the speeches that were made on that occasion, and will do good if they circulate copies of the report containing them as extensively as possible. As the noble chairman said at the meeting—

"The question before the public is not one merely of bricks and mortar, of ventilators and drains. His valued friend, Dr. Southwood Smith, had proved in his evidence that filth and discomfort deteriorate the moral condition; that the worst places contain the greatest criminals."

Without pretending to go through the whole of the speeches, we may allude to some observations made by speakers which escaped notice at the time. Relative to sewers, Sir R. H. Inglis said, that in Lancaster, excellently situated for drainage and sewerage, and yet most imperfectly provided with either, and where, in consequence, disease and mortality were very great, the sewers were in a square channel; a form which, if a mathematician were to sit down and calculate what would be the most unsuitable, would be selected by him; bad as it is on principle, it is equally rejected by all experience. The great sewers of Rome, indeed, built two or three thousand years ago, remain—in their arched form and their solid construction—the model of all others. Yet this square shape is persisted in at Lancaster; the doctrine being laid down, he would not say by whom, when an improvement was pointed out—"No, we don't copy *nought* here."

Mr. B. Hawes, M.P., remarked that "people rejoice when what is called a low neighbourhood is visited by a new line of street. The houses of the poor are pulled down, and doubtless, even as things are, good, great good even, is now done. Nevertheless, the people must find homes somewhere. New alleys and courts are built. Are they well lighted, or drained, or ventilated? Let any one go into the new districts, and see the provision made for them. Are any of the modern improvements introduced, such as they find essential? He thought not, or at least in a very slight degree. There are plans now forming in the district in which he lived. Plans for new streets. He gave no opinion upon the merits of any particular plan. He spoke generally, and he found no provision for dwellings for the labouring classes; or if they are provided, the last thing thought of are these sanatory provisions, instead of their being the first. If public opinion were directed to this subject, this would not be the case. Warming, and ventilating, and lighting, might, in well contrived buildings for families of the labouring classes, be very cheaply provided. He thought it even would answer as a speculation. As to the economical warming and ventilating of large buildings, he would only quote a remarkable instance, that of the New Prison at Pentonville. From 30 to 45 cubic feet of pure fresh air are made to pass into every cell in a minute. This ventilation, and a temperature ranging from 52° to 60°, is uniformly maintained during the coldest weather at an expense of less than *a farthing a cell for* 24 *hours*. Now, the construction of this prison is far from favourable for either warming or ventilating it. He was confident that houses might be so constructed as to secure these advantages at as cheap a rate.

Mr. Grainger said, that on visiting Nottingham three or four years ago, he found whole streets of wretched houses without drainage, without the means required by common decency, and without the least supply of water, which latter article could only be obtained from distant pumps, and then by a species of theft. The natural results followed: in fact, there was a constant sequence in the evidence of the surveyor and the medical man, and wherever the former stated that the house[s] were badly built, were undrained, and un[-] cleansed, the latter pointed to those exact lo[-]calities as the seat of sickness and fever, recur[-]ring again and again as regularly as the sea[-]sons returned.

METROPOLITAN IMPROVEMENT SOCIETY

At the last meeting of this society com[-]munications were read from Sir Robert Pee[l] and the Earl of Lincoln, in answer to applica[-]tions from the secretary relative to the long[-] promised Ordnance survey and map of London and the projected encroachment upon th[e] carriage-way of Lincoln's-Inn Fields.

On the first subject it appears that th[e] estimated expense of a metropolitan surve[y] having exceeded his anticipations, Sir Rober[t] Peel had been deterred from introducing [a] bill for the object.

The amount of the Ordnance estimate was no[t] stated, and, from the discussion which en[-]sued, several members of the society seeme[d] of opinion that the expense of a comprehensiv[e] survey for public use could not well excee[d] that which had actually been incurred, withi[n] the last six months, in the numerous loc[al] surveys in the neighbourhood of the metropol[is] by railway companies. The whole of thes[e] surveys would have been unnecessary if a[n] Ordnance map of London, with contour line[s] had existed on a scale of 5 feet to the mile[,] and the Board of Trade would have had [a] simple means of testing both the correctnes[s] and expediency of the various plans submitte[d] to them for railroad lines with new termini [in] the metropolis.

On the subject of the projected encroach[-]ment on the carriage-way in Lincoln's-In[n] Fields, for the purpose of insulating the ne[w] law courts, the Earl of Lincoln had satisfa[c]tory reasons for believing that the project h[as] been definitively abandoned.

Various drawings were laid on the tab[le] embodying the suggestions of Mr. Laxto[n,] Mr. Austin, and other gentlemen, for removi[ng] the defects of the government plan for [the] embankment of the Thames between We[st-]minster and Blackfriars bridges.

The government plan had been postponed, a[s] might ultimately be given up, but it appear[ed] possible to obviate the objections made to [it,] and it was determined to seek an intervi[ew] with the Earl of Lincoln to submit for his co[n-]sideration the improvements required.

In the course of the evening an anecdo[te] was mentioned by the chairman which forcib[ly] illustrates the importance to the public of [the] late sanatory reports, to some portions of wh[ich] the society have endeavoured to give effect. [A] legal friend had inquired of a medical prac[-]tioner, high in the profession, why the wh[ole] body of medical men in London did not, w[ith] one voice, address the legislature to modi[fy] the window-duties, and remove every ot[her] evil arising from either imperfect ventilat[ion] or defective drainage. The reply was [in] following:—

"When you gentlemen of the law petit[ion] for measures to diminish litigation, medi[cal] men may be expected as a body to agitate [for] the removal of all causes of disease. I[f] government were found able and willing [to] carry out all the recommendations of [the] sanatory reports, it would diminish the me[an]s of livelihood of the medical profession to [the] extent of one-half; positively one-half."

Mr. Nixon's Statue of William IV

Now that the scaffolding and hoard are [re]moved, we will mention that the whole of [the] monument including the figure, is executed [in] Foggintor granite, and that the total co[st] 2,200*l*. Peterhead granite would have b[een] preferred on account of colour, but the p[rice] asked for it was so high as to prevent its ad[op]tion. The granite posts in the footway w[ere] devised by Mr. W. Johnson of Westmins[ter,] all the masonry was executed by Mr. Ch[ap]wick, and the iron work which surrounds [the] basement by Messrs. Dewer of Old-st[reet.] We can well believe that the greatest p[ains] have been taken by the sculptor to produ[ce a] fine statue, and that his task, a first attemp[t in] a new material, has been difficult. [The] arrangement of the pedestal is original [and] effective.

NEW MODE OF CONSTRUCTING BUILDINGS.

Lieutenant Higginson has obtained patents for a mode of construction to obviate danger from fire. We insert the inventor's description of the system, but shall withhold our opinion upon it until we can examine his models and drawings:—

"To avoid (says the author) anything like exaggerated pretension or egotistical assumption, has been my primary object. And as all inventions are now necessarily but the adoption of known forms and principles to novel purposes, I have no wish these improvements should be considered more than the result of a fortunate experiment, originating in the exigencies of maritime adventure, subsequently, however, after much labour and consideration, adapted to shore architectural purposes; the object being to remedy those defects in the existing system of construction most pregnant with danger to the community; and without attempting to alter either the present principles or practice of house building, by the substitution of iron for wood generally throughout the structure, to render erections not only fire-proof, but by having no perishable material inserted, quadruple the strength, obviate their tendency to decay.

"These *desiderata* are attained in the following manner:—The patent joists of cast or rolled iron, T shaped, have at each end of any required length a dovetail projection all of one size, fitting into flanched mortices on the iron girders and bonding sockets. The iron girders, of proportionate strength, are likewise I, shaped, but reversed, having flanched dovetail mortices cast on each side of them, one foot or eighteen inches apart, as necessary, to receive the dovetail ends of the joists. The iron bonding sockets are of the size and shape of a brick, cut off angularly before, cone shaped cast hollow; in the shorter side having a like dovetail mortice to receive the joists. The short iron trimmer joists compass the chimneys in the usual manner, fitting by dovetail ends into mortices cast on the principal trimmer, at one end, and into the bonding sockets, built into the house wall, beside the chimneys, at the other. The usual arch for the support of the hearth being provided for by iron bearing-pieces fitting in mortices between the short trimmer joists, with an iron plate to uphold the bed of mortar under the hearth stone; thus rendering the whole frame-work of the floor perfectly independent of support from the stack of chimneys, the entire isolation of which obviates all danger of that sinking which occasionally takes place from their greater weight in chimney stacks recently erected. The wells, or openings for staircases, are formed by iron trimmers cast with dovetail mortices on them to receive the joists, and may be obtained of any required form, size, or description. Additional means of support being provided, when requisite, by iron pillars with a screw in the centre of the lower end, fitting into a female screw socket, drilled into the trimmer beneath—a pinion or projecting piece, at the upper end of the pillar, entering a recess, cast or drilled to receive it, in the trimmer of the floor above. Breast-trimmers for shop-fronts, gateways, and other purposes, may be cast with the mortices for the joists on the inside; and any description of ornamental device, name, or entablature without—trussing spans, to support great weights of superstructure, being likewise, where requisite, annexed. And when the non-transmission of sound between different apartments is required, however near as a substitute for the usual filthy and destructive method of pugging, slight sheet iron, or tin cases, fitting in breadth and depth, between the iron joists, are inserted; which cases, when made, are supported internally from collapse by strong iron upright wires; and the atmospheric air within being displaced by passing a body of steam into them—upon hermetically sealing, and allowing the steam to condense, a sufficient approximation to a perfect vacuum is obtained to prevent the transmission of either heat or sound. Unlike the mould and saw-dust now used, adding little to the superstructural weight; and effectually preventing extended combustion, should even the wooden floors and furniture of one apartment be ignited and destroyed.

"It may be necessary to recapitulate, that the walls having been built up in the usual manner to the required height, from floor to floor, the patent iron joists are laid in precisely the same way as if of wood, on an iron bond, observing that at every fourth joist, an iron, brick-shaped, bonding socket is built into the wall, to receive the dovetail end of the joist; the like bonding sockets being likewise inserted in the party-walls when no girders are used—the inside ends of the joists fitting into the flanched dovetail mortices cast on the girders and trimmers, as before described, wherever both or either are in use. By these means the whole fabric is tied together and supported as one solid mass, the bonding sockets in the front walls uniting by dovetail the joists to the girder, or party-walls, in the interior; this central holding being again connected by the iron joists with the bonding sockets built into the back walls. One great saving effected in material and workmanship it may here be admissible to particularize. Supposing the depth of joist required in wood to be fifteen inches, an iron joist nine inches deep would be more than adequate; and thus, with the same pitch of ceiling upon every story, two courses of bricks around the entire fabric, with the mortar and workmanship, would be saved. There are other advantages equally obvious, although, perhaps, of minor importance—such as entire exemption from vermin of every description. Notwithstanding this, the construction of barns may be to the farmer of very serious moment, when the ravages committed by vermin are considered.

"In cases where the floors are intended to be of wood, a groove is run along beneath the upper arms of the patent iron T joist, to receive an iron bracket. The floor planks being laid, and temporarily cramped, or shored down, upon the iron joists, a projecting, square-headed, shouldered screw is inserted by a spanner, through the upper arm of the bracket, into the lower surface of the floor plank, which is thus effectually secured to the joist. It being noticed, that should the boards shrink, they may be forced together and the interstices filled up by one piece in any convenient position, in consequence of the brackets moving along the grooves in the joists, and each plank being secured independently of the others. The unsightliness of a shrunken floor is thus not only remedied, but as no nail holes are visible, the screws beneath not perforating the entire thickness of the plank, one unbroken surface is presented, which for the purposes of cleanliness and appearance is alike desirable. Magazine or warehouse floors, for goods liable to spontaneous combustion, may, however, be laid of either metal, slate, or stone, rivets being substituted for screws in attaching such to the iron joists beneath—which joists are of many forms as well as that specified, when applied to different uses.

"As respects internal ceiling and plastering, these iron joists admit of the common lath being used; in which case, to hold the lathing nails, a small fillet of wood is driven into a recess formed to receive it in the lower edge of the joists. But as it is desirable that decay as well as fire should be provided against, perforated common tin, or thin galvanised iron plates, being punched full of holes, or rosed, like the nose of a watering-pot, with the rough side towards the plaster, are substituted for the laths; to which the mortar, being applied by the usual process, forces itself through the perforations, and keys at the back of the plate in precisely the same manner it would do between laths. One-half of the ordinary labour, time, and material are in this instance likewise saved, two coats of plastering only being required—and the same sound transmitting ceiling and wall-surfaces preserved. These plastering plates are attached by means of a small double-ended iron key passing through them edgeways, into mortices in the iron joists, and battens, adapted to walls; being by a spanner afterwards turned across the entering orifice, and thereby effectually and immoveably annexed. A house thus constructed cannot be destroyed by fire, and has but little tendency to decay; whilst the expense of erection, taking all items into consideration, does not exceed that of the present method of building with perishable and inflammable materials. It is however, perhaps, impossible to describe in words all that has been practically accomplished; and I shall therefore be happy to furnish any who may be interested, with samples, models, or patterns of these inventions."

WORKS OF ART AT BRITISH INSTITUTION.

The exhibition of works of modern artists, at the British Institution, in Pall Mall, was opened to the public on Monday last. It consists of 509 paintings, and 12 pieces of sculpture, and the catalogue states that 275 other pictures were returned from want of room. Until the present year works previously exhibited elsewhere were admitted, and the best places were usually occupied by pictures already known to frequenters of the Royal Academy exhibition, and which, moreover, had been sold, while other pictures not exhibited were returned. This was a manifest hardship on the painters of the latter, and being felt as such by the directors, a resolution was passed to prevent the admission of pictures which had been publicly exhibited before.

The present collection, then, consists of entirely fresh works, and may be considered a successful issue of the new arrangement. The Royal Academicians, it was said, would not paint pictures purposely for this exhibition, whereas we find here Edwin Landseer, Etty, Knight, Lee, Stanfield, Hart, Howard, and others, stronger in numbers than usual. The first, E. Landseer, has some wonderful productions of the class to which unfortunately, as we think, he confines himself. *Decoyman's Dog and Ducks* (No. 1), *King Charles's Spaniels* (No. 134), and *Retriever* (No. 199), are inimitable. Etty has some charming studies. *The Forsaken*, although small and slight, is a magnificent piece of colour. Stanfield has three beautiful pictures, of which *On the Hollands Diep* (No. 129), is the most important.

We will pass rapidly through the catalogue, and point out some of the most noticeable works. *Fruit* (26), by Lance, is a fine specimen of art, and *Scraps from a Burgomaster's Table* (102), by the same painter, is equal to any work of the sort ever executed.

Belgic Galliott aground on the Shallows off Bergen-op-Zoom (44), by E. W. Cooke, is admirably painted; the same may be said of his *Dort, Morning* (90). Mr. Cooke has three other pictures which deserve examination.

The Widow's Benefit Night (59), by F. Goodall, is one of the gems of the exhibition. It represents the interior of an Irish cabin, with dancers and revellers, and is full of character and humour. Every head is a study. *The Soldier's Dream* (197), by the same rising painter, is a fine picture, but less perfect than the preceding.

A Water Mill (124), by H. Bright, is full of beauty.

Mr. Müller has greatly distinguished himself in the present exhibition. *Rhodes, with the Pacha's Palace on the right hand of the picture* (140), and *Tomb in the water, Telmessus* (498), are not surpassed in excellence by any landscapes in the gallery.

Music (311), and *Poetry* (314), both designs for fresco by H. N. O'Neil, are full of sentiment and grace.

A Summer Afternoon (312), by J. D. Wingfield, is a view in the gardens of Hampton Court Palace, charmingly painted.

> "Here, thou great Anna! whom three realms obey,
> Dost, sometimes counsel take, and sometimes tea,
> Hither the heroes and the nymphs resort
> To taste awhile the pleasures of a court."

This picture and one by F. Danby, *The Gate of the Harem* (401), an admirable work, have been purchased by Prince Albert.

Our limits forbid any lengthened observations: we must content ourselves with commending and pointing out for examination, *A Scene from the Sentimental Journey* (442), by W. P. Frith, *Childe Harold at the Tomb of Cecilia Metella* (508), by F. Williams, *Reaping* (248), by Alexander Johnston, *Stray Hounds*, (233), by Josi, *Entrance Porch of the Church at Cannes* (150), by A. E. Goodall, *Highland Refugees on the Coast of France* (409), by Mrs. Mc Ian, and *Dutch Boats off Ostend* (287), by C. Bentley.

There are several bad pictures by men who ought to do better, but with these we will not meddle.

The Wesleyan Society are about to erect a chapel in the Belgrave-road, between Eccleston-square and Warwick-square. Mr. Seth Smith and Mr. Archbutt have subscribed 100*l.* each, and Mr. Edge 50*l.*

VIEW OF THE QUADRANGLE, ST. BARTHOLOMEW'S HOSPITAL.



ST. BARTHOLOMEW'S HOSPITAL.

At page 42 of the present volume, we noticed the foundation of this establishment, and presented an engraving of the principal gateway in Smithfield. We now furnish a view of the quadrangle and a view of the gateway in Giltspur-street. The hospital commenced by Gibbs in 1730, as we have already mentioned, consists of four piles of buildings around a court, connected by stone gateways at the angles. The buildings are all faced with stone, have dressings around the door and window openings, and are terminated by a cornice and balustrade. Although plain and unpretending, there is a considerable degree of elegance about the arrangement of these fronts, but they are not in a fit state to be judged of.

An inscription on the hospital, after setting forth the date of its foundation and of the reconstruction of the edifice in the 18th century, states, that a general repair was commenced in 1814, and finished in 1820, under the direction of Thomas Hardwick, Esq. Looking, however, at the fronts of the building, it hardly seems credible that it was repaired so recently. The stone work is more decayed and dilapidated than that of many buildings centuries old. The window-heads are broken, the cornices decayed, and the whole front disfigured, the certain result of the use of Bath stone. All over the surface may be observed a sort of eruption, the operation of which is to throw off layers of the stone. It appears in the first instance, in the shape of slight swellings, which, increasing in size, gradually meet, when they burst and the crust falls off. A punster might take it for a small-pox hospital. The matter, however, is too serious for joking, and should serve as a warning to living architects. There is actually danger in allowing the stone-work to remain as it is, and something must speedily be done to remedy it, or the fall of some of the outside will furnish the inside with inmates. It was recently proposed to case the whole of the exterior with Portland stone, simply cutting away such parts of the present work as might be necessary to obtain good fixing. The object of that mode of proceeding was of course to avoid throwing open any part of the building, and so interfering with the patients.

The gateway in Smithfield, and that of which we now give a view,* are constructed of Portland stone, and present a striking contrast to the main building, being perfectly sound and whole, although of earlier date. Eight or ten years ago, the sides and back of the first gateway were cased with stone, by Mr. Malcot, in consequence of the removal of the houses which, until that time, adjoined it, but few or no repairs were required to the existing stone-work, or even to the figures sculptured in it. According to Mr. Malcot's opinion, indeed, and as a practical mason who has been engaged for fifty years in repairing old churches and raising new buildings (the Post Office, National Gallery, &c.), he is entitled to consideration,—good Portland stone never decays, although the surface may be worn by long exposure to the weather.

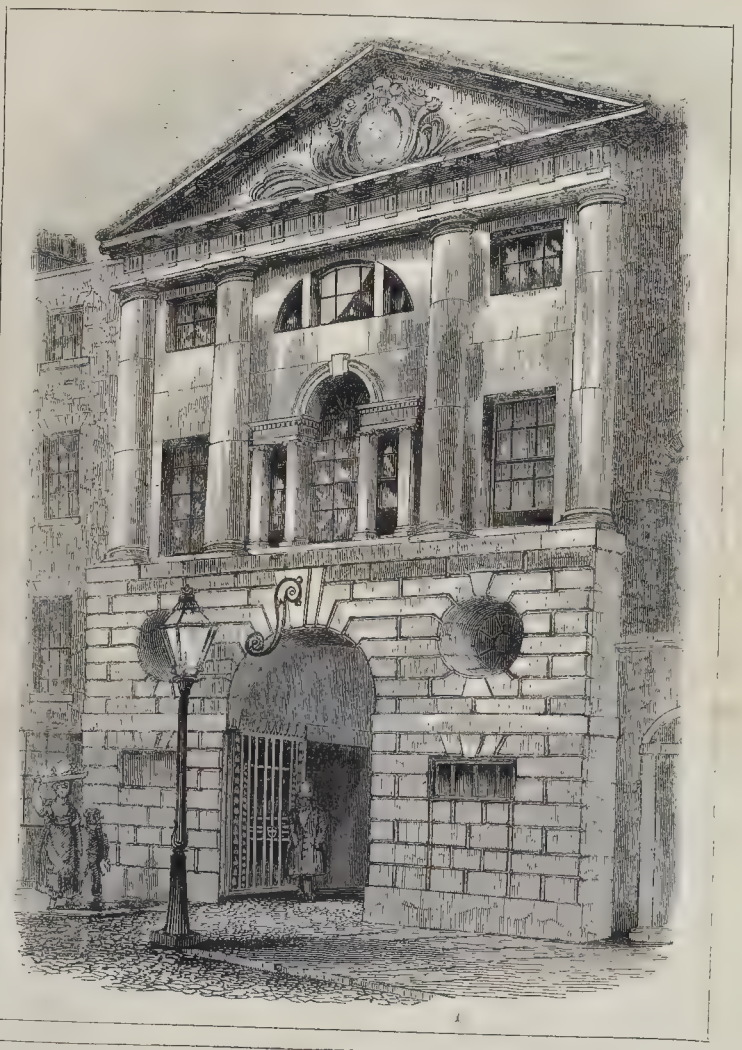
The gateway in Giltspur-street is Roman-Doric, and presents four attached columns on a rusticated basement, supporting an entablature and pediment, and having two tiers of windows between them: the centre intercolumniation is wider than the others are, and admits a Venetian window in the lower part.

Attached to the hospital is the church of St. Bartholomew the Less, formerly the chapel of the establishment. The interior of it is curious, although little of the old building remains. In plan it was originally square; but George Dance, the architect, in 1789, having first destroyed the interior of the old building, formed it into an octagon, chiefly with timber. It was re-constructed on this same plan in 1823 by Mr. Thomas Hardwick, who substituted stone. The roof is of iron.

Returning to the hospital, it may be stated that no mention is made of it in the volume of designs which Gibbs published, although the second edition of this collection did not appear till some time after the commencement of the works, namely 1739. Gibbs, a favourite of fortune when alive, was considerably under-rated afterwards, and at this time is hardly so well estimated as he deserves to be. A memoir of him will be found in the first volume of The Builder, p. 203.

* This illustration is not so satisfactory as was desired, and would have been cancelled if time had permitted.

ST. BARTHOLOMEW'S HOSPITAL,—GILTSPUR STREET GATEWAY.



PUBLIC MONUMENTS.

e stated in a recent number that a com-
e was being formed in the city for the
se of erecting by subscription a full-
n marble statue of Prince Albert in the
l Exchange, in commemoration of his
g laid the first stone. Since then, a meet-
is been held of the most eminent mer-
t, bankers, shipowners, underwriters, and
interested in the commerce of London,
it was determined that the statue should
cuted by Mr. J. G. Lough, the sculptor,
ngaged on the statue of her Majesty,
is intended to be placed in the centre of
drangle of the Royal Exchange.
he 24th annual meeting of the Seamen's
al Society held last week, it was an-
d that it had been decided to place
r monument in the Royal Exchange in
the one destroyed by fire, in honour of
mory of Mr. J. Lydekker, one of the
unificent benefactors of the Hospital,
sion for that purpose having been
l by the Gresham and Royal Exchange
ttee.
Dublin correspondent of the *Morning*
states, that Lord Heytesbury has
visited the studio of Mr. Kirk, the
selected by Sir Robert Peel to exe-
s statue of Sir Sydney Smith, intended for Greenwich Hospital. The work is nearly finished, and in a short time it will be ready for removal to England. His Excellency expressed his satisfaction with the spirited character of the figure, and with the correct likeness, which, he observed, he felt competent to declare, from his personal knowledge and vivid recollection of that heroic soldier.

THE PORTLAND VASE.

All England has heard by this time of the destruction of the celebrated Portland, or Barberini Vase, one of the finest specimens of Greek art in the world, by a miscreant called William Lloyd. It was deposited in the British Museum in the year 1810 by his Grace the Duke of Portland, and has always been considered to be his property, hence the name of the "Portland Vase." It was found about the middle of the sixteenth century, about two miles and a half from Rome, in the road leading from Frascati. At the time of its discovery it was inclosed in a marble sarcophagus within a sepulchral chamber, under the Mount called Monte di Grano. The material of which the vase was formed was glass; the figures, which were in relief, were of a beautiful opaque white, and the ground was in perfect harmony with the figures, and was of a beautiful dark transparent blue. The subject of the figures has hitherto remained in obscurity, but the design and sculpture were admirable. This vase was for more than two centuries the principal subject of admiration in the Barberini Palace. It was purchased about thirty years ago by the Duchess of Portland from Sir William Hamilton, and in the year above stated was deposited in the British Museum for the gratification of the public.

Such is the defect in our laws that no punishment can be inflicted on the rascal (our pen will not write a milder word) who has committed this wanton and distressing outrage. If it had been worth less than 5*l.* a magistrate could have inflicted a fine of that amount; but being above it, an action for damages is the only step that can be taken to obtain redress. This being the case, the charge against him for breaking the vase was abandoned, and he was fined 3*l.* for breaking the glass which covered it!! It is to be hoped that immediate steps will be taken to obtain a law for the protection of works of art. For our own part we would willingly assist to nail this fellow's ears to the gates of the museum, that he might serve to deter others from similar outrages. We are glad to be the first to convey to the public the intelligence that the vase can in all probability be restored satisfactorily, notwithstanding the number of pieces into which it is broken.

HARBOURS OF REFUGE.

The select committee of the House of Commons on shipwrecks, which sat during the session of 1833, had their attention drawn to the formation of harbours of refuge. In their report they purposely refrained from recommending any particular situations for such harbours, from a conviction that such points would be best decided on by a body composed of scientific and competent persons, whose attention should be specially and exclusively directed to the subject.

In consequence of this, Sir Robert Peel recommended that a commission, to consist of the following gentlemen, should be appointed to inquire into the most eligible situations for such harbours in the channel, viz.:—Admiral Sir Byam Martin, G.C.B., chairman; Lieut. Gen. Sir Howard Douglas, Bart., G.C.B.; Rear-Admiral Deans Dundas, C.B.; Captain Sir William Symonds, R.N.; Captain John Washington, R.N.; Lieut. Col. Colquhoun, R.A; Lieut. Col. Alderson, R.E.; Sir J. H. Pelly, Bart; Captain Fisher, R.N.; James Walker, Esq., President of the Institution of Civil Engineers.

These gentlemen were accordingly appointed, and their report has just made its appearance. It contains the following important conclusions to which the commissioners arrived after an inspection of the various channel harbours:—

"First,—That a harbour be constructed in Dover Bay, with an area of 520 acres up to low-water mark, or 380 acres without the two-fathom edge; with an entrance 700 feet wide on the south front, and another of 150 at the east end.

"Entertaining the strong opinion we have expressed of the necessity of providing, without delay, a sheltered anchorage in Dover Bay, we venture to urge upon your lordships' attention the advantage of immediately beginning the work by carrying out that portion which is to commence at Cheesman's Head.

"Whatever may be finally decided upon as to the form and extent of the works in Dover Bay, the pier from Cheesman's Head, run out into seven fathoms water, appears to be indispensable as a commencement, and it will afford both facility and shelter to the works to be subsequently carried on for their completion.

"This will give sheltered access to the present harbour during south-west gales, and protect it from the entrance of shingle from the west-ward; it will afford time also for observation on the movement of the shingle within the bay, and for further inquiry as to the tendency which harbours of large area, on this part of the coast, may have to silt up.

"These inquiries the commission consider to be of essential importance, and the results will afford the means of determining on the greater or less width that should be given to the entrances of the proposed harbour.

"Secondly,—We propose that a breakwater be constructed in Seaford Road, in a depth of about seven fathoms of water, one mile in extent, and sheltering an area of 300 acres.

"Thirdly,—That a breakwater be constructed in Portland Bay, to extend a mile and a quarter in a north-eastern direction, from near the northern-point of the island, in about seven fathoms of water, having an opening of 150 feet at a quarter of a mile from the shore, and sheltering an area of nearly 1,200 acres.

"If only one work is to be undertaken at a time, we give the preference to Dover, next to Portland, and thirdly to Seaford.

MODE OF CONSTRUCTION.

"We are directed by your lordships to report on the expense to be incurred by the completion of the works which we recommend; but as no approximate estimate of this can be made without determining the general principles and modes of construction, we have examined the engineers who have come before us and other authorities upon these important points.

"The various opinions have been considered by the commission, who prefer for the construction of breakwaters, and for the security of the works of defence upon them, the erection of walls of masonry.

"The commission do not offer any opinion as to the profile or degree of slope necessary to insure to the structure the requisite stability. They consider that this will be best decided by the government, under professional advice, when the works shall be finally determined on.

"The cost of either mode of construction having been stated to be nearly the same, whether it be masonry or long slope of rough stone similar to that of Plymouth Breakwater, the commission beg to lay before your lordships an approximate estimate of the works at the several places, viz:—

Dover	£2,500,000
Seaford	1,250,000
Portland	500,000
Harwich	50,000

BATHS AND WASH-HOUSES.

A numerous and important meeting of the clergy and gentry of the parish of St. Pancras took place last week at the vestry rooms, Gordon-square, for the purpose of carrying into effect the establishment of baths and wash-houses for the labouring classes in that populous and extensive district. Mr. J. Harris, of the Hampstead-road, occupied the chair, and amongst the gentlemen present were the Rev. W. Dodsworth, the Rev. Dr. Stebbing, the Rev. H. Hughes, the Rev. D. Lang, Mr. J. P. Gibbons, Mr. E. Wilson, Mr. W. Douglas, Mr. J. H. Smith, &c. A report was presented, from which it appeared that in consequence of a communication having been received from the Central Society for the Establishment of Baths and Wash-houses for the Labouring Classes, recommending the formation of a branch association in that parish, a committee had been appointed, who had come to a resolution, "That the establishment of baths and wash-houses was highly desirable for the comfort and cleanliness as well as for the health of the labouring classes, and they therefore cordially approve the formation of a branch society in the parish of St. Pancras, to carry out that object." The committee felt it their duty to make an earnest appeal to the inhabitants to furnish them with funds necessary for the erection of public baths and wash-houses on a suitable scale in one or more districts of the parish. The report having been adopted, it was resolved that deputations should wait on his Grace the Duke of Bedford, the Marquis of Camden, Lord Southampton, Lord Somers, and other great landed proprietors of the district, to solicit their aid and co-operation.

The following instance of liberality on the part of a public company as setting a noble example, will, we trust, not be without its effect. At the annual meeting of the proprietors of the Birmingham Fire Office held last week, it was resolved that 50*l.* be given in aid of the funds now being raised for the establishment of public baths in that town.

From Bath we hear that the committee of gentlemen who have taken up the laudable object of providing baths and wash-houses for the poor of that city, are prosecuting their inquiries on the subject, and that they have been in communication with Messrs. Green and Simms, the lessees of the baths, with reference to the availableness of the surplus hot water of their establishments (which, we are informed, amounts to 5,000 hogsheads per week). During the last four years about 4,000 gratuitous hot baths have been annually furnished to the poor by the lessees of the baths, upon the simple recommendation of any medical gentleman, stating that the individuals recommended were likely to be benefited by the waters, and unable to pay for their use.

Opening of the City Hall, Perth.—This edifice was opened last Wednesday week with a civic banquet, combining also the attraction of a grand concert and the eloquence of public speakers. The arrangements were on a liberal scale and well regulated, and although at least from 1,300 to 1,400 persons were accommodated within the walls of that one apartment, there was no crowding, no confusion. The *Perth Constitutional* says, "The decorations are in the first style of taste, and will have grander appearance when the skill of the painters shall have been brought to bear upon them. On this occasion all was white—the drapery of the platform and covering of the tables, which were of a light crimson, contrasting finely therewith. The sixteen tall pillars, serving for as many candelabra, surrounded with ornamental branches (eight on each of the principal four, and six on each of the rest), send forth a flood of light without producing any degree of shadow.

LIST OF NEW PATENTS RELATING TO ARCHITECTURE, ENGINEERING, &c., GRANTED FOR ENGLAND.

Furnished by Mr. A. Prince, of the Office for Patents of Inventions, Lincoln's-Inn Fields.

[six months for enrolment.]

William Hannis Taylor, of West Strand, gentleman, for certain improvements in propelling. January 2.

John Gollop, of Charles-street, Middlesex, engineer, for improvements in spring hinges in spring roller blinds, and in applying springs to easy chairs and carriages. January 11.

Henry Cartwright, of the Dean, near Brosely, Salop, farmer, for certain improvements in the construction of paddle-wheels. January 11.

Robert Griffiths, of Smethwick, Birmingham, engineer, for improvements in the manufacture of bolts, railway pins, spikes, and rivets. January 11.

George Spencer, of Hungerford-street, Strand, engineers' draughtsman, for improvements in propelling vessels on inland waters. January 11.

Stephen Perry, of Woodland-place, St. John's Wood, gentleman, for improvements in the application of springs to locks and other fastenings, to paper-holders, to candle lamps, to blinds, window-sashes and doors, and to seats and elastic surfaces for sitting and reclining on. January 11.

Henry Charles Lacy, of Kenyon-house, Manchester, esquire, and George Watson Buck, of Manchester, civil engineer, for a new manufacture for and method of sustaining the rails of railways. January 14.

John James Osborne, of Macclesfield, gentleman, for certain improvements in the manufacture of iron and steel, and in the furnaces to be employed for such or similar manufactures. (Being a communication). January 16.

Henry Adolphe Dubern, of Paris, merchant, for improvements in atmospheric railways. (Being a communication.) January 16.

James Palmer Budd, of Ystalyfera iron works, Swansea, merchant, for improvements in the manufacture of iron. January 16.

John Melville, of Upper Harley-street, esquire, for improvements in propelling vessels. January 21.

William Yates, of Manchester, upholsterer, and Denis Dolan, of the same place, scagliola manufacturer, for certain improvements in plastic manufacture or composition, part of which is applicable to decorative and useful purposes and part as a fireproof cement or plastic. January 21.

John Clay, of Edgeley, Chester, corn-dealer, for an improved apparatus for consuming smoke. January 23.

Peter Borrie, of Princes-square, St. George's-in-the-East, engineer, for improvements in the construction and fitting, or equipping of ships or vessels. January 23.

William George Henry Taunton, of Liverpool, civil engineer, for improvements in machinery for revolving windlasses, barrel spindles, shafts, and for pumping. January 25.

The Earl of Dundonald, for an improved rotary engine to be impelled by steam, which may be also rendered applicable to other purposes (being an extension for the term of 14 years of letters patent granted to him by the late Majesty King William the Fourth, for the said invention). January 28.

George James Norton, of Weymouth, cook and confectioner, for an improved cooking apparatus, parts of which are also applicable for the purposes of lighting and heating. January 28.

John Leslie, of Conduit-street, Hanover-square, tailor, for improvements in stoves and apparatus used in consuming fuel, and in ventilating. January 28.

Mathew Allen, of Worship-street, Shoreditch, builder, for certain improvements in stoves and apparatus for heating. January 30.

Henry Page, of Cambridge, painter, for certain improvements in the mode of painting, decorating with oil and other colours. January 30.

Thomas Middleton, of Loman-street, Southwark, engineer, for improvements in machinery for the manufacture of artificial stone, bricks, tiles, and other similar articles. January 31.

IMPORTANT TO ARCHITECTS AND CONTRACTORS.

Last week an action was brought by Mr. Mansfield, the landlord of Oliver's Coffee-house, at the foot of Westminster-bridge, to recover compensation from the defendants, Messrs. Grissell and Peto, the contractors for building the new Houses of Parliament, and Mr. Charles Barry, the architect, for damage done to the coffee-house in sinking the foundations for a portion of the new structure. It seemed that in the progress of the works, which were carried on in 1842, it became necessary to obtain a solid foundation for the clock tower, which now raises its ornamented turrets within a few yards of Oliver's Coffee-house. Excavations were accordingly made, but from some cause or other the foundations of the plaintiff's house, which is built on a quicksand, as are all the buildings in the city of Westminster which are near the river, were so much weakened, that the superstructure cracked and yawned in several places, and Mr. Mansfield and his family entertained great apprehensions that the building would tumble about their ears. Representations were accordingly made to Mr. Barry about the state of the house; and some palliation, in the shape of shoring and cement, were applied; but the excavations for the foundation of the clock tower were still continued, and in the middle of June, 1842, the foundations of the coffee-house sank so much, that the whole of Mr. Mansfield's family, about 9 or 10 o'clock, fled, many of them in their night-dresses, out of the house for their lives. The precautions taken, however, preserved the house from coming down, but the proprietor was seriously injured in his business during the progress of the works, and the house has been so much shaken, that it is doubtful whether it can ever be put in a state of thorough repair without pulling it down and rebuilding it. The question for the decision of the jury was, whether the defendants had been guilty of negligence; and the testimony adduced was of a very contradictory character. On the part of the defendants, the witnesses stated that every possible precaution had been taken in order to prevent the catastrophe which had occurred; while the evidence given on the part of the plaintiff certainly went to shew that all was not done which might have been done.

Mr. Justice Coltman summed up; and the jury returned a verdict for the plaintiff,—damages 100*l.*

New Books.

The Pictorial Gallery of Arts. Charles Knight, London: 1845.

In this work, published every month, it is proposed by the aid of *three or four thousand engravings* to open to view the entire kingdom of mechanical skill in all its more important operations: to shew man in every region of the earth labouring to surround himself with those necessaries, comforts, and conveniences, which constitute the elements of civilization, and then, going forward into the higher range of arts, surrounding his life with the attributes of taste, and ultimately reaching the highest development of the principle of beauty. This, which any other publisher would be a very expensive work, Mr. Knight is able to effect at very small cost, by employing engravings already used in other works, and which when brought together, assist each other to elucidate particular subjects and so acquire fresh value. The first volume will be devoted to what are generally called the useful arts, the second will illustrate architecture, sculpture, and painting. The first part, now before us, treats of the arts contributory to food. As calculated to lead the young we cannot recommend it too strongly.

The Builders' Price Book for 1845. By W. Laxton, Surveyor, 10, Fludyer-street, Westminster.

This is the 19th edition of Mr. Laxton's useful volume, and contains upwards of eight thousand prices, and three thousand valuable memoranda. It needs no recommendation, or we would gladly give it.

Correspondence.

COMPETITION FOR LAYING OUT GROUND, KING'S-ROAD, READING.

Sir,—After all that has been written upon architectural competition, you will perhaps be unwilling to devote much more of the space in your valuable journal to the subject, but I think Mr. Blendy's letter in the last number of The Builder should not be allowed to pass without comment, as the plan he adopted for obtaining a decision on the designs in the late competition at Reading, appears, as far as I can learn, to have produced any thing but satisfaction. This may not arise so much from any defect in the plan itself, as from the manner of carrying it out. He states that in consequence of a letter in The Builder, he determined to make the *competitors themselves* the judges of the designs, and that he is well satisfied with the result of the experiment, there being so many almost equally balanced in point of merit, and with a view of proving this, has sent you a list of the designs which obtained votes and the number recorded for each, which certainly shews the diversity of opinion; but then, I would ask, *was there any standard laid down for the judges to go upon?* For amongst upwards of forty competitors great variety of design was to be expected, and consequently great difference of opinion with regard to the merits of each. Judging from a letter in your journal a short time since from a "Regular Subscriber," who, I presume, has seen the designs, two great mistakes appear to have been made by the promoter of this competition. In the first place, a set of *rules* is printed for the guidance of the competitors in preparing their designs, which it is stated in the preamble "*the proprietor will require to be adhered to by those who intend to compete.*"

The first condition is, "That the designs shall be delineated upon plans of the same scale as the one now furnished (being one chain and a half to the inch), and be drawn in simple outline with Indian ink, the roads coloured yellow and the sewerage blue."

The second is, "That if it should be considered by you desirable that uniformity should be observed in the erection of a class or classes of houses, that a ground-plan and elevation of such houses should accompany your design, and the estimated cost of erection stated."

And with reference to the award of the premiums it is stated that "each competitor will be required to attend in Reading on a certain day to be notified to him, then and there to give me his opinion in writing, which design he considers possesses most merit, and which is the next deserving (of course he must omit his own design)."

Now, to the first of these rules, very few of the competitors have thought proper to attend, beyond drawing their designs to the specified scale, for the plans are in many cases got up very elaborately and tickled up so as to attract the eye, the buildings being deeply back-lined in dark lake colour, and the grounds all laid out in walks and beds of different colours; and such is, I am assured, the case with those plans to which the premiums have been awarded.

To the second rule, several competitors have paid no attention, and have merely sent in block-plans, without elevations or ground-plans of the houses as required.

And thirdly, if Mr. Blendy is correct as to the number of competitors, they cannot all have attended to give their votes, for by looking over the list of those who have voted (the publication of which, by the way, the competitors will, I should imagine, look upon as a breach of confidence) the names of only twenty-six will be found, thus leaving upwards of fourteen who have not chosen to go to the expense of a visit to Reading for the purpose of giving their votes, but who, nevertheless, have been allowed the chance of obtaining votes for their own designs from those who did attend, by not having them withdrawn from the competition, which seems to me to have been the proper course to pursue; for surely some distinction ought to have been made between those who complied with all the rules and conditions, and those who did not.

In conclusion, I would I ask, where is the use of having rules and conditions printed for a competition, if it is made optional with the competitors whether they abide by them or not, as has been done in the present instance? Where instructions are given, the first thing for the judges to ascertain should be, in which designs they have been most closely followed, and thus the author of such designs would be placed in a proper and fair position; but in the late competition every one has been left entirely to his own caprice and fancy in his award of the premiums. Would it not have given much more satisfaction if a set of questions had been prepared, and a copy given to each competitor, in which, in addition to stating which two plans he considered most deserving, he should have also been required to state *whether such plans were in accordance with the printed instructions*, and if not, with which had they not complied, and also in which two designs he considered the authors had most fully complied with the said rules? and then the premiums should have been awarded to those designs which had a majority of these opinions in their favour.

If I am misinformed as to any of the details I have alluded to, I trust that some of the competitors, who I dare say are readers of your useful journal, will be good enough to set me right, as my only object, in thus addressing you, is to state what I consider ought to have been the course adopted in order to give so novel a mode of deciding on the comparative merits of a set of designs, a fair and impartial trial, and which I consider, unless great caution is used in its application, is open to great abuse.

Apologizing for thus intruding so much on your valuable space,—I remain, Sir, yours, &c.

Feb. 5th, 1845. Fairplay.

FRESCOES AT BUCKINGHAM PALACE.

Sir,—Observing in your number for 1st February a notice that the frescoes in the Casino of the gardens at Buckingham Palace had failed, I venture to say you will, upon inquiry, find this general condemnation incorrect. It is to be regretted that uncertain rumours obtained circulation respecting this first but distinguished effort to introduce to England a specimen of the higher examples of Italian decorative art, they being calculated to check any extending desire among gentlemen of taste and fortune to engage British talent upon similar works.

The principal apartment, forming an octagon, terminates in a cupola, the walls judiciously panelled with brilliant arabesques, relieved by delicate stuccoes and gilding, rendered subservient to eight frescoes, illustrative of Milton's Comus. The fine compartment by Mr. Eastlake is alone sufficient to prove the entire success awaiting our native artists in works of fresco. A second apartment is successfully painted in *encaustic*, powerful in colour, and firmly executed; while her Majesty's closet presents a magnificent adaptation of Italian art.

These beautiful decorations will not be finished for some time, and therefore any detailed notice would at present be injudicious. To the royal personages, at whose suggestions and private expense these works are creating, the British artist will have cause to be very grateful. An example of the highest class of decorative embellishment executed by Englishmen, and under such distinguished encouragement, will at the present time be of eminent service, and confer the highest honour upon its noble promoters.—I am, Sir, your obedient servant,

James Crabb.

67, New Bond-street, Feb. 6, 1845.

UNDERPINNING OLD WALLS.

Sir,—I should feel obliged if I could be informed, through the medium of your useful journal, whether I should incur any danger of a settlement by undersetting one side of a large house, for the purpose of adding a building with a cellar underneath.

It is proposed to build the cellar 4 feet below the foundation of the old building. The foundation is beach. How can a settlement be prevented if the undersetting be done with bricks and mortar, the latter being a long time before it gets dry?

It seems to me that undersetting much superincumbent weight can only safely be executed by using cement instead of mortar, but that would be expensive.—I remain, Sir, yours obediently, A Subscriber.

[Cement must be used; the first expense is the least.—Ed.]

ON ARCHITECTURAL COMPETITION.

"If the history of competitions were written, its details would shew an extent of rascality astounding."—THE BUILDER, vol. iii. p. 52.

SIR,—As almost all complaints on the subject of competitions which reach the public seem to derive their publicity from your pages, and as there appeared in the issue of last week a promise to publish particulars of future malpractices as they may come to your knowledge, I send a few extracts from a correspondence in which I have been lately engaged, from which you will be able to judge of the to me, apparent injustice pursued on a very recent occasion. I do not give you the names of the parties, as the correspondence was certainly on one side never intended for publication; but you will be satisfied with the recognition of the hand which pens this letter.

The secretary of a committee for obtaining competition designs for a new church, which was to be built for 4,000*l.*, with aid from the building societies, returned to me a set of drawings with the following note:—

"Sir,—I have this day returned your plans by rail, car. paid, and hope they will reach you in safety. They were much liked, but not chosen.—I am, &c."

In answer to a request to know who was successful, the reply was dated November 4, 1844, and commenced—"Sir,—I did not know that it was customary to give the information you require," adding the name of the parties.

I own myself vexed at what appeared to me rudeness as well as ignorance; and, in consequence of rumours as to an injudicious decision, I wrote twice, giving those reports at full length. To my first a decidedly evasive answer came; and to the second the chief part of the reply was this:—

"December 2, 1844.

"You write that you would be obliged *for an explicit answer* to your last letter, which you would lead one to infer was this:—'In short, I beg you to do me the justice to say (for whether the committee has decided properly is not a matter to be decided upon even by your powerful assurance of the wish of the members to do right) if the premium is or will be paid to Mr. —— or Mr. ——, as I understand one of those names is attached to the successful design; and if that design without alteration holds 1,000 people conveniently on the ground-floor without seats in the chancel, which the building societies will not allow; and whether that design, without alteration, can be executed for 4,000*l.* in the judgment of practical men (I do not mean the authors of it, and none but practical men can judge). These questions will be easily answered by yes or no.' Where in your letter of the 11th of November are these or any such questions asked? You must allow me to say there is something here I cannot understand, and my safest plan is to inform you that the committee having advertised for plans under certain conditions, *will*, I have no doubt, adhere to them.—Yours obediently, &c.

"P. S. I hope this correspondence may now cease."

That is, Sir, that one month after the return of my design, and also after stating the name of the successful competitor, I am told, after pressing for a denial of the reports descriptive of the successful design, the committee WILL *probably* decide according to the condition.

I believe that there is no means of investigating the case, or I should feel inclined to learn with certainty what has been done.—I am, Sir, your obedient servant, J. W. P.

[Our correspondent refers to the competition plans for St. Thomas's New Church, Winchester, concerning which, letters are printed at p. 557 and p. 564, vol. ii. We are informed that it is not clear even at this time which of the *two* gentlemen is the successful candidate.—ED.]

SPAFIELDS' BURIAL-GROUND.

SIR,—Seeing in your paper of last week an article under the head of "Burial-ground Nuisance," containing an account of infamous practices taking place in this ground, the whole of which is grossly false, and as proceedings are about to be commenced against the author, I hope you will, in justice, find a corner in your next BUILDER for this communication.

I am, Sir, your obedient servant,
Feb. 12, 1845. A. BIRD, Manager.

MR. COCKERELL'S LECTURES.

SIR,—I am quite astonished to learn that Professor Cockerell should have recommended, *ex cathedra*, the not particularly artist-like practice of literal and wholesale copying, *alias* piracy, from books of design. If such doctrine is to prevail, adieu to architectural design altogether; we have only to follow the patterns which are ready prepared for us, and that, as is proved by the professor himself, a builder is capable of doing just as well as an architect. I am tempted to fancy that the professor spoke somewhat ironically of the "exceedingly fine portico" produced by the builder, and intended his remarks to be interpreted *cum grano salis*.

I remain, Sir, yours, &c.,
AN ARCHITECT.

WHEN TWO BUILDERS, WHICH IS TO GIVE NOTICE?

SIR,—I have some alterations to make to a house, which my client wishes to be done by two different persons, one to carry out the bricklayer's, and the other the carpenter and joiner's works. Now the new Building Act expresses that the *builder* is to give two days' notice to the surveyor before alterations are commenced; but as there are to be two separate tradesmen employed, upon whom does the duty devolve? By answering this question, you will greatly oblige your constant reader and admirer, WILLIAM FREEMAN.

Paddington, Feb. 10, 1845.

[The Act provides that notice shall be given by "the master-builder, or other person employed to execute any work; or if there be no master-builder, or other person so employed, then the owner of the building, or other person for whom, or by whose order such work is to be done." If there be two master-builders, he who begins first should give notice, for which and other reasons we point to the bricklayer.—ED.]

Miscellanea.

INCREASE IN LIFE ASSURANCE.—The reports read at the meetings of the several assurance associations held within the last few weeks make known the fact that during the past year there has been a great extension in the number of persons who have secured for their families the provision which the system of life assurance is designed to afford. It has been an anomaly in the action of society, that a people so sensibly impressed as Englishmen peculiarly are by a desire to provide for their families, and yet, at the same time, strongly influenced by the pride of present circumstances, should have hitherto been so indifferent to the means furnished by the principle of life assurance, for overcoming the apparent insuperable difficulty of securing a large future benefit without any material present sacrifice. We are glad to find this indifference no longer exists; and that, under the exposition of the benefits of life assurance, promulgated by various offices, and the collateral aid of the press, the subject is becoming well understood and extensively acted upon. At a recent general meeting of members of the Scottish Provident Institution, held at the Star Hotel, it was remarked, however, that of eight or nine offices which had arisen within the last few months, only one appeared to be constituted with exclusive reference to the interests of the assurers, namely the British Mutual Life Assurance Society of London, which was founded on the principle of mutual contribution, or of dividing the whole profits among the assured. The rates of premium were much lower than those charged by other mutual offices, and have been adopted for the use of the society from the Scottish Provident Institution, which has met with unexampled success.—*Post Magazine*

THE IRON TRADE.—The make of iron in the United Kingdom at the present time is near 1,400,000 tons annually. Scotland furnishes almost one-third part of the supply—being 450,000 tons annually, or at the rate of 9,000 tons per week. But in the course of two months there will be nine new furnaces put in operation in this neighbourhood alone, and their combined yield may be calculated at 1,350 tons weekly, or 70,000 tons per annum.—*Glasgow Constitutional.*

WESTMINSTER IMPROVEMENTS.—Yesterday week a large meeting of the inhabitants of Westminster was held at the Mechanics' Institution, Great Smith-street, for the purpose of considering the best plan for the improvement of the district. Amongst the gentlemen on the platform were Mr. B. Hawes, M.P.; the Hon. Captain Rous, M.P.; Mr. C. Hindley, M.P.; Colonel Short, Mr. Humfrey, Mr. R. Wason, Mr. C. Wood, &c. The Hon. Captain Rous, M.P., was unanimously voted to the chair, and he having briefly introduced the object of the meeting, Mr. Wilson opposed the plan of Mr. Wason, because it would not remove many of the existing inconveniences, and he urged the necessity for the formation of some street to run from Westminster Abbey over the ground now occupied by Tothill-street, destroying the old and dilapidated courts and alleys in its way, and leading direct to Pimlico. In conclusion, he read extracts from Parliamentary reports, to shew the dreadful condition of the neighbourhood, as regarded drainage, ventilation, cleanliness, and health; and moved a resolution to the effect, that no part of the metropolis more urgently required improvement than the space between the Houses of Parliament and Buckingham Palace. Mr. Bignell moved, as an amendment, "that a committee be appointed to examine the various plans, and to draw the attention of the Metropolitan Improvement Commissioners and the legislature to that which they considered the best." Mr. Hawes, M.P., said that before the committee could come to a determination the plan of Mr. Wason would be in execution. It would be advisable to pass a resolution to endeavour to suspend proceedings in Parliament until the best plan should be determined upon by the inhabitants of Westminster. The resolution proposed by Mr. Wilson was then carried, and also others, to the following effect:—"that a committee be appointed to consider the improvements suggested; and that they be directed to impress upon the Government the propriety of withholding any plan which is not approved of by the inhabitants generally." Mr. Hindley, M.P., moved "that in any line of streets formed attention be paid to the improvement of the dwellings of the poorer classes." This resolution having been carried, and the committee appointed, the meeting separated.

THE TOWER.—A few days since a deputation from the British Archæological Association paid a visit of inspection to the Tower, where they were received by Major Ebrington, the deputy governor, Major Hall, Captain Vernon, and Mr. Stacy, who conducted the members over all parts of the building, without any reserve. The alterations now in progress have laid open several new sources of antiquarian interest, not the least of which are the architectural peculiarities of the celebrated Traitors' Gate, most of which have been previously unnoticed. The causes which led to the visit were the disposition shewn by the authorities to preserve all relics and monuments of interest which are not inconsistent with the necessary improvement, as was evinced by their reclaiming from the City the portion of the Old London wall, on Tower-hill, from the destruction to which it had been consigned by the corporation. The results of the inspection, when complete, will be made the subject of an official report to the authorities. Upwards of 300 coffins have been removed to the catecombs at the back of the church of St. Peter ad Vincula, which were previously interred in the burial-ground, and displaced in the excavations made for the foundations of the new barracks which are to be erected on the side of the old Small Armoury.—*Times.*

IMPROVED METHOD OF MAKING BRICKS: N. J. Wyeth, Cambridge, Massachusetts.—The object of this composition is, to produce bricks which will admit of driving nails into them, to avoid the necessity of introducing in walls what are known amongst mechanics as "wooden bricks." This composition consists of clay, mixed with either sawdust, charcoal, peat, or tan-bark, after it has been used by the tanner. The proportions may be varied, but the patentee recommends three parts of clay to five parts of either of the combustibles above mentioned.—*Claim:* "I do not claim mixing combustible materials with clay for making bricks, but I claim mixing them in such proportions as will produce bricks possessing the above-named properties."

THE THAMES TUNNEL SURPASSED.—A submarine tunnel has lately been discovered at Marseilles. It passes from the ancient Abbey of Victoria under an arm of the sea to Fort St. Nicholas. The *Débats* says that the structure is considered by M. Matayras, an architect, to be Roman, and much finer than the Thames Tunnel, being one-fourth longer, and formed of a single vault of 60 feet span.

HEALTH OF TOWNS.—Mr. Mackinnon has given notice that on the 18th inst. he will call the attention of the House to the necessity of improving the health of towns by preventing burial of the dead within their precincts; and that on the 20th inst. he shall move for leave to bring in a bill prohibiting the nuisance of smoke from the furnaces of factories.

DWELLINGS OF THE POOR.—The landlord will do nothing but exact an exorbitant rent for houses unfit to be inhabited; the poor man is either too ignorant, too indifferent, or too powerless to help himself; the Commissioners of Sewers abandon him; the Woods and Forests hunt him like a wild beast from the end of London to another. To whom shall he resort in his distress? Will the Government help him? To be sure they will. They have shewn the best disposition in the world. They have collected a vast deal of valuable information, they know all about Sunderson's-gardens and Lamb's-fields; they are most desirous of doing all they can for his comfort. Our streets for the future are to be wider, our houses are to be much better built, we are to inhabit cellars no longer, and it is now fairly to be expected that, as party-walls have been long insisted on as means of preventing the destruction of property, a supply of water and proper sewers will be given us to preserve our lives from fever. But when are the good intentions of the legislature to take effect? It is for existing things that legislation is urgently required. We do well to provide for the future, but the present ought not to be put out of sight. Dr. Southwood Smith points out two regulations as being of paramount importance, and of universal application to the dwelling-houses of the humbler classes—the prohibition, under adequate penalties, of the letting of any house as a dwelling-house in which water is not laid on, and to which there is no privy sufficiently screened from view. Is the enforcement of these regulations he says no practical difficulty; nor do we. Will the legislature have the moral courage to compel the landlords to the performance of their duty? We shall see. They must first reject a little discussion as to the meaning of the phrase "rights of property." Have they the courage to put a reasonable interpretation upon it? We shall see.—*Medical Times.*

SAWING BY MACHINERY.—In reply to a request from the sawyers of Oldham, that Lord John Russell would aid in obtaining a law on mechanical inventions, his lordship has very properly refused to do so. "If I were to apply," says his lordship, "I could not stop men in your trade. Nail-makers are in a similar situation, owing to the new machinery for the manufacture of nails; other artisans and agricultural labourers will pray for the like interference, to prevent the use of new machines which interfere with manual labour. Now, my belief is, that those inventions tend to the improvement of our condition as a people, and enable us to support the great weight of taxation to which we are subjected. Ever since I have known this country, machinery has been in progress towards perfection, performing more and more the task of human hands, and, at the same time, a great number of people have found profitable employment. Now, and I deplore, that while this progress is going on, many a workman loses the wages which skill and experience have enabled him to gain. But instead of the perilous course of laying duties on machinery, which would soon enable foreign nations to outstrip us in the race of competition, I am of opinion that we ought to give greater freedom to trade, and, if possible, so extend the demand for labour, as to employ our population, greatly increased as it is, to obtain a good price for their day's work. I do not mean to pronounce any opinion on the present tariff, so far as regards timber. If the manufacturers of this country are subject to unfair competition, they have a cause for redress so far as colonial timber is concerned."

LECTURES AT THE ROYAL ACADEMY.—Sir Richard Westmacott will commence his course on sculpture on *Monday* the 17th inst., and continue it on the 24th March, 3rd, 10th, 17th, and 24th. Mr. Howard, on painting, will begin on *Thursday* the 20th inst., and continue on the 27th, the 6th of March, the 13th, 20th, and 27th. Mr. Cockerell concluded his course on Thursday last. We shall give a full report of the lecture in our next.

SCULPTURE.—The Marquis of Landsdowne has commissioned Mr. Watson, the sculptor of the Eldon and Stowell statues, to execute two bas-reliefs of a poetic nature, for Mr. Barry's new gate to the noble marquis's seat at Bowwood.

PRESERVATION OF TIMBER.—Mr. Toplis recommends the introduction into the pores of timber of a solution of sulphate or of muriate of iron; the solution may be in the proportion of about two pounds of the salt to four or five gallons of water.

PROPOSED NEW PIER AT ERITH.—A meeting was held last Monday, at the Bell Inn, Erith, for the purpose of erecting a new pier, in consequence of the monopoly of the Diamond Company, who have the sole privilege of calling at the present pier. Mr. Noakes presided. Resolutions were passed in accordance with the object of the meeting.

STONE DRESSING MACHINERY.—A patent has been granted for this purpose to Mr. H. Ward, of Charles Town, Massachusetts, who thus describes it. The block of stone to be pecked and dressed is placed upon a carriage, which passes it, by a slow motion, under a series of pecking and dressing chisels. These chisels slide in a frame inclined to the plane of the carriage, that they may act on the stone obliquely, instead of vertically, and, for the purpose of changing this inclination, one end of this frame is jointed to the main frame of the machine, and the other may be elevated and pressed at pleasure. The chisels are held up by springs, and forced against the face of the stone by hammers actuated by tappets on two shafts, one at each end of the frame. The first and second rows of these chisels are pointed, for the purpose of pecking, and the others are flat, for dressing the surface. For squaring, or forming, the edges of the stone, there is a chisel on each side, with the lower edge at right angles with the side, and operated in the same manner as the peckers and dressers; these break off the stone, and form the edge, so that when the block is turned over to have the other faces dressed, the sharp corners shall not be broken off.

THE MONSTER BELL FOR YORK MINSTER.—The bell, intended to be put up in the south tower of York Minster, has recently been manufactured at the foundry of the Messrs. Mears, Whitechapel, and is larger than any other in the United Kingdom. Its weight exceeds twelve tons; it is 7 feet 7 inches in height, and its diameter is 8 feet 4 inches, being heavier by seven tons than the celebrated "Tom" of Lincoln, and by five tons than "Old Tom" of Oxford. The metal took twelve days to cool, from the 18th of January when it was poured into the mould to the 30th ult. The clapper is not yet put in, but this will weigh between three and four cwt. The tone of it is described as being exceedingly grand, and to be compared to the full swelling diapason of an organ. The arms of the city of York, and those of the archbishop (the cross keys), are on the bell in opposite positions to each other. The following inscription, in Lombardian characters, is round the upper rim:—"In sanctæ et æternæ Trinitatis honorem pecunia sponte collata Eboracenses faciendum curaverunt in usum ecclesiæ metrop. B. Petri ebor." And on the lower rim are the words, "Anno salutis MDCCCXLV Victoriæ reg. VIII. Edwardi Archiepi XXXVIII. C et G Mears, Londini, fecerunt." The cost of it is about 2,000*l.*, this having been raised by voluntary subscriptions, as alluded to in the above inscription. It is intended by the executive committee, previous to its removal to the cathedral at York, where it will be conveyed by railway, that the public should have an opportunity of seeing the bell (which is to be named "Peter of York") and which it will require the united efforts of twenty horses to draw.

Tenders.

FOR making a Sewer in the town of Cambridge. To be cylindrical and 2 feet diameter in the clear. The length about 385 yards, and the average depth about 9 feet.

The Commissioners of Paving and Lighting, met on the 21st ult., to examine the several tenders which had been sent in.

Mr. Cockerton complained of the course of a proposed drain, whose course was laid out through grounds belonging to St. Peter's college, and leased to Mr. Humfrey, in Prospect-row, without the consent of the college having been had. He was not at present in a position to give the consent of the college to the proposed course.—This objection was made before the confirming of the minutes of the former meeting, and some difficulty was raised to the reception of tenders for the drain which had been advertised for.

The tenders were received conditionally, that the work be not begun until an arrangement was made with the college, and a motion was passed to the effect that formal application be made to the college and the lessee. The following tenders were given:—

Thomas Brook, Hackney, Middlesex [laid aside in consequence of the blanks not being filled up].

Joseph Coulson, East-road, sewer 8*s.* 6*d.* per yard—cesspools 2*l.* 8*s.* each—lateral drains 3*s.* 6*d.* per yard.

James Stevens, Quay-side, sewer 8*s.* 5*d.*—cesspools 2*l.* 7*s.*—lateral drains 3*s.* 6*d.*

John Bennett, James-street, sewer 7*s.* 11*d.*—cesspools 2*l.* 10*s.*—lateral drains 3*s.* 3*d.*

Pell Hall, Castle-end, sewer 8*s.* 5*d.*—cesspools 2*l.* 8*s.* 6*d.*—lateral drains 3*s.*

Then cesspools are likely to be required. Mr. W. Swann proposed, and Mr. H. S. Foster seconded, that Bennett's tender be accepted. Mr. S. Adcock proposed that Coulson's tender be accepted, on the ground that you should have a man who will do his work well; some complaint had been made of the way in which Bennett had done his work, and there was an objection to Bennett also, because Mr. Asby, a commissioner, was a surety for him. Mr. Cream seconded the motion. After a noisy discussion on the merits of these parties, Stevens' tender was proposed by Mr. Cropley, but not seconded. A show of hands was taken, when there appeared 9 for Coulson and 8 for Bennett. The names were called for, when the following voting took place;—

For Coulson.—Messrs. Adcock, Favell, Warwicker, Swinton, Headly, Haslem, Cropley, Cream, Papworth, and Woodley,—10.

For Bennett.—Messrs. Balls, C. F. Foster, H. S. Foster, Hatt, Swann, Matthew, Marshall, and Asby,—8.

Mr. Ekin declined to vote. Coulson's tender was accepted conditionally.

TENDERS for the Alterations and Fittings of School-room under Vauxhall Chapel for a Wesleyan Day-school for Boys. — W. W. Jenkins, Esq., architect, Bartlett's Buildings.

Cooper and Davis	£134
Haynes and Co.	128
Thompson (Camberwell)	115

Tenders opened in the presence of the Builders.

NOTICES OF CONTRACTS.

For a supply of Railway Fastenings for the Great Southern and Western Railway, Ireland.—Mr. William Taylor, Secretary, 3, College-green, Dublin. February 17.

For the Repairs of Lindfield Church, near Cuckfield, Sussex.—Messrs. T. H. Taylor and Son, Architects, 22, Parliament-street, Westminster. February 17.

For building a Barge, 69 feet long and 13 feet wide, capable of navigating the river Lee.—James Wright, Deputy Storekeeper, Ordnance Office, Waltham Abbey. February 18.

For erecting and completing the Tide Sluices, Bridge, and other Works, at the top of the Eau-Brink Cut, above Lynn. — Messrs. Walker and Burges, 23, Great George-street, Westminster; or Mr. George Game Day, Clerk to the Middle Level Drainage Commissioners, St. Ives. February 20.

For the execution of the whole Works on the Slamannan Junction of the Edinburgh and Glasgow Railway, being about a mile long.—H. G. Wright, Secretary, Railway Office, Queen-street, Glasgow. February 24.

For such Mason's and Pavior's works (stone paving only) as may be required by the Commissioners of Sewers of the City of London, for the term of three years, from the 25th of March next. Joseph Daw, Esq., Guildhall, London.—February 25.

For the supply of Granite or other hard stone for the service of the Stone's End district of the

Surrey and Sussex Roads.—Road Office, Charing Cross, and W. S. Gaitskell, Esq., 21, Stamford-street, Blackfriars' Road.

For the supply of from 4,000 to 5,000 yards of Iron Railing for inside drives of Birkenhead-park. —Mr. Hornblower, architect, Hamilton-buildings, or Mr. Walker, Town-hall, Birkenhead. —February 26.

For supplying the Great Western Railway Company with such quantity of the following articles as may be required from the 1st of April, 1845, to the 31st of March, 1846; viz. Bar and Pig Iron —Castings—Bolts and Rivets—Copper (sheet and ingots)—Ironmongery, screws and nails—Brass and Iron clasp, closet tacks and wirework—Lead and Zinc—Steel for springs—Timber—Tubes, brass, copper, iron and zinc—Patent Wheel-tire, and various other articles.— Chas. A. Saunders, Esq., Secretary, Paddington. February 27.

For taking down and rebuilding the Tower of Grendon Church.—Mr. John Baker, Churchwarden, Grendon, near Atherstone. March 1.

For building twelve Boats and Engines for the City Steam-boat Company. — Charles Hancock, 17, Earl-street, Blackfriars.

For Surveying and Valuing the Property in Austin-ward, Humber-ward, Trinity-ward, St. Mary's-ward, Whitefriars-ward, and North-ward, all in the parishes of Holy Trinity and St. Mary, Kingston-upon-Hull.—John Moxon, Clerk to the Governor and Guardians of the Poor, Workhouse, Hull. March 1.

For the Mason's and Pavior's Works, supply of Guernsey Granite Chippings and Yorkshire Paving, for one Year, from the 25th of March next, for the parish of St. George, Hanover-square. Mr. R. Lees, Clerk to the Paving Committee. March 4.

For the supply of 20,000 tons of Iron Rails, and 7,000 tons of Iron Chains, for the Newcastle and Berwick Railway.—George Hudson, Esq., Railway Office, York, and at 24, Great George-street, Westminster. March 4.

For the supply of 100,000 Railway Sleepers for the Newcastle and Berwick Railway.—George Hudson, Esq., Railway Office, York. March 4.

For repairing the footway pavements, and providing and laying new curb and other stone; for repairing the carriage-way, pavements, and providing and laying new granite and other stone, during one year from Lady-day next, for the united parishes of St. Andrew, Holborn, and St. George-the-Martyr, Middlesex.—Clerk's office, 13, King's-road, Bedford-row. March 8.

For the supply of 11,000 feet of nine-inch cast-iron Pipes for a new line of Aqueduct to be laid in the Island of Malta.—Vin. Casolani, Collector of Land Revenue, Office of Land Revenue and Public Works, Valletta, Malta. March 31.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

February 17, at Bristol; Feb. 18, at Dorsley; Feb. 19, at Cirencester; Feb. 20, at Leominster,—a number of Maiden and Pollard Oaks, and Maiden Elms.—Messrs. Clark, Medcalf, and Gray, solicitors, 20, Lincoln's-inn Fields; and Messrs. J. P. Sturge and Co., surveyors, Bristol.

February 17 and 18.—At Livermere Park, Suffolk; 1,500 very superior Elm. Ash, Alder, Beech, Larch, Scotch Spruce, and Chesnut Trees and Stands.—Mr. Norfolk, auctioneer, Chequer-square, Bury St. Edmunds.

February 20.—At Madingley; a quantity of Ash and Elm Trees, some of which are very large, and of excellent quality.—Messrs. E. Smith and Son, auctioneers, Cambridge.

February 20.—At the Hall of Commerce, Threadneedle-street, 540 Logs of St. Domingo Mahogany, of superior quality and large dimensions. —Thomas Edwards, broker, 1, Pinners-hall, Great Winchester-street.

February 20.—At the back of St. George's-terrace, Dalston Rise; 300,000 sound new Stock and Place Bricks, and a large quantity of Burrs and Bats.—Messrs. Humphreys and Wallen auctioneers, 68, Old Broad-street.

February 21.—At Garraway's Coffee-house, Cornhill: 300 loads Quebec Red Pine; 100 loads Yellow Pine; 100 loads of Ash; 80 loads of Oak; 10,000 Yellow Pine deals and battens; 10,000 Spruce deals and battens.—T. and J. Simson, brokers, 5, Change-alley.

February 21.—At No. 38, Mincing-lane, 300 tons of fine fresh Lima Wood.—Charles Roberts, broker, 38, Mincing-lane.

February 21.—Equi-distant between Lynn and Downham Market; 3,000 Larch, Scotch Spruce, Oak, Elm, and Birch Poles. They are principally Larch, of good dimensions and quality, from twenty-five to thirty years' growth. — Messrs. Mumford and Casebow, auctioneers, Lynn, or Downham Market.

February 25.—At the King's Arms Inn, Hemel Hempstead; a large Fall of capital Oak, Ash, Elm, and Beech Timber Trees, the greater portion of which are of very large dimensions and superior quality.—Mr. James Adams, auctioneer, Clarence-street, Staines, Middlesex.

COMPETITION.

The Committee of the Liverpool Docks are desirous of receiving Plans for the most convenient mode of landing or embarking passengers, carriages, &c., &c., at George's Pier-head. A Premium of 200*l.* will be given for the Plan selected and acted upon, and a Premium of 100*l.* will be given for that Plan which may be deemed to be the next in utility.—Daniel Mason, Esq., secretary, Dock Offices, Revenue-buildings, Liverpool. March 19.

TO CORRESPONDENTS.

"S. A. H." (a carpenter).—*Section XLI. in the old Building Act, provides that the person at whose expense a party wall shall be built, agreeably to the directions of that Act, shall recover from the adjoining owner when the wall is used, after the rate of 7l. 15s. per rod; but even in cases where the wall was pulled down without any desire on the part of the adjoining owner, a greater price was generally allowed, as it was known that brickwork costs more than that sum. At all events, an addition equal to the duty on bricks imposed since the passing of the Act, could, perhaps, be insisted on legally. In the case mentioned, we do not think he could avail himself of the Act, but this can be determined only by one who hears all the particulars. The ground landlord should be appealed to. If the wall stood wholly on our correspondent's ground, as might be inferred from part of the letter, he would have no right to touch it, and might be punished.*

"H. Rose."—*The article "Stonehenge," in the Penny Cyclopædia, written by Mr. Britton, will refer you to all that has been said on the subject.*

"Mr. Pepys," (Ghent).—*We shall be glad to receive any information he may be able to send.*

"M. Daly."—*Where can we see the "Revue" in London.*

"Association of Architectural Draughtsmen," *next week.*

"Mr. W. Herbert" *complains of a paragraph in our last number, headed "New Street to Long Acre." He may rest assured we shall not interfere with the private rights of any. The paragraph in question was simply an acknowledgment of letters received by us from others, and on which we gave no opinion. The fact, that Mr. Herbert is building many of the houses in the street named, is an assurance to us that they will be done well.*

"J. W." (York), and "G. R.," *next week.*

"Bernan's History of Warming and Ventilating."—*Our thanks are due to Mr. Bell, the publisher, for the use of the cuts which illustrated the extract from the above work in our last number. We have already recommended Mr. Bernan's book to our readers.*

"G. W. Bennett," *is referred for general information on warming buildings to the last-named work. The best mode of warming the proposed Mechanics' Institution and probable cost depend materially on the plan.*

"A Subscriber" (Burton-upon-Trent), *asks the height of St. Paul's Cathedral, from the ground to the top of the cross.—340 feet.*

"L." *will be glad to know where the best information on* Terra cotta *is to be found.*

"O." *wishes to be directed to the best architectural drawing school. We will inquire.*

Received.—Minutes of Proceedings of the Institution of Civil Engineers.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, February 17. — *Statistical*, 11, Regent-street, 8 P.M.; *Chemical* (Society of Arts), Adelphi, 8 P.M.; *Medical*, Bolt-court, Fleet-street, 8 P.M.

TUESDAY, 18.—*Linnæan*, Soho-square, 8 P.M.; *Horticultural*, 21, Regent-street, 2 P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.

WEDNESDAY, 19.—*Society of Arts*, Adelphi, 8 P.M.; *Microscopical*, 21, Regent-street, 8 P.M. (Anniversary); *Ethnological*, 27 A, Sackville-street, 8 P.M.

THURSDAY, 20. — *Royal*, Somerset House, 8½ P.M.; *Antiquarian*, Somerset House, 8 P.M.;

FRIDAY, 21.—*Geological*, Somerset House, 8½ P.M. (Anniversary); *Royal Institution*, Albemarle-street, 8½ P.M.

SATURDAY, 22.—*Royal Botanic*, Regent's Park, 4 P.M.; *Westminster Medical*, 32, Sackville-street, 8 P.M.; *Institution of the Fine Arts* (Society of Arts), Adelphi, 8 P.M.

ADVERTISEMENTS.

NEW CONGREGATIONAL CHAPEL, HOLLOWAY, THE BUILDING COMMITTEE of the above Chapel beg to inform those Gentlemen who have favoured them with designs, that they have selected the one marked "E. D. O.," and that the remainder may be had on application at C. A. Bartlett's, 66, Paternoster-row, London.

February 10, 1845.

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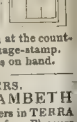
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The Builder.

No. CVII.

ATURDAY, FEBRUARY 22, 1845.

THE recent investigations of circumstances affecting the health of the masses, have caused the importance of pure air and light to be more generally understood than it was before. The simple fact set h by Dr. Arnott long ago, that a canary suspended near the top of a curtained stead in which people are sleeping will erally be found dead in the morning, should been sufficient to shew the danger of thing a vitiated medium, and the neces- for providing a constant and ample supply esh air in our dwellings.

mpure air, however, cannot be seen,—its cts are not immediate,— and so it has been wed quietly to kill its thousands annually, to lay the seeds of disease in other thou- ds ready to be developed by assisting cir- stances, without an effort to stay its ra- s, and almost without a knowledge of its ncy.

healthy man respires about twenty times minute, and inhales in that period about cubic inches of air. Fresh air contains er more than twenty-three per cent. of gen, and about one and a half per cent. of onic acid: by the process of respiration oxygen is reduced, in round numbers, to en per cent., and the carbonic acid is in- sed to rather more than eight per cent. v, three and a half per cent. of this gas der air unfit to support life; so that a man respiring 700 cubic inches in a minute, *ates* about 1630 cubic inches (to say nothing he effect produced by the exhalation from skin); and this will serve to give some on of the large quantity of air required the healthful occupation of a building by a ber of persons.

ll this, however, was for long unthought as we have already said, but the concurring ence of scientific investigators and able ical men, shewing the effect of imperfect ilation, especially in producing consump- diseases, fever, and scrofula, repeated in hapes by the press, has at last made the lic aware of its destructive effects, and ous to prevent them. The great interest he subject which has been awakened is biting itself, amongst other ways, in a ely-spread agitation against the window-

Meetings have been held, not merely in ral of the metropolitan parishes, but in the vincial towns; a deputation of delegates an interview with Sir Robert Peel, in- ctually; the matter has been broached in House of Commons, and petitions are to be warded to aid in obtaining the removal of obnoxious impost.

ll are unanimous in terming it a tax on nliness, a tax on ventilation, a TAX ON LTH.

"A window-tax is an injustice," says one, d of the grossest kind, to all classes and ditions of men. We may be told that ses under seven windows being exempted, tax does not fall upon the poor; but if we sider how many of this class live crowded rge lodging-houses, and how many families ppy, for economy's sake, the same domi- we find that only a fraction of the poor are freed from the weight of this impost. Besides we urge upon higher grounds, that the free light and air of heaven have no right to be supplied in limitation to mankind. God gave them abundantly to satisfy the necessities of his creatures, and no man has a right to rob his fellow-man of their full service. It has been proved by the statistics of public health, that the maladies and mortality of the poor are mainly owing to want of pure air. Is it not, we ask, the most flagrant tyranny to limit a man to a domicile lighted and ventilated by only seven windows, and to tell him, if he knocks out a few extra bricks that he may breathe more freely, he must pay for his privileges? Can any greater dishonour be perpetrated upon humanity than to confine it under conditions which are noisome and unhealthy, and should it desire better things, to visit the improvement with a penalty? The wealthy, to whom such an infliction is no burthen, can afford to protect themselves against an impure air, and the prospects of infection, but the poor man must be sacrificed either in his health or his pocket."

As Mr. Hickson too, justly observed to the Health of Towns Commissioners, "The window-duties as now assessed operate as a premium upon defective construction. The legislature now says to the builder—Plan your houses with as few openings as possible; let every house be ill-ventilated by shutting out the light and air, and as a reward for your ingenuity you shall be subject to a less amount of taxation than your neighbours." Sir Robert Peel said, in his late financial statement:—"It is supposed that a case is made out for the remission of the window-duties. Just let us look at the case of the duty on glass, and see what a much greater effect it will have upon the comfort of the labouring classes. Let us see how much more advantageous to the community will be the reduction of the duty on glass than the reduction of the window-duties. There are in Great Britain, as it is estimated, about 3,500,000 houses. There are not more than 500,000 houses which are chargeable with the window-tax. There are therefore 3,000,000 houses which require glass for the purpose of comfort, which, if you sanction the removal of this tax, you are about to benefit." Now the first part of this statement, if correct, and which the Premier feigned to consider a triumphant argument *against* the supposed necessity of a remission of the window-duties, is in reality a strong argument in favour of the loudly called for remission, since it shews that there is an immense number of residences badly, or much less perfectly, ventilated than they ought to be. Without questioning the good effects which will follow the reduction of the duty on glass, we would say, how much will it avail the poor man to know that glass windows can be formed more cheaply than before, when he cannot have the advantages of them because of this hurtful and unholy impost?

The question is one of vital importance to the public; we hope that the recommendation of the metropolitan delegates will be attended to, and that the rate-payers of every city, town, and parish, will present petitions to the House of Commons, praying for a repeal of the inconvenient, unsalutary, and unequal window duties; they are a tax on architectural appearance, a tax on cleanliness, a tax on HEALTH, and we might add, a tax on MORALITY,—for the connection between dark, dirty ill-ventilated dwellings, and degradation and vice, is close and indisputable.

MR. COCKERELL'S SIXTH LECTURE ON ARCHITECTURE.

ON Thursday, the 13th instant, the professor concluded his course at the Royal Academy. He said he had confined himself to Roman architecture because it was the most practicable for us of all the styles, uniting variety, convenience, and applicability, and because Canina's work, already so often alluded to, illustrated so many works of this style. It was to be regretted the students had not referred with him to the original authors. Few of them unfortunately had made themselves acquainted with the modern languages, and the best works on their art were therefore a dead letter with them. We were greatly deficient the thought, in English works calculated to exalt the mind and increase the resources of the student; comparatively worse than we used to be. In 1610, an edition of Serlio was published, and various editions of Palladio in English followed. None of the architectural classics had been published since, with the exception of Mr. Gwilt's version of Vitruvius, which was a very good translation. Fragments of Vasari were published, but not the complete work, which was to be regretted, as it ought to be generally read. It had been translated into French only recently. Many of the modern works, published every day in Italy, Germany, and France, deserved to be studied. Any foreign catalogue would shew how deficient we were in books of the same description. He wished the body of English architects, taking Quatremere de Quincy's Dictionary as a model, would produce a perfect cyclopædia of the art, one man executing one part and one man another, under the direction of an accomplished editor. All would surely be glad to aid in such a work, which would be of the greatest use, and would reflect dignity and glory on all concerned. It especially devolved on the association of architects now in existence. He trusted he was not stepping out of his path in making this suggestion; such a work was not within the province of the Academy, and he was anxious to see it commenced.

The professor then proceeded to treat of the Triumphal Arch as an especial feature of Roman architecture. It was gratifying to find that the recent applications of monuments of triumph were in commemoration of great and good men rather than of conquests. The late war might well have produced triumphal monuments, but had not done so, the sense of the country was against it; our great captain said the army had only done its duty; and Nelson looked to nothing beyond a place in Westminster Abbey. Our rivals had raised the *Arc de l'Etoile*, and must feel abashed by our forbearance.

All must admire the Roman triumphal arches; the earliest had but a single arch: they were probably perfected by Apollodorus, in the time of Trajan. The propylea of Egyptian buildings were somewhat analogous.

After explaining the proportions adopted by the Romans in their triumphal arches, the professor remarked there were two ways of varying these proportions, namely by the supply of height or the supply of width. The sublime was produced by excess of either. The sublime produced by excess of latitude was seen under the large arch of a bridge. He urged the application of the triumphal arch for a railway arch, and said for a novel purpose a novel effect should be sought. He then referred to the *quadrifrons*, or arch of four faces, and suggested that such monuments might be introduced with effect in our circusses, in Regent-street, and elsewhere, as memorials of great men. The Obelisk to Waithman at the end of Bridge-street, was not of great cost, nor important as a work of art, but nevertheless, as a memorial of an honest and able citizen, had a striking moral effect.

He would next direct their attention to the mausoleum. That at Xanthus, which was described in the 4th century (uniting architectural and sculptural decorations), was very important in an archæological point of view, as it served to guide us to that of Mausolus, which from its magnificence gave the name to all buildings of that class. Pliny said the latter was one of the wonders of the world. Scopas and four other sculptors were employed upon it. The professor exhibited a restoration of it, according to Pliny's account, shewing a

high stylobate, columns, and entablature, crowned by a pyramid in twenty-four steps. The whole height was 140 feet, the number of columns thirty-six. In this monument and that at Xanthus several new principles of great beauty were set forth. The parallelogram approached the square very nearly. The high stylobate furnished room for the sculptor. Its use in the tomb of Mausolus was hardly credited before, but was now confirmed by the discovery at Xanthus. The introduction of statues between the columns, mentioned in the fourth lecture, was a new arrangement to us, and a good one. The pyramid with which the structure terminated was adopted by Hadrian in his mausoleum long after.

The monument of Augustus, in the field of Mars at Rome, of which parts still remain, was a surprising work. This building was circular, with a portico, and was crowned by a pyramid of terraces, planted with the cypress and other trees, thus uniting the tumulus with the built pyramid. Strabo's account of this monument was the only one existing, and that was very slight. Very little was said about this extraordinary work (its portico was higher than the portico of the Parthenon), a proof that such were universal. We owed our knowledge of this monument, the professor said, to the researches of Canina. The tomb of Cecilia Metella was supposed also to have had cypresses at the top.

The mausoleum of Hadrian, erected 114 years after that of Augustus, was scarcely less remarkable. It was framed more on Greek models, and had two orders. The body of it still remained, and was known as the Castle of St. Angelo. The statues, which adorned it, had been thrown down on invaders, and were occasionally fished out of the Tiber, which runs at the font of it.

Such works would not be attempted now by individuals, but might be by public companies. The cemeteries would soon become filled if some fresh arrangements were not made. The professor had proposed to one cemetery company an adaptation of the mausoleum of Augustus, filled with cells, and approached by inclined planes, with four chapels in the lower part, but the proposed outlay frightened them. Government might carry out such a scheme advantageously on Primrose-hill, or other elevated spot. Interment was a fitting subject with which to conclude the course. In taking leave of them, he would say,

"Make the Greek authors your supreme delight,
Read them by day, and study them by night."

It was chiefly by the study of great productions that artists became great; no one could examine the works of the great architects without deriving advantage. They must allow no opportunity for improvement to slip. In their magnificent profession the exercise of every faculty was called for; they must embody every discovery for the use of the public, and obtain general acquaintance with all the sciences. They must prepare themselves to meet men of all stations, from the prince to the mechanic, and must sustain a high moral character; they might then rely on obtaining the respect of all.

Fall of a Bridge.—The new Victoria Bridge at Spalding, which was considered an ornament to the town, and was lately erected by subscription, at the cost of upwards of 3,000*l.*, fell on the 26th ultimo, in consequence of an unusual high tide, accompanied by a tremendous storm, the effects of which in various parts we had occasion to record a fortnight since. A *local paper* states that "the bridge was upon the 'bow and string' suspension principle, with side-braces to prevent vibration during a gale of wind; and it is certainly possible that, in consequence of the tide having risen considerably above the usual level, a gang of lighters might swing foul of the side-stays, and draw the bridge out of its perpendicular; if so, the principle of the erection was destroyed, and as a matter of course its own weight brought it down. No blame is thought to be attributable to the contractor, though it would have been a fortunate circumstance, had it been considered at the time, to have had a few piles driven at each corner of the bridge, as a preventive against such an unfortunate and expensive mishap."

DRY ROT AND WORMS IN TIMBER.

BY JAMES WYLSON.*

In the first volume of The Builder, at p. 268, will be found a full description of the Payn-izing process for preventing dry rot, and which appears to possess considerable advantage over the Kyanizing method: the materials employed are sulphate of iron and sulphate of lime, both being held in solution with water; the timber is placed in a cylinder containing the solution of iron, the air is withdrawn by means of the air-pump, and the solution strikes into the wood so as thoroughly to pervade its pores; it is then placed in the solution of lime, and immense pressure being applied, the latter is forced into a combination with the iron, and immediate consolidation takes place; the timber is then found to have greatly increased in weight, and to have become unignitable; we may also reasonably infer that, with such a compound in its pores, decay must be greatly retarded, and the liability to worms reduced; the greatest drawback consisting in the increased difficulty of working. Between this process and Kyan's we see the marked distinction of *perfect* and *partial* impregnation. Another of the patent processes in use, namely Margary's (see The Builder, vol. i. p. 320), we should fear is of the latter class, the method consisting in steeping the wood in an open tank, with the hope of thorough saturation; in this process the material is sulphate of copper in solution with water, in the proportion of 1 lb. to 8 gallons. Dr. Parry recommended a preparation composed of bee's-wax, roll brimstone, and oil, in the proportions of 1, 2, and 3 oz. to ¾ of a gallon; to be boiled together, and laid on hot. Dr. Darwin proposed absorption, first of lime-water, then of a weak solution of sulphuric acid—drying between the two, so as to form a gypsum (sulphate of lime) in the pores of the wood; the latter to be previously well seasoned, and when prepared, to be used in a dry situation. A Mr. Bill is said to have discovered an insoluble varnish, of small cost, which enables wood by saturation, to resist decay for five years under the most trying circumstances.

In a report by Mr Pritchard, C.E., of Shoreham, in 1842, respecting the preservation of the timbering of the Chain Pier at Brighton, he states his perfect success in establishing pyrolignite of iron and oil of tar, as a preventive of dry rot; the pyrolignite to be used very pure, the oil applied afterwards, and to be perfectly free from any particle of ammonia; in that report, reference is made to a patent which it appears is held by Mr. Bethel, of Vauxhall Tar Works, for preparing wood by impregnating it with either or both of these materials; this treatment, as Mr. Pritchard remarks, supersedes the necessity of covering marine timbering with iron nails, as practised at Plymouth Dock and elsewhere.

The above preparations, and those noticed in a previous article, have for their object the *prevention* of dry rot; with respect to *cure*, when such has taken place, it is recorded that in a ship called the Eden, every trace of fungus was eradicated by its remaining eighteen months under water; now, it is well known that common salt, in small quantities, conduces to the decomposition of vegetable matter, and would, if applied, be liable to increase the evil; and, therefore, it must be inferred that a solution for the purpose in view—circumstances being supposed to admit of its adoption,—must be of a strength closely assimilating to sea-water, and which, while it destroyed the fungus, would have the effect of suspending decomposition in the ligneous fibre of the timber. Where facility is afforded for making it available, a degree of heat sufficient to destroy vegetable life may be adopted with great certainty for arresting the progress of any fungus growth, and destroying the power of regenerating; but it is attended with difficulty, since as much as 300° of heat is required to produce the desired effect. Where the disease is internal, and far advanced, the best cure is cutting out the parts affected; this is often necessary where it is external, but thoroughly scraping away the vegetable matter, and washing over with a powerful solution of one or the other of the kinds hereafter mentioned, and which are calculated to kill any infectious germ that may exist, will probably eradicate and permanently remove the evil: painting affords no protection against it. It is stated that Mar gary's process has been applied with succes for arresting the progress of the disease when it has commenced; this prescription we believ is old enough, and unpatented, the only di ference consisting in its being used four time as strong, which may be supposed to be neces sary, since cure is generally more difficult tha prevention.

When we consider the disastrous result proceeding from dry rot, the trouble and ex pense which it occasions, how often it originate in imperfect seasoning, and already exists i timber before it is converted to use, we see th importance of exercising the utmost precau tion: as regards timber beams, they should ir variably be sawn up in the middle of the breadth, the fresh surfaces turned outward and the growth reversed; and be thus bolte together, separated a little by blockings wher the bolts pass through; by following this rul it is ascertained whether decay has begun the heart of the timber, and if so, whether such a degree as to require the piece to be la aside; the seasoning is sooner perfected, an by reversing the ends the strength of th beam is equalized. The soundness of a piec of timber may often be ascertained by soun ing it with some metal instrument.

Timber, besides being subject to have i natural decay anticipated by premature decom position, proceeding from unseasonable feelin imperfect seasoning, or the other destructi agencies to which we have referred, is liab from similar and other causes to be destroy by various worms and insects; the soft an tender woods, and such as are of a saccharin nature in their juices, are the most liable to assailed by them; those which are bitter a generally, if not invariably, exempt; it is o vious, therefore, that those palatable juice which are so conducive to their production an propagation, should be got rid of by thorou seasoning, and, if further precaution be nece sary, that the infusion of some bitter deco tion into the pores of the wood will be an e fectual preventive; and for which those woo that are of a regular grain afford sufficie facilities. Ash, if felled when abounding sap, is very subject to worms; beech is al very liable to their attacks, likewise alder a birch; in these woods, water-seasoning is fou to be a considerable preventive; the sa wood of oak also is by it rendered less liabl smoke-drying, or burning fern, shavings, & under the wood, by impregnating it with bitt particles, also renders it exempt from worm the silver fir is subject to them; the sycamo is rather so; alder is said when dry to be ve susceptible of engendering them; the ced walnut, plane, cypress, and mahogany, examples of woods which discourage their a vances. For the extirpation or prevention these destructionists, see recipes appended this article.

Besides the common worm to which timb in its dry condition is liable, there are a varie of a more formidable character which comm their ravages on the bottoms of ships and t timbering of sea works: of these the m common are the pipe-worm (or *teredo navo* of naturalists), a species of pholas (*pho striata*), the lepisma, and another mention by Smeaton, which is almost invisible. T pipe-worm was originally brought from In to Europe; when first produced from the e it is very small, but it soon attains a consid able size, in general acquiring a length about three inches, and in the more favoural woods, the fir and alder in particular, fatteni to its utmost size, and sometimes reaching t twelve inches in length. The more comp woods offer more impediment to its progre although, from the formation and hardness its head, it is enabled to penetrate even t most dense; bitter woods they do not at attack, yet charring the surface of wood h not been found to be of any use as a preve tive measure. Timber constantly under wat and which has been subject to their operatio has been aptly compared to a honeycomb, extremely contiguous are their habitatio yet at the same time perfectly distinct; h while the perforation is so complete, it is u fortunately concealed within a thin exter shell of undisturbed wood, which prevents t real state of the timber from being outwar apparent, the infinitude of minute perforati by which they have communication with water being invisible to the eye. The pho

* See page 32 *ante*.

ve particularized, does not confine its work destruction to timber alone, but extends it tone and other materials; it penetrates the od when young, making an entrance of ut a quarter of an inch in diameter, and en- ging it as it advances inwards and matures growth, thus becomes imprisoned; it ves off boring when full grown, and never ends its operations beyond reach of the ter, from which it partly derives its suste- nce. The lepisma attacks woods in the st-Indies immediately they are immersed in -water, and, though small, is very destruc- in its operations, having been known to through the unsheathed bottom of a boat three or four weeks. The small white m last mentioned above, differs from the mmon ship-worm in its boring obliquely oss the grain instead of lengthways; and mode of operation consists in dissolving substance of the wood rather than cutting it, the harder woods offering the most ruction to its progress, yet so far from ficiently, "that a three-inch oak plank will destroyed in eight years, by its action from outside only." It appears as a small white substance like a maggot, but indistinct hout a magnifier, and it is said not to live the part of piling that is imbedded, or in timbering situated above the tidal influence, t supply being necessary to its existence. ese creatures yearly render necessary heavy airs in the sea-dykes of Holland, from which may imagine the Sampson-like achievement y might accomplish, if unheeded, amongst piles whereon Amsterdam is built.

n the report before referred to, Mr. tchard disapproves of the use of Stockholm as a coating for marine timbering, con- ering it, in common with other tars contain- vegetable matter, as detrimental to timber n exposed to salt water; and also, from its penetrating the wood, being very soon eaten ay by the salt acid of the sea. Common or coal-tar he also considers as doing much m instead of good, forming a hard and tle crust on the wood, which prevents "the p and unnatural heat from the possibility escape, owing to its containing ammonia, ch burns the timber, and in a few years s brown and crumbles into dust:" the e-worm, and others, he says, will destroy ber thus prepared in five or six years; and pecting such as has undergone the Kyanizing cess, mentions a piece of heart of English in Shoreham Harbour, which was eaten to work by the worms in four years. For a e defence against these assailants, he re- mends the pyrolignite of iron and oil of as specified by him for dry-rot. It appears there has been used for years at the port Liverpool, a wood called mora, or green- rt, the properties of which are well under- d there, and which entirely resists the cks of sea-worms; some of this timber s also to have been imported into London hin the last two or three years, but it is by neans generally known, although evidently t of high importance that it should be so.

esides worms, timber is exposed, chiefly in Indies, to most dreadful havoc by some ies of the ant tribe; from the destructive s of the termite or white ant there is nothing ire, unless it be of stone or metal; roofs, rs, and the other parts of buildings that are structed of wood are infested by them, and n painted will present a solid appearance ile they are completely hollowed; furniture wooden utensils alike undergo their de- ring ravages. The red ant of Batavia is ther little devastator.

he following summary of the most approved mula for preventing and curing the evils of ch we have treated, will, we believe, be ac- table to those interested in this particular ject; of course a recapitulation is avoided ose remedies which are already suggested he tenor of our remarks:—

PRESERVE WOOD WORKS THAT ARE EXPOSED TO WET OR DAMP.

For those of an extensive nature, such as ges, &c.—1. A coating of pitch and tar, wed with powdered shells and sea sand, or hy ashes, beaten small, is used by the Dutch, found to be an excellent protection. 2. A t composed of sub-sulphate of iron (the se of the copperas pans) ground up with common oil, and thinned with coal-tar oil ng a little pitch dissolved in it, is flexible and impervious to moisture. 3. Linseed oil and tar in equal parts, well boiled together, and used while boiling, rubbed plentifully over the work while hot after being scorched all over by wood burned under it, strikes an inch or more into the wood, closes the pores, and makes it hard and durable, either under or out of water. *For those of a more domestic nature*, a coating either of coal-tar or paint sanded over, are generally considered good defences; but they require renewal from time to time: the painting is most durable when sanded.

TO PREVENT ROT.

1. Boiling the wood for a few hours in sulphate of iron (green copperas), and leaving it for some days in a warm place to dry, renders it hard, compact, and impenetrable to moisture. 2. A very strong impregnation of common salt (muriate of soda) is a good protection where dryness is not an object. 3. Charring will fortify timber against external infection. 4. Coating with coal-tar will also serve that end: in both, the timber must have been thoroughly seasoned.

TO CURE INCIPIENT DRY ROT.

1. A pure solution of corrosive sublimate (corros. mur. of mercury) in water, in the proportion of an ounce to a gallon, used hot, is considered a very effectual wash. 2. A solution of sulphate of copper (blue vitriol), half a pound to the gallon of water, laid on hot, is another excellent wash, and cheaper than the preceding. 3. A strong solution of sulphate of iron is sometimes used, but is not thought such an effectual remedy as the copper. 4. A mixture of the solutions of copper and iron is occasionally adopted.

TO PREVENT WORMS IN TIMBER.

1. Anointing with an oil produced by the immersion of sulphur in aquafortis (nitric acid) distilled to dryness, and exposed to dissolve in the air, secures the wood, and imparts to it a not unpleasant odour. 2. An impregnation of lime is an excellent preservative, especially for sap-wood when in a dry situation. 3. Soaking in an infusion of quassia, by rendering the wood bitter, is a good protective. 4. The oil of spike is a good remedy. 5. The oils both of juniper and turpentine are efficacious in some degree. 6. *For small articles*, cover freely with copal-varnish or linseed-oil.

TO PREVENT WORMS IN MARINE TIMBERING.

1. A mixture of lime, sulphur, and colocynth with pitch, is a good protecting coat for boards. 2. Saturating the pores with coal-tar, either alone or after a solution of corrosive sublimate has been soaked and dried into the wood, also forms a good protection. 3. Sheathing with thin copper over tarred felt is esteemed the best protection for the bottom of ships from all marine animals; the joints should be stopped with tarred oukum. 4. Studding all the parts which are under water with short broad-headed nails soon covers the whole surface with a strong coating of rust, which is found to be proof against their penetration.

TO DESTROY THEM.

1. Rub the wood with poisonous ointments. 2. Whale oil is stated to have been applied with success.

TO DESTROY ANTS IN WOOD.

1. Kyanize the wood, corrosive sublimate being an effectual poison to them. 2. Arsenic is a good destructive. 3. Oils, especially essential oils, are good preventives. 4. Charring prevents their depredations. 5. Cajeput oil has been proved effectual for destroying the red ant.

WARMING RAILWAY CARRIAGES. — The Philadelphia correspondent of the *Chronicle* says:—"They are warming the passenger-cars on the railroad between New York and this city with hot water, in copper pipes along the floor and sides. These pipes proceed from a small boiler placed over the stove in each car—a capital invention."

NEW METHOD OF IMPELLING LOCOMOTIVES.—A patent has recently been obtained by Mr. G. C. Coffin, of Lunaford, Wilts, for certain improvements applicable to locomotive, marine, and stationary-engines. Mr. Coffin's proposed plan is an attempt to introduce the pendulum as a motive agent in machinery.

THE MUSEUM OF ECONOMIC GEOLOGY.

THE office of Mining Records and museum of Economic Geology is situated at Nos. 5 and 6, Craig's-court, Charing-cross. It is freely open to all persons every day in the year, except Sundays, Good Friday, and Christmas-day, with no other restriction than the visitor's writing his name in a book. The hours are from ten to four, from November to February inclusive; and from ten to five during the remainder of the year. The museum is in the department of the Commissioners of Woods and Forests, and is under the immediate direction of Sir Henry de la Beche, F.R.S., F.G.S., Mr. R. Phillips, F.R.S., being curator, and Mr. T. B. Jordan, keeper of the mining records.

It originated in a suggestion of the present director, who, in July, 1835, submitted to the Chancellor of the Exchequer that the persons employed upon the ordnance geological survey had opportunities of collecting specimens, and pointed out the advantage which would be derived from those specimens being arranged under the care of the Board of Public Works, and marked with the names of their localities referred to in corresponding maps. The specimens desired were of substances used in roads, for works, or buildings, and for useful and ornamental purposes in the arts, and from which useful metals are extracted. Apartments were allotted for the collection formed, and in February, 1837, Lord Duncannon, then Chief Commissioner of Woods and Forests, requested the present director to undertake the duties of the office, which he has since filled gratuitously, with zeal and ability. In 1839 Mr. R. Phillips was appointed to the office of curator; his duties being to make analyses on moderate terms, and to receive pupils for instruction. In the same year the place became the deposit of the mining records, Mr. T. B. Jordan being appointed keeper; the preparation of plans and sections, and of models of mines and machinery, in the workshops beneath the museum, being under his care. Permission is readily granted to make use of the plans and drawings, on application to the keeper, who is daily in attendance.

The building is easily recognized by the five granite-posts in front, which are specimens sent for those in the centre part of Trafalgar-square. Commencing near No. 5, the first post is from Aberdeen, the second from Peterhead, the third from Penryn, in Cornwall, the fourth from near Dublin, and the fifth from Dartmoor; only the two last are solid blocks. The museum consists of an entrance-hall, an apartment on the ground-floor, 46 feet by 18 feet 6 inches, a gallery on the first-floor, 103 feet long, and varying in width from 17 feet to 25 feet, a room on the second floor, a record-office, fitted up with folios and cases for plans, a private room for the director, a laboratory, and workshops.

In the room on the ground-floor, over the fire-place, is a painting on cement formed from the refuse of copper furnaces; it has a highly polished surface, and the capabilities of the composition are therefore hardly to be judged of on a small scale.* This room contains the specimens of building stones, procured by the commissioners appointed in 1838 to visit the different quarries for the purpose of selecting stone to be used in the new Houses of Parliament. These specimens are six-inch cubes, 197 in number, arranged according to their mineral composition, having the names of different buildings in which they have been employed labelled upon them, as well as the designation and locality. These are the specimens referred to in the report of the Building-stone Commission, dated August 27, 1839, No. 574, which document is already out of print. We find that the stones used in the Houses of Parliament are the following:—1. Oolite limestone, from Painswick, Gloucestershire, employed in the internal masonry. 2. Limestone of the oolite series, from Caen, Normandy, employed in the interior. 3. The magnesian limestone, from Steetly, Derby-

* In the *Athenæum* of July 22nd, 1843, we find the following:—"The Lady Chapel of the church of Saint Nicholas-des-Champs, Paris, has recently been enriched by a Christ, of colossal proportions, painted on lava, on a gold ground, by M. S. Perlet, after the manner of the Byzantine mosaics, which still adorn some of the Italian churches. This modern painting on lava is said to be one of the first essays of a kind peculiarly adapted to a northern climate, by its presenting a surface enamelled by fire, and therefore proof against damp."

shire, between Worksop and Chesterfield, used for the small internal courts. 4. Magnesian limestone, from Woodhouse, Mansfield, Nottinghamshire. This stone has a beautiful yellow tint, with very small black spots, and takes a smooth face. 5. The magnesian limestone, from Bolsover, Derbyshire, held, in the published report, to be the most eligible of the number: of coarser grain than No. 4. 6. Magnesian limestone, from Stone Ends, North Anston, Yorkshire, between Worksop and Sheffield, used for the plinth of the building towards the river. 7. The magnesian limestone, from Woodhouse, near Mansfield, Nottinghamshire, Lindley's Bolsover Quarry, used for a portion of the mouldings and carvings. 8. Magnesian limestone, Norfall, Anston, Yorkshire, between Worksop and Sheffield, used for the structure generally. 9. Another specimen of magnesian limestone, from Steetly, Derbyshire, used for the small internal courts. 10. Magnesian limestone, from North Anston, Yorkshire, between Worksop and Sheffield, used for the superstructure generally. The colour of this stone is dark yellow, being darker than that from Norfall Anston.

In the collection is a specimen of the stone from Taynton, Oxfordshire, used in the interior of St. Paul's Cathedral; it is a coarse shelly oolite. The sand-stone used in the restoration of Hereford Cathedral, is from Capler Quarry, eight miles south-east of Hereford, on the Wye, and is in colour a reddish drab. The pieces of granite and marble are some of them very beautiful. We found the black serpentine, the black and the veined gray, and reddish marble,s the white alabasters of Devonshire, Derbyshire, and Scotland. Many of these are exhibited wrought into tazzas and ornamental vessels. The history of porcelain is exhibited in specimens of pottery from Egypt, Etruria, and Mexico, down to our times, when it is formed into tiles for church pavements, and into such rich and elegant forms as are here exhibited by Messrs. Copeland and Garrett. There are specimens of Keene's cement, Broseley clay, Stourbridge clay, and a series illustrating the uses of plaster of Paris. Mr. C. H. Smith has contributed an Egyptian capital, copied by himself, we believe, in granite, from one in the British Museum, by way of illustrating the perfection to which the art of tempering steel is brought in modern times.—The gallery on the first floor is devoted to specimens of coal, and of the English and foreign ores. There are also some interesting illustrations of the various states which metal assumes under the influence of art or nature; as of the change which iron undergoes from the fibrous to the crystalline state when employed in axles. Copper, and sulphur, and their uses, are also shewn. There is a beautiful series illustrative of the mode of preparing dies for coinage, and the electrotypes are the best collection that we ever saw. The process of making swords and gun-barrels is illustrated, and most clearly explained by Mr. Wilkinson, of Pall Mall. Though the ornamental is not professedly sought after in the collection, it happens that there are several curiosities most interesting to the artist and the man of taste. Among these is a model of the monument to William de Valence, senior Earl of Pembroke, half-brother of Henry the Third, who died in 1304, exhibiting the use of enamel in the costly tombs of that period. The model was prepared under the direction of Albert Way, Esq. The figure is entirely gilt, and the shield emblazoned in blue, red, and gold, the horizontal surfaee of the the tomb being covered in diaper, with heraldic uchievements. The collection of enamels is highly interesting, and includes, amongst other things, a reliquary of the 12th or 13th century, and a casket of the 14th century, emblazoned with the arms of England and Valence. There is a candlestick of the 14th century, and a pyx of the same date. On the wall of this room is suspended a "Flemish Monumental Brass, of Lodewyc Cortewille, of Cortewille, near Liege, who died 1504, and of his wife, Colyne Van Castre, who died 1496;" the analysis gives the following result:—

Copper.....	64	0
Zinc.....	29	5
Lead.....	3	5
Tin.....	3	0
	100	0

The room on the second floor contains surveying instruments and mining tools, specimens of bricks and tiles, and models. The skill of our ancestors is evidenced in a coat of mail, weighing seventeen pounds, and containing many thousand links, each one being separately rivetted. In conclusion, we advise our professional brethren to avail themselves of the advantages which this collection offers; it has hitherto been little visited, and it is with the view of gaining it a greater share of attention, and the assistance in contributions which architects can often so easily afford, that we have been led to devote so much space to it.

* *

COVENT GARDEN IN THE SIXTEENTH CENTURY.

In the last part of the "Archæologia," there is a copy of the counterpart of a lease from the Earl of Bedford to Sir William Cecil, afterwards the Lord Treasurer Burghley, of part of the "Enclosure or Pasture, communely called Covent Garden, scituate in Westm'." It was executed in 1570, and is interesting to investigators of metropolitan antiquities, as affording information with regard to the state of a portion of London now occupied by a numerous population; but which, in the reign of Elizabeth, presented a very different appearance. The portion in question is said by the lease to be "dyvyeded from the rest of the said Enclosure called Covent Garden on the west syde of the said porcyon or p'cell nowe demysed w^th^ certayne stulpes and Rayles of wood, and is fenced w'th a wall of mudde or earth on the East next vnto the Comune high waye that leadeth from Stronde to St. Gyles in the fyeldes, and on the west end towardes the South is fensed w^th^ the orcharde wall of the said S^r^ Willm Cecyll, and on the South end w^th^ a certayne fence wall of mudde or earthe, beinge therebye devyeded from certayne Gardens belonginge to the Inne called the Whyte Heart, and other tenementes scituate in the high streate of Westm', comunly called the Stronde." Mr. Albert Way, the present accomplished director of the Society of Antiquaries, who laid this document before the members, remarks in a letter which accompanied it:—

"With regard to the limits of Covent Garden, as defined in this lease, I must appeal to those who are versed in the ancient topography of the metropolis to explain the position of the various boundaries described in the document: but I would offer an observation on the modes of inclosure whereby, in the reign of Elizabeth, property so immediately in the vicinity of the city of London was fenced, even where it adjoined the great highways at the very entrance of the metropolis. It is curious to compare the approaches of London, as they now appear, with their aspect nearly three centuries since, as set forth in the terms of this lease, and to view the advances of civilization and luxury, illustrated by the comparison of the conspicuous public monuments and suitable fences which now adjoin Hyde Park-corner, or the Cumberland-gate, with the mud walls and 'stulpes' which presented themselves to the visitor of London in the 16th century at the gates of the city. At that period the ancient process of forming walls by means of indurated earth was still extensively employed: in the eastern counties this was called dawbing, and the term is still retained in Norfolk and Suffolk; but the process is now used, to any considerable extent, in the more remote county of Devon only. The subject of the cob-walls of the western counties, and of the use of concrete, generally, in all ages, and particularly in Spain, where important ancient structures formed with mud walls may still be seen, has been curiously illustrated in the "Quarterly Review," Vol. LVIII., by the able pen, as I believe, of Mr. Richard Ford, of Heavitree.

"Sir William Cecil had his dwelling, originally built by Sir Thomas Palmer in the times of Edward VI., upon the site of the parsonage-house of St. Martin's-in-the-fields, situate in the High-street, at the south end of Drury-lane. Sir William had bestowed much pains in beautifying this his abode, which adjoined the property of the Earl of Bedford, and had an orchard contiguous to the inclosure, known as the Covent-garden, a portion of which was leased to him by the earl. This portion is described as divided by certain stulpes and rails of wood. This obsolete term, stulp, is now retained only in the dialect of Norfolk, and is used to signify a low post fixed as a boundary. In the first English Dictionary, which was compiled in Norfolk during the reign of Henry VI., called the 'Promptorium Parvulorum,' this word occurs, as well as the greater part of those archaic terms which are now retained almost exclusively in the East Anglian dialect. In this curious dictionary is found 'stulpe or stake, *paxillus*.' The same term is used by the chronicler Fabyan to denote the bulwark or fence at the approach of London Bridge on the Southwark side, where he relates how the rebel Jack Cade drove back the citizens of London 'from the stulpes in Southwarke, or brydge fote, unto y^e^ drawe brydge.' A.D. 1450."

BATHS AND WASH-HOUSES FOR THE LABOURING CLASSES.

The committee, after a month's consideration, have selected the plan of Mr. P. P. Baly, as the best of twenty-two which were submitted to them in competition.

The unsuccessful candidates have received intimation that their drawings will be returned on application at Crosby-square, after the 27th instant, and that the committee have resolved that the successful competitor shall not be permitted to see the plans of the other competitors. We do not see the necessity or advantage of this resolution, and if it is to be used as a reason for the exclusion of all persons from an examination of them, utter a decided protest against it. We have already received letters from competitors inquiring why their drawings are to be detained till the 27th: we trust it may be for the purpose of exhibiting them. We shall hope to lay information on the subject before our readers next week.

DANGER OF IMPROPERLY FIXING STOVES.

The carelessness with which close stoves are constantly placed so as to jeopardize whole neighbourhoods, is deserving of severe reprehension and really calls for some interference. We constantly see them put up in immediate proximity to wooden fittings, even in a recess *lined* with wood and sometimes with the smoke-pipe passing through a hole in a chimney-board! Because no accident occurs immediately, it is thought to be perfectly safe; they forget that the wood so exposed to the heat becomes every day more and more ignitible, and are not awakened to the danger till the house is in flames, which further, may reach the property of others not equally deserving of such an infliction.

Only a few nights ago, a house in Charlotte-street, Bloomsbury, would probably have been burnt down from the above cause, if the occupier of the adjoining house had not been aroused by smoke and the smell of fire, and obtaining entrance, succeeded in stopping the progress of the flames.

Many of the late fires have originated in this manner, but experience unfortunately seems to have very little effect until it is paid for.

The constant occurrence of fires in the metropolis is a subject for most serious consideration. The amount of property destroyed annually, to say nothing of the loss of life, is immense if but a small part of it were yearly expended by the community in a proper way, this might be prevented and all its consequent distress and misery.

Court of Chancery.—The ancient hall of Lincoln'-inn, in which the Chancellors of England have sat for so many years, is nearly stripped of all the armorial bearings which decorated its walls, and the stained glass that ornamented the windows, the whole of which have been removed to the new hall, Lincoln's-inn. The admired picture of "Paul pleading before Agrippa," which has so long ornamented the end of the hall, has also been removed to the new building. It is said that it is in contemplation to add the present kitchen (which is only divided by a passage) to the present hall, and then divide the building into three courts, one for the Lord Chancellor, the others for the Vice-Chancellors. If this plan is carried into execution, the temporary courts at present occupied by Vice-Chancellor Knight Bruce and Vice-Chancellor Wigram will be pulled down.—*Globe*.

DISSOLUTION OF THE CAMBRIDGE CAMDEN SOCIETY.

SIR HERBERT JENNER FUST'S Judgment in
stone altar and credence table cause, printed
recent number of this journal, and the retire-
ht from the Cambridge Camden Society of
Bishop of Exeter, the Bishop of Lincoln,
Chancellor of the University, and others,
e led to a proposal for the dissolution of
association, and will, it is to be hoped,
ve a heavy blow and great discourage-
ht to those who have insidiously endea-
ired for some time past to guide the nation
Rome.

On Thursday, the 13th inst., while the
orary secretary was reading to the society
eport from the committee—

The president rose, and said, that the an-
uncements he had just made of accessions to
society, however gratifying, especially by
ir promise of the extension of the society's
fulness in distant colonies, would not ade-
tely supply the vacancies which he felt it
duty, though not required by the rules, to
ounce from the chair. The members were
are that one of their patrons, the Bishop of
eter, had not only withdrawn, but had pub-
ed his retirement and disapprobation to
world, assigning reasons of which it did
now become him to contest the validity,
wever much he might be prepared and de-
ous to disavow the imputations therein con-
ed. Another of their patrons, the Bishop
Lincoln, had since withdrawn his name, on
unds similar to, and brought to his notice
those adopted by the Bishop of Exeter;
subsequently the committee had received
intimation simply announcing the retire-
nt of the Chancellor of the University, fol-
ed, as was to be expected by the usual eti-
tte, by that of the Vice-Chancellor. If the
mbers were really animated, as he believed
be the case, by the principles which had
ays been professed by the society, he felt
ired that they would neither be surprised
offended, however much they might be
ressed, by the remainder of the report of
committee, the reading of which he had in-
rupted in order to secure for it their more
ious attention. The report set forth that—

"The circumstances just communicated to
society by the president demand from the
mmittee, at this the earliest opportunity, a
tement of their view as to the manner in
hich these announcements ought to affect its
nduct at the present juncture.

"The retirement of two of its episcopal pa-
ns, accompanied in the case of one of them
public expressions of disapprobation, and
llowed by that of the chancellor and his re-
sentative, have appeared to them to place
society in a position incompatible with its
aracter as an association of members of the
urch and university. They feel satisfied
t any advantages which might be expected
m its continued operations would be insuffi-
nt to counterbalance the positive evil that
ist result from even an apparent disregard of
sentiments of those invested with authority.
ey therefore recommend unanimously that

SOCIETY BE DISSOLVED.

"This recommendation can only be carried
o full effect at the anniversary meeting.
l then the ordinary meetings, which have
en already convened, will be held *pro formâ*
the despatch of necessary business. The
terval will be occupied in winding up the
iety's affairs. The recommendation now
nounced will be submitted at that meeting
, what the committee earnestly hope it will
eive, its ratification."

This was received with a dead silence. It
s evident that the announcement had taken the
eeting by surprise. The president proceeded
He was well aware that the recommendation
hich the committee had felt it their duty to make
the society, was one which largely taxed its
nfidence, as well as its obedience to the main
nciples by which it had been always governed.
ll it would never do for him, it would never
for them, to walk about the university, and
el that they were members of a society from
hich the Vice-Chancellor had withdrawn his
untenance. No time for dissolution could
more appropriate than the present, and for
y sacrifices required by duty they would
nsole themselves with the reflection that the
iciety had done its work, though its work
s done. They would remember a sentence
that effect in his address to them in May
last, where he had dimly foretold the consummation to which they were now invited: a sentence suggested, as the context would shew, partly by the considerations which he had been now urging upon them, and partly by the prospects of that change in the condition of the society, which had been anticipated as the consequence of the near removal of himself, and other its founders and principal managers, from the University. His career here was closed: it was a satisfaction, amidst some regret, that their light should go out together. Neither let them suppose their *good* would be lost, though he hoped that whatever harm, if any, had come from their operations, this act, when consummated, would blot out for ever. The principles of union in church-membership, to say nothing of architecture, which had been generated and fostered by the society, would fructify more generally and forcibly, stripped of whatever was frivolous or inappropriate, in other ground and in other forms. What he had said would, he trusted, reconcile the society to the decisive and unmistakeable step recommended by the committee. It had, in addition, the highest sanctions of which it was capable. He felt assured that the society would feel that it was more in conformity with their position and their sense of duty, than to prolong, however effectually, an uneasy existence.

And in May next, therefore, unless a fresh arrangement be made, the Cambridge Camden Society will terminate its existence. To a looker-on, this step seems extreme and unnecessary; and many will say, with a correspondent, "Is there no other course open? Must a society, constituted for useful and praiseworthy ends, be dissolved because grave errors have been committed? Cannot its management be amended? Is its original and proper object inseparably connected with the course of proceeding objected to? Is the 'Study of Ecclesiastical Architecture,' to which these high personages are favourable, not capable of being pursued unless in connection with the encouragement of Popish absurdities or errors? Cannot useful hints be given to churchwardens for the preservation of the ancient and sacred edifices intrusted to their charge, without intruding into the office and duties of the archdeacon? Cannot a design be furnished for a church at Hong Kong, unless a Romish almanac be simultaneously printed at the Pitt Press, by a secretary of the society, or the envelope of the plan be stamped with the effigies of saints of the Romish calendar?

"The dissolution of the society, by its own act, because of complaints made on grounds here hinted at, amounts to a confession on its part that it considers its avowed object not worth carrying out, unless it can be made the means of promoting other ends not avowed; and which, if they had been avowed, the society would never have been composed of its present members."

The following letter takes the same view of the subject:—

"SIR,—As a young member of the architectural profession, and therefore deeply interested in whatsoever concerns it, I venture to solicit your favourable consideration of this address.

"I have observed that your able periodical is ever ready to advance and uphold the principles and study of ancient ecclesiastical architecture, apart from the superstitious and subtle feelings now too generally prevalent in describing and encouraging the admiration of the beautiful remains of our forefathers. Surely, this may always be done without making it the vehicle for disseminating those dangerous views entertained with strange infatuation by many members of the two universities. I have been led to these remarks by a rumour of the intended dissolution of the Cambridge Camden Society, and, in common with many, I should regret the benefits likely to be lost to the profession and to the community by such a proceeding. For when we see so influential and able a society, composed of men who, from their stations, intellects, and pursuits, are so capable of rendering good service to the study of Gothic architecture, if their information be conveyed according to a proper spirit—*i. e.*, apart from the advocacy of Romanism—all sober-minded men will lament that so much advantage should be lost by the cessation of their labours. I, for one, cannot see that because most of our glorious specimens of ancient architecture were the offspring of mistaken minds in matters of religion, it necessarily follows, we, in these reformed days, should inseparably mix up in our admiration and study of them the same feelings that actuated their founders.

"Let us hope, then, that should the Camden Society resolve upon a dissolution, it may only be for the purpose of remodelling and cleansing itself from the views and opinions which have hitherto characterized it, and will pursue its labours for the advancement of Gothic architecture, purely as an *architectural* society, and leave theology for a separate and distinct study.

"In the hope that you will not deem these remarks unworthy of notice in your next number, I am, &c., "H. H.

"February 18, 1845."

PROFITS ARISING FROM GAS APPLIED TO PUBLIC IMPROVEMENTS.

IT is not generally known that the very large annual profits arising from the Manchester Gas Works are applied (by a committee called the Improvement Committee), for the purpose of forming new streets, widening existing ones, opening such as appear to require increased ventilation, and in general to such improvements as more especially relate to the forming of better thoroughfares in the town.

These gas-works, now the most extensive in Great Britain, or in the world, were first commenced in 1817, and in December of that year, the Manchester public were first supplied with gas, from the establishment, at the charge of 15s. per 1000 cubic feet. The funds for this purpose were provided by the Commissioners of Police, out of the police funds. At the present period, the smallest consumer only pays 6s. per 1,000 cubic feet, and the largest (say of 80,000 feet) only 5s. per 1000 feet. With these comparatively low charges the gas committee will, however, pay, or have paid, during the present year, a sum exceeding 50,000*l.* to the committee of the improvement fund! Extensive as are the Manchester Gas Works at the present moment, a further extension is, it is said, now contemplated. Such is the increasing demand for gas, and such its probable immediate want, that the public need not wonder if, in the next two years, the works should be further extended 33 per cent.

It can only arise from an ignorance of these facts that other towns do not follow the example set by Manchester. How many improvements deeply affecting the health and comfort of towns are continually postponed or entirely laid aside for want of means. Here is a plan by the adoption of which an income to supply this very want may be derived, and, at the same time, a pecuniary benefit would accrue to each gas-consumer, in paying less than he does at present for the light he has occasion for.

While on the subject of gas, we would advert to a plan, lately put forth by a Mr. Blofield, for supplying London (and all other towns situate on or by the principal railway lines) with gas at a much cheaper rate than at present. Mr. Blofield says:—

"In the first place, I propose that extensive gas works be erected, either near Birmingham, upon the Staffordshire coal-field, or somewhere upon the Derbyshire, Nottinghamshire, Lancashire, Yorkshire, Newcastle (the best locality) or Bristol coal-fields.

"The gas to be manufactured in the country upon the spot, and conveyed through pipes, laid along the railways, to a large reservoir in the neighbourhood of London.

"By making the gas in the country, in the neighbourhood of the pit's mouth, instead of in London, it would save the following expenses, among several others:—

"It would save the expense now paid for having the coal conveyed such a distance.

"It would save all those other numerous intermediate expenses, incurred between its purchase at the pit's mouth and its delivery in London.

"It would save the enormous expense of the eighteen *separate* gas manufactories at present in the metropolis, with all their numerous establishments, independent of those in the country on the lines of railway." H.

GOTHIC ORNAMENTS FROM THE CATHEDRAL CHURCH OF YORK.



Fig. 2.

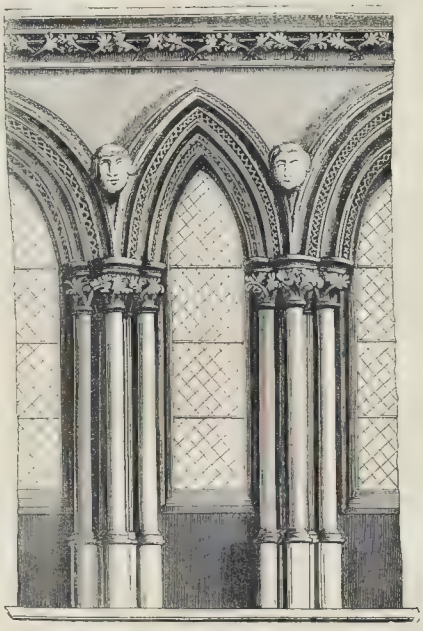


Fig. 1.



Fig. 4.



Fig. 3.

THIC ORNAMENTS FROM THE CATHEDRAL CHURCH OF YORK.

HE metropolitan church of St. Peter, at k, is one of the most beautiful of those aordinary edifices which our forefathers b left us, in proof of their piety and skill. e many of our ancient buildings, it displays workmanship and style of various periods, may be made to illustrate a considerable ion of the history of pointed architecture. crypt under the choir was commenced in . The south transept was built by Archop Walter Grey, about the year 1227; and north transept by John le Romayne, surer of the church, between 1250 and). The nave and aisles were commenced is son, Archbishop le Romayne, in 1291, finished about 1330. The choir was built ween 1361 and 1400, and the western towers after the latter date.*

he above engravings form part of a series rnaments from this cathedral church, which propose to lay before our readers at intervals. y are reduced in size from Halfpenny's ,† and will be found as beautiful *per se*, ey are valuable from exhibiting the style lifferent epochs.

ig. 1 represents part of the clerestory in south transept with the cornice from which ngs the groining of the roof. The wins are 6 feet high, and 1 foot 10 inches wide. igs. 2 and 3 shew the foliage of the capitals e north transept; and

ig. 4 a corbel in the west aisle of the h transept, supporting clustered shafts.

ll these, as may be seen, are of the early glish period. The lancet widow of the estory, the dog-tooth moulding around the , the boldly-sculptured foliage of the tals, are all characteristics of the style.

he foliage and mouldings of this period are lly well executed; the former is generally in relief. The mouldings are boldly cut, and ent deep hollows, which produce effective lows. A plain round with a good projec-, and hollow below it, such as is seen over corbel, fig. 4, is a moulding very generally l in buildings of this style.

he extreme length of York Minster out- is 518 feet, including the projection of the resses, the width 140 feet, the transepts north to south 241 feet. The height of nave is 93 feet, the height of the centre r 198 feet, and the height of the western ers to the top of the pinnacles 200 feet.

PORTLAND VASE.

E observe with indignation that some *itable* individual, unknown, has paid the of 3*l.* levied on the tipsy rascal who deed this interesting and unique relic, and thus saved him from the short imprison- to which, in default of payment, he had sentenced. We regret that we cannot e known, for public gratitude, the aritan who has thus stepped in to pre- the infliction of the very immensurate shment permitted in the present defective of the law, and has offered a premium to e other sot for the destruction possibly of choice illuminated MS. at the Museum, f the last new picture at the National ery. It is to be hoped that the legislature promptly pass a law for the protection of works, and not allow the weakness of individual to offer impunity to the vicious ts of another.

e Mr. Britton's history of the building in his "Cal Antiquities."
Gothic Ornaments in the Cathedral Church of York."

MACHINE FOR RAISING STONES EMPLOYED AT ASSIZE COURTS, LIVERPOOL.

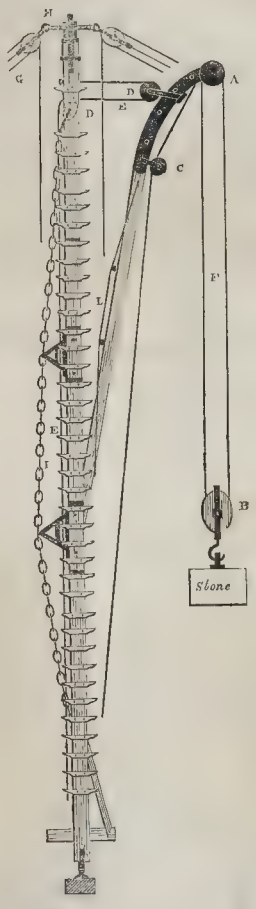


Fig. 1.

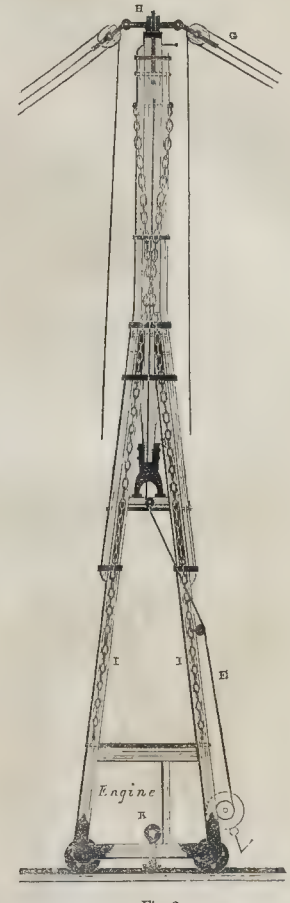


Fig. 2.

In consequence of the reference to the mode adopted by Mr. Tomkinson for raising building materials at Liverpool, made in page 34 *ante*, Mr. Hawley, the clerk of the works, has forwarded the annexed representations of the machine, drawn on a scale of 16 feet to 1 inch. Fig. 1, shews the side of the derrick, fig 2, the end. The wheels run on a tram-way laid parallel with the walls of the building.

A. Cat-head; four sheaves.
B. Large three-sheave block.
C. Single sheave to keep hauling part from stone.
D. Strong single sheaves for derrick-rope to pass over to the crab.
E. 7 in. rope for hoisting and lowering derrick.
F. Fall for hoisting stone, &c., worked with 3½ horse-engine.
G. Guy-ropes; three parts to each worked with single purchase crabs.
H. Swivel-cross for attaching the four guy ropes.
I. Chain back-braces.
K. Screw for hoisting sheaves when turning corners.
L. Braces for strengthening derrick.

Mr. Hawley says, "I believe Mr. Tomkinson is the only builder that has this kind of shear legs in use at the present time. He first used them at the Liverpool Custom-house, but with a fixed engine, and the fall-rope was conducted from the legs to the engine by means of passing through snatch-blocks, and the engineer was guided by signals. We have the same legs in use at the new Assize-courts, with the engine attached, and it is consequently locomotive. The rapidity with which large stones are raised is quite extraordinary. Mr. Tomkinson also first put in practice the travelling-carriage on timber scaffolding, for raising building materials, the idea originating with one of Mr. Tomkinson's foremen, named John Day. It has received great improvements since, as all other first inventions will do, from experience, our greatest tutor."

We examined the machine for raising stones by steam in operation at Liverpool a short time ago, and saw that it accomplished its work with wonderful rapidity and precision.

ST. JOHN'S GATE, CLERKENWELL.—In a recent number, we mentioned some proceedings under the new Buildings Act relative to this interesting relic. For some time past, the lodge entrance to the old monastery has been tenanted as a public-house, and it is apparently in a very dilapidated state from want of proper repairs and attention. A strong desire exists on the part of many antiquaries and the inhabitants of the neighbourhood, to restore this interesting part of the ancient building, and to convert it into a literary and scientific institution, for the benefit of the inhabitants of the crowded district of Clerkenwell, in the same way as Crosby-hall for the city, as it might easily be made available for the purpose.—*Globe.*

LONDON BURIAL-GROUND PRACTICES.

SIR,—You did me the honour to insert a communication in THE BUILDER of February 8, on "Spafields Burial-ground," and observing in your journal of the 15th inst., that a person, signing himself "A. BIRD," and who calls himself "Manager" (I presume of the grave-yard bearing the above name), has thought fit, not only to venture an attempt to invalidate my statements, but has dared even publicly to question my right to make them, I will trouble, you, Sir, with the following additional remarks, premising that I do not retract a single word of my former communication, whilst I hurl the most uncompromising defiance at Mr. A. Bird, the "management," and the "proceedings about to be commenced." As Mr. Bird states only in general terms his determination to commence "proceedings;" as he assumes, nay, apparently has, in his *own* belief, long occupied the position of an ill-used and injured man,* I, pending his legal proceedings, in disclaiming any *personal* motive in the contest he has chosen to enter upon, invite Mr. Bird's most serious attention to the observations and statements I may deem it necessary to make, reminding him that, under any circumstances, the PUBLIC have a far deeper and more important interest in this question than individual disputants — and that grave-yard PROPRIETARY INTERESTS, of the nature of those represented by their, for aught I know, self-elected champion, Mr. A. Bird, like other interests, must submit their claims, it may be, reveal their condition, to, and abide by the decision of, PUBLIC OPINION, represented by a free, a vigilant, and an independent press.

From a very long conviction, based on no slight grounds, I have from time to time, as the occasion offered, or opportunity served, endeavoured to convince my countrymen of the folly and wickedness of tacitly permitting the continuance of our present system of BURIAL IN TOWNS; and having, I think, abundantly proved that this iniquitous and pernicious practice has prostrated, and will continue to prostrate, numberless victims, I call upon the readers of your journal to apply their most serious consideration to this question, assuring them that it will afford them abundant material for salutary contemplation, and, if I mistake not, will supply a most powerful incentive to energetic, and determined, and united action.

In the mixed condition of society in all large towns, it is impossible to draw a line of demarcation between the various classes, neither is it necessary to attempt to apportion to each individual his own share of inevitable, well-deserved punishment attendant upon his neglect of the first dictates of natural feelings and common sense; but it especially concerns the middle and poorer classes to reflect that circumstances, frequently inseparable from their condition, compel their residence in localities principally the seats of shamefully-overcharged burying-grounds; that it is an *indispensable* condition of healthy existence that the atmosphere they breathe shall be in a pure condition; that in the immediate neighbourhood of, and even at a considerable distance from, all such places, annoyance, discomfort, disease, and death, are the invariable and abiding concomitants; that the locality, the area, the condition of the soil, the numbers buried in a given period, the depth at which bodies are interred, the constant upturning of earth yet reeking with human corruption, and the opportunities afforded by free ventilation for the dissipation of the invariably injurious products of human decomposition,—that these circumstances must and do influence the sanatory condition, most certainly, of the surrounding residents, and even the health of the entire district.

Sir, these statements, which I unhesitatingly make, are true or false. Perhaps Mr. Bird, whilst arranging his counter-statements to disprove my allegations, will favour your readers with *his* opinions, as I understand that he entertains some original notions on the burying-ground question. I do not wish to press unnecessarily upon Mr. Bird, but the course he has thought proper to pursue is so little in accordance with irrefragable facts, that I beg to assure him, and all whom it may concern, that he or they must convict, or be convicted, for I will neither offer nor accept a compromise; meanwhile I publicly ask Mr. Bird for distinct and unequivocal answers to the following questions:—

1st. What is the area of your burying-ground?

2nd. How long has it been employed for the interment of the dead?

3rd. How deep are the graves dug?

4th. How many bodies are placed in one grave in a given period of time?

5th. What depth of earth is ordinarily placed over the topmost coffin?

6th. What lateral thickness of earth is allowed between each grave?

7th. How many bodies on an average have you interred on Sundays, and how many on the remaining days of the week, since you became "manager?"

8th. Why do you constantly keep from five to fifteen graves open in expectancy, and do you consider the practice of keeping "open graves" injurious to the health of the district?

9th. As the soil of Spafields burying-ground is in a *peculiar* condition, I believe from the mode of "management" adopted, in how short a period, in your experience, do the soft parts of the human body resolve themselves into their ultimate elements?

10th. How long do the coffins remain entire or undecayed?

11th, and lastly. Do you persist in reiterating your assertion, reported in the *Times* of Dec. 23, 1843, "that the statement" (a memorial on the condition of your burying-ground, from some of the surrounding inhabitants) "was altogether false;" and do you *now* express your "surprise that any respectable newspaper could give insertion to matter destitute of foundation and so unsupported by proof?"

I am, Sir, &c.,
GEORGE ALFRED WALKER.

11, St. James's-place, St. James's-street,
Feb. 19th, 1845.

* CLERKENWELL.—Yesterday a respectable-looking man, who stated that he was the manager of the burial-ground at Spafields Chapel, came before the magistrate to complain of a report from that court in the newspapers of that morning relating to that burial-ground. He declared the statement which appeared was altogether false, and expressed his surprise that any respectable newspaper could give insertion to matter destitute of foundation and so unsupported by proof. * * * *

The applicant said it was very hard that such a report should remain uncontradicted. He would certainly push the matter further.—*Times*, December 23rd, 1843.

WORKS IN THE PROVINCES.

AT Brighton a great improvement is about to be effected by widening of the King's Road, and putting back of the battery. The width of the present road (about 40 feet) is to be doubled by means of a sea-wall which will connect the eastern marine promenades with the western. In the immediate vicinity of the battery this width will be much increased by the present site of the battery being thrown into the road. The estimates amount to 14,000*l*. A subscription has been set afloat, and is proceeding most prosperously, for the erection of a fountain on the Steyne.

At Cirencester, the committee of the proposed Agricultural College have selected the design of Messrs. Daukes and Hamilton, architects of Gloucester and Cheltenham, from a large number, among which were some from architects of eminence in London. The college will occupy the delightful site on Lord Bathurst's grounds known as Port-farm, near the railway station at the junction of the Stroud and Tetbury roads, thus presenting a perspective of two bold fronts. The design is in the Tudor style, of three stories high; the upper story being lit by picturesque old-fashioned dormer windows, of the style prevalent among the collegiate buildings of Oxford. The centre is occupied by a tower, the upper part of which is intended to form an observatory for meteorological and other scientific purposes. At the Privy Council held on Tuesday week, her Majesty was pleased to approve of the grant of a charter of incorporation of the subscribers to this important institution.

At Manchester the subscriptions for public parks, &c., amounted, at the close of last week, to more than 30,000*l*. It is highly gratifying to find that a sum has been thus obtained, which promises, at all events, that the first steps in this important measure of public health and recreation shall be taken on a scale worthy of the extent and importance of this vast hive industry. The subscription is equivalent one of 2s. each from every man, woman, child in the community, assuming the popu tion to be 300,000.

At Romford a new corn Exchange is abo to be erected. Two premiums are at present time advertised for the two best signs to be sent in by the 1st proximo.

At Harrow, a very handsome subscripti has been raised for the purpose of re-buildi the head master's boarding-house, which destroyed by fire in the year 1838. Furth means being requisite for the attainment the object in view, the committee h publicly solicited the assistance of *Old H rovians*.

At Liverpool the stock-brokers and sha holders have determined on building a new splendid Stock Exchange. The subscripti which was but recently opened, has augment most rapidly, and the list now amounts 50,000*l*.; one sharebroker alone subscrib 4,000*l*.

At Carnarvon, the fine old castle which been for some time in a dilapidated state, is order of the Commissioners of the Woods Forests, to be put in complete repair.

At or near Stratton St. Margaret's, Wi shire, the guardians of the Highworth Swindon Union have resolved on building new union workhouse.

At Coventry, land has been purchased fo cemetery, and it is the intention of the to council to complete the work, so essential to health as well as to the feelings of the inha tants, without delay.

The province of Ulster will, ere long, p sess a college for the education of the futu ministry of the Presbyterian Church. T contributions towards the building of the n college are proceeding most satisfactori Already from forty-two contributors a sum 2,500*l*. has been realized, besides 500*l*. more smaller sums, making in all 3,000*l*. Conc rently with this movement, a deputation is present in London, to solicit from her Majest government an endowment for the propos college.

At Huntingdon, Lady Olivia Sparrow purchased the theatre for the purpose of c verting it into a chapel of ease. The *Gl* states, that an eminent architect is to be gaged to effect the necessary alterations in appearance and interior of the building, the sanction of the bishop of the diocese be obtained for its consecration. Funds also be provided for the endowment of i considerable portion of which will be given Lady Olivia.

The rage for building is now exhibiti itself in the neighbourhood of Stratfo Between three and four hundred houses being erected on a farm, recently in the cupation of Mr. Thomas Spence. On Wi stead Park, the like number of villas, besi various others on a minor scale, in other pa of these localities, will soon be in a habita state.

INSTITUTION OF CIVIL ENGINEERS

FEB. 11, 1845.—The President, Sir J Rennie, in the chair.

The first paper read was a description, Mr. Thomas Hughes, Assoc. of the met employed for draining some banks cuttings on the London and Croydon, London and Birmingham Railways, als part of the retaining wall of the Euston incli plane. The method adopted was the int duction of Watson's drain-pipes, which made of the iron-stone clay of Staffordshi their surface is pierced with numerous ap tures, small externally and enlarging inwar which form prevents their being clogged the earth, and allows whatever enters to freely into the pipe. In their application the London and Croydon Railway, a lo tudinal trench, 4 feet deep, was dug on crown of the bank, at a few feet from the ed and other trenches, about 30 feet apart, scended from it to the open drain by the sid the permanent way. On the London and mingham Railway the descending trenc were 80 feet apart, and varied from 3 to 6 f in depth; the pipes were introduced into t trenches, and the clay which had been dug was then laid over the pipes; from the lo tudinal line of pipes, upright pipes were o

ally introduced, for the purpose of ventila-
The panels of the retaining wall were
ed by boring holes through the brick-
at given distances by a powerful auger
ed by a machine, and then inserting cast-
pipes of the same form as those of clay.
process proved so effectual, that the wall
h before shewed evidence of water
g lodged behind nearly the whole length,
now evidently drying fast, and the water
d out from the pipes at all times, even
g the severe draught of 1844.
e paper induced an animated discussion
retaining walls, in which Mr. R. Ste-
son gave an interesting account of his views
e time when he designed the walls of the
on incline, the changes which subsequent
rience had worked in his opinion, and the
ons which induced him to adopt the pro-
of staying the walls with cast-iron beams,
ching from one side to the other.
e next paper read was a description of the
Bridge on the Hull and Selby Railway,
Ir. W. B. Bray, Grad. The Act for
railway was obtained in 1836, and it
s with the Leeds and Selby, which was
ed two years previously, a direct commu-
ion between Leeds and Hull; they were
surveyed and executed from the designs of
rs. Walker and Burges. The river
at Selby is 176 feet wide and 14 feet deep
w-water; the tide rises 4 feet at neap-
, and 9 feet at spring-tides. The bed of
river consists of silt resting on a bed of
ksand, beneath which is hard clay.
e foundations of the abutments were
ed of piles driven into the clay, and on
longitudinal sleepers and transverse
were tenoned, the intermediate spaces
g filled with broken stone grouted with
mortar. On this platform, brick abut-
s with stone quoins, string courses, and
ngs were built. They were subsequently
by wrought-iron rods to heavy stone
. There were six pieces placed in pairs,
h were founded on piles driven into the
and tenoned to receive the cap sills, on
h cast-iron frames were strongly bolted,
ends being furnished with cutwaters of
iron plates. The superstructure consisted
ix ribs of cast-iron an inch and a half
, resting on transverse girders, one being
d under each line of rails, and one under
handrail, the rails themselves being laid
ngitudinal sleepers, 12 inches wide and
hes deep. In the Act there was a clause
ring that this bridge should have an
ing arch for the passage of steamers and
ls with fixed masts; this consisted of two
ar leaves each keyed on to a cast-iron
9 inches square, with turned journals.
mer blocks, and trusses. The total
ht of iron-work was 590 tons, and the erec-
of the bridge was let to Mr. Briggs, of
y-on-Trent, and the Butterley Iron Com-
. The communication was accompanied
register of the tides at Selby during the
1842, and was illustrated by a well-
uted model, presented to the institution by
James Walker.
r. J. B. Redman exhibited a portion of a
er pile which had been driven into the
s of the new terrace pier at Gravesend,
843, and in which the "teredo navalis," a
-worm, had made great inroads. It
ared, however, that the ravages of this
t were confined to a space of about 3 feet
e the level of low-water spring-tide, and
therefore if wood-work was well defended
opper sheathing or scupper nails at and
w that point, no great injury would be
ved by piles in any situation.
he meeting was adjourned to Tuesday
ing, the 18th instant, when the following
r was read:—
Description of the Great Britain steam-
, with an account of the trial voy-
," by T. R. Guppy, Associate.

THE FINE ARTS.—The number of foreign
sts now studying in Rome amounts to
. 300 of whom are painters, 58 sculptors,
rchitects, and 7 engravers; 158 of those
sts are Germans, 25 French, 33 English,
Russians, 7 Poles, 13 Swedes and Nor-
ans, 31 Danes, 19 Belgians, 3 Dutch,
Hungarians, 10 Spaniards, 7 Portuguese,
14 Americans. The Italian artists are
in number, besides 2,000 mosaic-work
ers.

DECORATIVE ART SOCIETY.

ON Wednesday, the 12th inst., an introductory paper was read by Mr. Vicary, "On the physiology of timber trees considered with reference to manufacturing purposes."

He commenced with a notice of the few Government and private collections of specimens of timber in this country, and expressed regret that a scientific arrangement had been seldom attempted, whereby a study of the varieties of timber could be promoted. He contrasted in a forcible manner the attention devoted in our national museums to stuffed birds, &c., with the almost total neglect of a useful classification of timber, although entering, as it does, so largely into our every-day comforts and conveniences.

The growth of trees, and the capillary action of the sap, &c., the formation of knots, and the consequent weakness wherever they occur, were next noticed, as also the effects of pruning and lopping at a wrong season, thereby generating what is usually termed "dry rot."

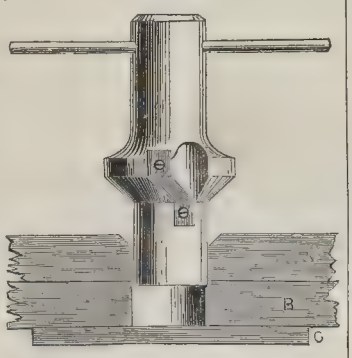
The patent processes of Mr. Payne were introduced, exhibiting in a series of experiments his modes of preserving timber from decay, and rendering it incombustible, also of hardening any English woods, and dyeing them of various colours, so as to make them available for the purposes of the cabinet-maker.

On Wednesday, the 26th instant, a paper will be read "On the interior decorations of the Collegiate Chapel of St. Stephen, at Westminster, as finished by Edward III., A.D. 1348."

L.

TOOL FOR CHAMFERING TRACERY.

SIR,—I beg to hand you a sketch of a tool used in chamfering tracery, after being pierced by the one shewn in page 621, Vol. II. A, represents the tracery as cut; B, a piece of plank



fastened to the tracery by hand-screws, to keep the tool steady; C, a slip of wood screwed to the plank to prevent the tool cutting too deep. The arris, or principal part of the part chamfered, should be cut away, which would much accelerate the work. The block should be made of dry, hard wood, as much depends on its being kept steady to its work. Your insertion of this would oblige,

Yours respectfully,

Newport, Jan. 7, 1845. JAS. PICKARD.

HOW TO PUT OUT A CHIMNEY ON FIRE.—A correspondent of the *Carlisle Journal* states that while visiting a few days ago in Berwickshire, "I saw applied by a lady the following mode of putting out a chimney on fire, which I think should be generally known, for its simplicity, efficacy, and expedition. The chimney of the parlour, where an additional supply of wood was put upon the fire, at once caught fire. The lady immediately brought a plate full of common salt—shut the door of the apartment to prevent a current of air, and sprinkled a few handfulls of salt upon the fire. In about a minute and a half the fire in the chimney, which roared like distant thunder, was quenched. This neither caused smoke, nor precipitated soot, nor put out the fire, nor disturbed the operations of the breakfast, which were going on. The *rationale* of this I believe to be, that, in the process of burning the salt, muriatic acid gas is evolved, which extinguishes fire."

CHURCH NEWS.

A NEW church has just been completed at *Yeovil*, in Somerset, under the direction of Mr. Benjamin Ferrey. The style of the building is early English; it is cruciform in plan, and capable of accommodating 800 persons. The expense of the building has been about 3,000*l.*

—— The new district church at *Montpelier*, Bristol, was consecrated a few days since. The edifice is cruciform, in the style of architecture that prevailed at the end of the 13th century; it is rather plain, built of native stone, with freestone quoins, dressings, &c. A tower is placed at the centre of the west front; it was originally intended to have carried a lofty spire, which, with the tower, would have been 140 feet in height, but this important feature has been postponed, and thus the pleasing appearance of the exterior is greatly diminished. The pulpit is of stone, panelled on either side, and supported by a corbel of deeply-sunk mouldings. The lectern is of oak. The chancel is ascended by five steps. The altar-piece is composed of arcaded panelling, with detached shafts, cornice over, set with the ball flower, and the spandrels filled with foliage. The roof is devoid of plaster, and the characteristic Gothic feature carried out by rendering the construction ornamental. In the nave the roof is not so light as in the chancel, in consequence of the Incorporated Society having prescribed the use of the tie-beam. The whole of the woodwork is stained and varnished, and has the appearance of oak. The font, placed near the western and principal entrance, is of stone, the sides ornamented with elegant foliage, &c.; round the pedestal are four detached shafts; the whole stands on an octagonal base. The architect is Mr. John Hicks.——*Chester* Cathedral is about to undergo a thorough restoration, for which purpose a liberal subscription has been entered into. The cost of the works already contracted for is 2,504*l.*, but the sum required will be 5,000*l.* Amongst the contributors are his Royal Highness the Prince of Wales, 105*l.*; the Dean and Chapter, 100*l.*; the Dean of Chester, 100*l.*; the Marquis of Westminster, 105*l.*; Earl of Stamford, 105*l.*; Bishop of Chester, 100*l.*——It is in contemplation to open the new church at *Wilton*, Wilts, at Easter. The raised chancel is to be paved with porcelain tiles of a gorgeous pattern, except one small portion, which will be covered with small squares in agate, lava, and precious stones collected abroad by the Countess of Pembroke. No pews or galleries will be admitted, open sittings in carved oak being already placed on the floor of the building. A spacious area is preserved around the exterior, terminating in a stone palisado-work on the side next the public highway.——A new church of large dimension is to be erected at *Ashby Wolds*, Leicestershire, towards the funds for which her Majesty the Queen Dowager has liberally subscribed. The Marchioness of Hastings has given a site; and amongst the other contributors are the Earl Howe, the Bishops of Peterborough and Lichfield, the vicar of Ashby-de-la-Zouch, Colonel Buckley, Mrs. Lane Fox, &c.——The Honourable and Rev. G. M. Yorke, formerly of Queens' college, rector of St. Philip's Birmingham, has commenced soliciting subscriptions from the parishioners for the necessary repairs of that sacred edifice. We understand that donations amounting to 1,000*l.* have been received, and that about 600*l.* more will be required.——An appeal for contributions in aid of building a church in the new district of *Pembroke Dock*, has been extensively circulated. There is now a population of 4,000 inhabitants (still rapidly increasing) without a church nearer than Pembroke, a distance of two miles and half. The incumbent of Pembroke has promised, conditionally—that is, if the church shall be built and consecrated during his incumbency, a donation of 200*l.* A subscription having been opened, the sum of 400*l.* has been placed in the hands of the treasurer, exclusive of the above donation, which is available only under the aforesaid conditions.

An Artesian well is being sunk in Berkeley-square, in lieu of the old pump which has for so many years past supplied the square and its vicinity.

New Books.

The Botanic Garden; or, Magazine of Hardy Flowering Plants: to which is added, The Fruitist; a Description of the best Apples, Pears, and other Fruits, their Qualities, Habits, and Culture. By B. Maund, F.L.S. Small 4to. and 12mo. January, 1845.

This work has enjoyed an uninterrupted career of twenty years, and is thoroughly established in public favour. Such a result is well merited, for the editor has evinced his sense of the support he has received by so many successive additions to the original plan, without in any instance increasing the price, that we have long regarded it as the most ample, elegant, and cheapest horticultural periodical in the kingdom. But, as if to outdo his former self, Mr. Maund seems to think that having borne flowers of all hue, it is time his work should bear fruits; accordingly, he has now added "The Fruitist." This is a most valuable addition, and we must recommend it to every one who has a garden, from the peer to the peasant. Indeed, it is from regarding the advantage of the cottager that we are chiefly induced to notice it here. The instructions for the culture of the fine varieties of fruit-trees figured in it are mainly adapted for dwarf-trees, so that there is scarcely a labourer's garden so small as not easily to admit three or four of these, which he can cultivate at his leisure, and find his recompense in the ornamental blossoms they will put forth in spring, and the substantial and savoury fruit they will yield in autumn.

We deem it one of the most gratifying signs of the times that the well-being and comfort of the labourer now occupies the thoughts and attention alike of the legislator and the philanthropist; that efforts are every where making to implant in his heart the feeling, too long banished from it, that he is *not an intruder here*, but a valuable, essential, and integral part of the body politic. Few things will conduce more to effect this blessed change than giving him a garden with a few fruit-trees, which may be at once his pride and his profit. How truly does Mary Howitt, who knows the depths and has taken the soundings of the poor man's heart, sing, "like an angel in the clouds," of the Poor Man's Garden:—

"But he, the poor man, sees his crops,
And a thankful man is he,
For he thinks all through the winter
How rich his board will be!
The rich man has his wall-fruits,
And his delicious vines;
The fruit for every season,
His melons and his pines.
The poor man has his gooseberries,
His currants white and red;
His apple and his damson-tree,
And a little strawberry-bed.
A happy man he thinks himself,
A man that's passing well—
To have some fruit for the children,
And some besides to sell."

All success, therefore, to the "Botanic Garden" and "The Fruitist."

Correspondence.

Association of Architectural Draughtsmen.

Sir,—As you have on many occasions afforded space in your widely-circulating journal for the purpose of disseminating the rules and principles which govern the Association of Architectural Draughtsmen, I beg, with your kind permission, again to call the attention of the profession generally, and more especially of your correspondent of January 11, to the address and real objects of the society, premising, for the information of those who possess copies of the laws of the association at first issued, that during its operation, now two years and a half, it has been found expedient to materially remodel the rules which first governed it.

The meetings of the association take place on the first and third Wednesdays in every month, and are held at 33, Southampton-street, Strand.

A leading object in its formation, that of securing to unemployed members and invalids a weekly stipend, was that which received on the part of the committee of management the most serious consideration; it also attracted considerable attention out of the society, and many objections having arisen against it, it was found eventually expedient to make it a mere voluntary "benevolent fund," to which members might or might not subscribe, as their means or inclinations prompted. This accumulating fund tells its own purpose, and in proportion to its amount, so will be its utility if discriminately laid out.

The next object of importance, that of providing employers with assistants and "unemployed members" with situations, has been found fully to answer every expectation of its promoters, many members having secured eligible situations through its influence, and formed connections with architects which are likely to be of material and permanent benefit to them.

Among the new rules an exemption is provided in favour of members in practice for themselves in regard to the quarterly contribution drawings, architectural prints being made admissible instead; the fines also against members generally for the non-production of the said drawings are limited to 5s., which those who have occasion from press of business or other circumstances, can avail themselves of; and, further, with regard to these "quarterly drawings," members are allowed to withdraw their first when they contribute their ninth, and so on in rotation, leaving at all times eight in the folios of the society; this rule has given great satisfaction to every one. Apart from the general management of the society, a number of the members have formed a "book club," which is conducted in the usual manner, an architectural work being selected, the members ballot for the reading and the choice of purchasing the work at half its original cost. Having now stated the leading objects of the society, allow me to press upon such of your readers as belong to the architectural profession the importance of supporting by their fellowship, activity, and talent, this most useful and laudable society. It requires co-operation in all its branches, additional members to secure on every meeting night a full and attentive audience to its various papers and topics of discussion—numbers to co-operate in the purchase of more valuable works, and to swell the already valuable collection of drawings, that examples may be amassed of every class of executed works, practical and ornamental, classic and Gothic, from the earliest ages to our own day—and last, though not least, as usual, we want numbers to augment the funds, that its operations may be carried on with spirit, and that we may engage permanent premises suitable for the collecting of casts, models, books, drawings, and engravings, and annually to form a public exhibition of purely architectural subjects apart from the glitter and gorgeous frames that surround the few annually hung at the Royal Academy.

Allow me, in conclusion, to apologize to you for the length of this communication, and to remain, Sir, your constant reader,

A Member of the British Association of Architectural Draughtsmen.

London, Feb. 6th, 1845.

Competition for laying out ground, King's-road, Reading.

Sir,—Having submitted a design for laying out for building purposes ground situated in the King's-road, Reading, I can bear testimony to the correct statement, dated 5th Feb., and signed "Fairplay," which appeared in the last week's number of your highly useful journal. I paid two visits to Reading, the first to examine the site, and the second to attend at Mr. Blandy's office, for the purpose of giving *my opinion in writing* upon the merits of the two designs which in my judgment should appear most worthy of the premiums offered. This was by no means so difficult a task as might have been expected, for although *forty-seven* designs had been submitted, I found, upon examination, not more than *half* that number to be finished and completed in accordance with the instructions issued. Some of the designs exhibited were so largely at variance with the rules laid down, that I felt surprised they had not been at once rejected. It would, therefore, be a satisfaction to learn that the successful designs *are* in rule and order; and perhaps Mr. Blandy, through the medium of your widely-circulated journal, may be induced to communicate that fact for gratification of those gentlemen who have their exertions afforded him so much pro sional information. I am, Sir, &c.,

London, Feb. 18th, 1845. Veritas

Correspondence on New Metropolitan Buildings Act.

Jurisdiction of official referees.

Sir,—In consequence of my letter upon subject, which appeared in your journal of 8th instant, I was applied to on the follow Monday to attend before the official refer on the succeeding Thursday, to argue a c for a party who had received a summons t to attend, upon the information of a dist surveyor, for alleged irregularities under "New Metropolitan Buildings Act;" wh was an opportunity I gladly availed my of, as some nice points were involved in peculiarities of the case, that may, in present state of excitement upon the questi be interesting to your readers. I of cou shall carefully avoid remarking on w occurred at the conference, confining my to statements that came to my knowledge instructions, but I will not omit the opp tunity thus afforded of stating the gr courtesy with which we were received, and evident desire to elicit the truth. From course of proceeding adopted, I feel satis that substantial justice will be done throu the medium of the equitable powers intrus to the referees for all matters in differe arising after the 1st January last, thus avoid the ruinous litigation that has arisen heretof upon the construction of various clauses the old Act.

My ground of complaint is, that they h assumed an authority for works "commence previous to 1st January, which, being u construction of terms in a penal act, are o to be discussed in a court of law, upon ground of maintaining civil rights, wh every citizen* is entitled to do, unless c trolled by such an equitable jurisdiction as evidently given to the referees after the January.

If this view be correct, and a doubt ex as to the construction to be put upon terms words, it appears the rational course would for the referees at their own cost, upon a c put, to seek the best legal advice, and not summons to individual parties, put them considerable expense to argue points that m all tend pretty much to the same result.

Under my advice, we appeared by proté After this long exordium, we will now to facts, which, if contrived for the purpose, co not more completely have met two import points for the object of raising the questi viz. the "*bona fides*" of the matter, and intended buildings projecting beyond the f of other houses. I will confine myself in t letter to the "*bona fides*," as, if that is es blished, the other point falls to the grou A party having determined some years si to erect five fourth-rate houses within operation of the old Act (but prevented circumstances over which he had no contr gave due notice to the district surveyor of intention on the 27th December (the case surrounded with much matter distinc proving "*bona fides*" within the knowled of the district surveyor, who had been in c respondence upon the subject, and assented writing nearly two months previous that su a proceeding would be in accordance with t Act). I prefer assuming he had not heard the intention until the 27th December, as m completely raising the argument upon oth cases so circumstanced.

The party, between the time of notice a 1st January, proceeded with the work rapidly as possible, having put in the footin of the whole length of the front wall and one end wall, and indicated by projections t party-walls of the five houses, with some f courses of the walls in addition to the footing The work was steadily proceeded with un 14th January, when the builder received notice to suspend operations. The opinion the referees, as addressed to Mr. Alle noticed in your journal 25th January, ma now be taken as their dictum, as in this ca the district surveyor founded his complaint

* This word appears to be an apposite illustration, of t word "commencement." I contend for using it in largest sense, and refuse to be limited as meaning a citiz of London.

referees upon this their opinion; and upon grounds they issued the summons.

The peculiarity of this case is, that an ad- legal notice was given under the then ing Act, neither that nor the present Act ay way controlling the progress of works, ot that under the new Act, if suspended for tain period, fresh notice must be given, ently only to inform the district surveyor the works being in operation require his intendence; sec. 13. A controlment of as to roofing in (for finishing I repudiate, y letter in your journal of the 8th inst.) ly applies to houses commenced before anuary, and that only in new districts.

lso contend that the slightest com- ement is provided for in schedule A, g been so commenced upon legal notice r the former Act, and I must presume schedule has been overlooked in the ng of the summons, inasmuch as the dule declares the former Act, 14 Geo. 3, , is repealed except as to certain points, of which precisely meets this question:— d except as to offences committed, penal- ncurred, and fees payable, and any pro- ngs taken or commenced, or which might ken or commenced under the said Act on fore the said 1st day of January, 1845." tend that the word "proceedings" must be n in as large a sense as the word "com- cement." Legal notice having been given, works if not, "might have been com- ced," and to prove that it could not mean proceedings, it will be necessary only to eed through a few more paragraphs of the tent of Repeal," where we find, to prevent doubt, it is stated, "and to legal proceed- in respect of accidental fires." The party plained of would willingly have given a notice under the new Act, as the thick- of walls, &c. would have been precisely ar; but the sanction of the referees to further ground of complaint of the dis- surveyor, that these buildings projected nd the general line of houses, would have ed the impossibility of building on the nd if the present footings were repudiated. is a question of considerable importance ture operations, and I will endeavour to e in a subsequent letter, that whatever the tion of the Act may have been, there is uch existing enactment.

Your obedient servant,
GREENWAY ROBINS, Architect.
ll-street, Peckham, Feb. 15, 1845.

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r-FRONTS UNDER NEW BUILDINGS ACT.

R,—In schedule E of the new Metro- an Buildings Act, under the head "Wooden t-fronts and Shutters," it is stated that the kwork of any shop-front must not be fixed er than 4½ inches to the centre line of a y-wall. Again, the succeeding clause res that, in case the woodwork be fixed ch distance, then a pier or corbel, built of or of brick, and of the width of 4½ es, must be fixed in the line of the party- so as to be as high as such woodwork, so as to project one inch, at the least, ont of the face thereof. Does this mean an unsightly mass of brickwork is to be ed out from the face of an external wall e distance of an inch beyond the pro- on of the cornice, or merely have refer- to breastsummers and story-posts? Your able opinion upon these points will confer our upon, Sir, yours obediently,

A SUBSCRIBER.

gton, February 12, 1845.

he words of the Act are perfectly clear. e woodwork be put up 4½ inches from the e line of the party-wall, a pier or corbel, ches wide, built of stone or brick, or other mbustible material, must be fixed in the of the party-wall, so as to project one inch, e least, in front of the face of such wood- . The object, and a very important one, f course, to prevent the communication e from house to house by means of the lature. We do not wish to suggest ion; but it is obvious that if the wood- l be any thing more than 4½ inches, say 5 inches, the corbel cannot be insisted For the general good, however, the in- ion of the enactment should be adhered to. ll not be difficult to prevent the corbel or from injuring the appearance of the front; r still, the entablature, &c., may be ded of incombustible material.—ED.]

Miscellanea.

DIVING BELLS.—The first diving bell we read of was nothing but a very large kettle suspended by ropes, with the mouth downwards, and planks to sit on fixed in the centre of the concavity. Two Greeks at Toledo, in 1588, made an experiment with it before the Emperor Charles V. They descended in it with a lighted candle to a considerable depth. In 1663, William Phipps, the son of a blacksmith, formed a project for unloading a rich Spanish vessel sunk on the coast of Hispaniola. Charles II. gave him a ship, with every thing necessary for his undertaking, but being unsuccessful, he returned in great poverty. He then endeavoured to procure another vessel; but failing, he got a subscription, to which the Duke of Albemarle contributed. In 1687, Phipps set sail in a ship of 200 tons, having previously engaged to divide the profits according to the twenty shares of which the subscription consisted. At first, all his labours proved fruitless; but at last, when he seemed almost to despair, he was fortunate enough to bring up so much treasure that he returned to England with the value of 200,000*l*. Of this he got about 20,000*l*., and the Duke of Albemarle 90,000*l*. Phipps was knighted by the king, and laid the foundation of the fortunes of the present noble house of Mulgrave. Since that time, diving bells have been often successfully employed.—*Mechanics' Magazine.*

CASE-HARDENING OF IRON NAILS, SCREWS, &c.—When electro-deposition is used in coating iron with copper, the iron is liable to be corroded either during the process or afterwards, an oxide of iron being formed beneath the copper coating. To prevent this, it is proposed to coat, or case-harden, the iron with lead, or an alloy of lead, before the coating of copper by electro-deposition is applied. A patent for this invention has lately been granted to Benjamin Brunton Blackwell, of Newcastle-on-Tyne, Gent.; and William Norris, of Exeter, C. E. The case-hardening is performed by first freeing the surface of the articles from any scale that may attach to them, and then placing them, with parings of hoof, horn, or bone-dust, in a crucible well luted, and subjecting them to a red heat, taking care to remove the articles as soon as a thin surface of case-hardening is obtained. The articles may be coated with lead or an alloy of lead, by first freeing their surfaces from scale, and then plunging them into a vessel of the metal in a molten state. The alloys of lead which are preferred for the purpose here stated are, first, from one-tenth to one-fifth of tin combined with a given quantity of pure lead; and secondly, one part of antimony, two parts of tin, and fifteen parts of pure lead. When the articles have received this first coating, they are next to be placed in a solution of copper, exposed to the influence of a galvanic battery kept at a temperature of from 80° to 100° of Fahrenheit. The claim of the patentees consists in first coating the articles with lead or an alloy of lead, and afterwards coating them with copper by means of galvanism.

IMPROVEMENTS IN LEAD PIPES.—A patent for this purpose has recently been secured in America by Messrs. C. and G. E. Sellers, of Cincinnati. In manufacturing lead pipes by this process, the metal from which it is to be formed is fused, and poured into a receiver of cast-iron, or other metal of great strength, which receiver is heated by means of a suitable furnace, so as to preserve the metal in a fluid state. The lower part of the receiver contains a die, having an opening through it of such size as to adapt it to the forming of the outside of the pipe, and a case or mandrel to determine its size or calibre within. It also inclosed the apparatus which is employed for the purpose of cooling the pipe as it leaves the core, and also of keeping the temperature of the core below that of melted lead, by which means we effectually prevent the combining of the lead with the surface of the core, which takes place when lead is in a fused state, and is subjected to heavy pressure. The fused lead is to be forced out by means of a ram or plunger, made to fit the cylindrical cavity containing the lead, the said plunger being brought down by means of an hydrostatic press. The patentees state that "what we claim as our invention is the employment of a tubular core or mandrel, divided longitudinally into chambers, through which heated water, air, or steam, is to be passed, in the manner described, and for the purpose of preserving the said core at a temperature somewhat below that of melted lead, by which device the lead is effectually prevented from adhering to the mandrel. We claim the manner of forming the packing of the ram, by attaching to its end the piece of wrought-iron, rendered thin at its lower edge, by forming the face of the said piece concave, for the purpose above set forth. (The purpose here alluded to is, keeping the piston tight, and preventing the escape of the melted lead around the edges of the ram or piston.) We claim the combination and arrangement of the parts constituting the water-chamber, consisting of the tube, the bed-piece, and the conical die—the supply of water thereto being given, and governed substantially as described."

ARTHUR'S OON.—This curious specimen of Roman masonry was destroyed many years since. In a work entitled *Caledonia Romana*, recently published by Bell and Bradfute, it is thus described:—"This building was of a circular form, its shape in some measure resembling that of a common bee-hive. It measured at the base from twenty-nine to thirty yards in circumference, and continued of the same dimensions to the height of eight feet, from which point it converged gradually inwards in its ascent, till at an elevation of 22 feet, the walls terminated in a circle, leaving in the top of the dome a round opening 12 feet in diameter. On its western side was an arched doorway, 9 feet in extreme height, and above it an aperture resembling a window, of a slightly triangular form, 3 feet in height, and averaging nearly the same in width. The whole was formed of hewn freestone, laid in regular horizontal courses, the first of them resting upon a thick massive basement of the same material, which, to follow out the simile, represented with curious fidelity the common circular board on which the cottage hive is usually placed. The interior of the structure corresponded with its general appearance from without; the only difference being in the concavity of the shape, and in its having two projecting stone cornices round its interior surface, the one at a height of 4 and the other of 6 feet from the ground. The style of the workmanship was singularly perfect, and shewed an intimate acquaintance with masonic art. No cement of any description had been made use of in its construction, yet the stones were so accurately joined together, that even the difficult process of forming so diminutive a cupola by the concentration of horizontal courses was accomplished there in the most skilful and enduring manner."

NOTICES OF CONTRACTS.

For the execution of the whole Works on the Slamannan Junction of the Edinburgh and Glasgow Railway, being about a mile long.—H. G. Wright, Secretary, Railway Office, Queen-street, Glasgow. February 24.

For such Mason's and Pavior's works (stone paving only) as may be required by the Commissioners of Sewers of the City of London, for the term of three years, from the 25th of March next. Joseph Daw, Esq., Guildhall, London.—February 25.

For the supply of Granite or other hard stone for the service of the Stone's End district of the Surrey and Sussex Roads.—Road Office, Charing Cross, and W. S. Gaitskell, Esq., 21, Stamford-street, Blackfriars' Road.

For the supply of from 4,000 to 5,000 yards of Iron Railing for inside drives of Birkenhead-park.—Mr. Hornblower, architect, Hamilton-buildings, or Mr. Walker, Town-hall, Birkenhead.—February 26.

For supplying the Great Western Railway Company with such quantity of the following articles as may be required from the 1st of April, 1845, to the 31st of March, 1846; viz. Bar and Pig Iron—Castings—Bolts and Rivets—Copper (sheet and ingots)—Ironmongery, screws and nails—Brass and Iron clasp, closet tacks and wirework—Lead and Zinc—Steel for springs—Timber—Tubes, brass, copper, iron and zinc—Patent Wheel-tire, and various other articles.—Chas. A. Saunders, Esq., Secretary, Paddington. February 27.

For taking down and rebuilding the Tower of Grendon Church.—Mr. John Baker, Churchwarden, Grendon, near Atherstone. March 1.

For building twelve Boats and Engines for the City Steam-boat Company.—Charles Hancock, 17, Earl-street, Blackfriars.

For surveying and mapping at per acre an Agricultural Parish in Bedfordshire, consisting of about 4,000 acres.—Mr. James Butler, 51, Wigmore-street, Cavendish-square. February 26.

For Surveying and Valuing the Property in Austin-ward, Humber-ward, Trinity-ward, St. Mary's-ward, Whitefriars-ward, and North-ward, all in the parishes of Holy Trinity and St. Mary, Kingston-upon-Hull.—John Moxon, Clerk to the Governor and Guardians of the Poor, Workhouse, Hull. March 1.

For the erection of a Station House and Strong Rooms for the use of the Staffordshire Constabulary Police Force at the Town of Wolverhampton.— James Smith, County Surveyor, Stafford. March 1.

For a survey of the Messuages, Lands, and Hereditaments liable to poor rates, in the parish of Tydd St. Mary, Lincolnshire; together with a plan thereof, upon a scale of three chains to an inch, a tracing of such plan, and a book of reference in duplicate. The parish contains from 4,000 to 5,000 acres. — Mr. Edward Key, Clerk of the Union, Holbeach. March 3.

For the furnishing, delivering, and fixing a Steam-engine, with boilers, pumps, &c., at the Water-works, Green-lane, West Derby, Lancashire. —Edward G. Deane, Clerk to the Paving Commissioners, No. 1, Parish offices, Fenwick-street, Liverpool. March 4.

For the Mason's and Pavior's Works, supply of Guernsey Granite Chippings and Yorkshire Paving, for one Year, from the 25th of March next, for the parish of St. George, Hanover-square. Mr. R. Lees, Clerk to the Paving Committee. March 4.

For the supply of 20,000 tons of Iron Rails, and 7,000 tons of Iron Chairs, for the Newcastle and Berwick Railway.—George Hudson, Esq., Railway Office, York, and at 24, Great George-street, Westminster. March 4.

For the supply of 100,000 Railway Sleepers for the Newcastle and Berwick Railway.—George Hudson, Esq., Railway Office, York. March 4.

For a supply of thirty iron Lamp-posts and Columns, according to pattern, each weighing at least four cwt.—Robert Oldersham, Parish Clerk, Islington. March 5.

For completing the Works connected with the inclosing and annexing certain Land lately purchased for the improvement of Newport Bridewell, in the Isle of Wight.—Mr. Woodham, Deputy Clerk of the Peace, Winchester. March 8.

For repairing the footway pavements, and providing and laying new curb and other stone; for repairing the carriage-way, pavements, and providing and laying new granite and other stone, during one year from Lady-day next, for the united parishes of St. Andrew, Holborn, and St. George-the-Martyr, Middlesex.—Clerk's office, 13, King's-road, Bedford-row. March 8.

For the supply of 11,000 feet of nine-inch cast-iron Pipes for a new line of Aqueduct to be laid in the Island of Malta.—Vm. Casolani, Collector of Land Revenue, Office of Land Revenue and Public Works, Valletta, Malta. March 31.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

February 25.—At the King's Arms Inn, Hemel Hempstead; a large Fall of capital Oak, Ash, Elm, and Beech Timber Trees, the greater portion of which are of very large dimensions and superior quality.—Mr. James Adams, auctioneer, Clarence-street, Staines, Middlesex.

February 25.— At Elmer Farm, Beckenham, near Sydenham, Kent; 145 Elm Trees of large dimensions and prime quality.—Mr. Warren, land and timber surveyor, Isleworth.

February 26.—On the Estate of the Earl of Denby, at Monk's Kirby; 70 Lots of very superior Ash Poles, a few Fir Poles, 74 Lots of very straight Larch Poles of good size, 24 very large Ash Poles, 300 Beech Trees, a few Fir and other Timber Trees.—Mr. T. Nixon, auctioneer, Claybrook.

February 27.—At the Coach and Horses Inn, Nazing, about two miles from Waltham Abbey, and four from Epping; 300 Oak, 150 Elm, and 50 Ash Trees of good dimensions and clear growth. —R. B. Andrews, Esq., solicitor, Epping; and Mr. R. K. Davies, auctioneer, 68, Mark-lane.

February 28.—At Garraway's Coffee-house, Cornhill; 150 logs of Cuba and African Mahogany, 67 logs of New South Wales Cedar, 1,600 planks of Bahia and Rio Rosewood, 848 Lancewood Spars.—Alexander Simson, broker, 75, Old Broad-street.

February 28.—At Trumpington, Cambridgeshire; Ash and Alder Timber Trees, Oak, Ash, Elm, and Larch Spires and Poles. The Larch Poles are very clean, and of large girth, varying in length from 20 to 50 feet; the Ash and Elm Spires are also very straight and of large dimensions.—Mr. W. Smith, gamekeeper, Trumpington; and Mr. J. Wentworth, auctioneer, Cambridge.

February 28.—At Garraway's Coffee-house, Cornhill; 300 loads Quebec Red Pine; 100 loads Yellow Pine; 100 loads of Ash; 80 loads of Oak; 10,000 Yellow Pine deals and battens; 10,000 Spruce deals and battens.—T. and J. Simson, brokers, 5, Change-alley.

March 3.—At the Greyhound, Sandy, Bedfordshire; a large fall of remarkably large Larch and excellent Scotch Spires.—Mr. J. Carrington, auctioneer; Potton and Biggleswade, Befordshire.

March 4.—At the Green Man Inn, Plashet, Essex; 220 capital Timber Trees, 200 superior Poles, of large dimensions, part nearly timber-girth, consisting of Lime, Ash, Beech, Oak, Black Poplar, Birch, and Hornbeam.—Mr. Mills, land and timber surveyor, 24, Poultry.

March 4.—In the Wood on the Deadmonsey Estate, near Market-street, Herts: 1,100 large Oaks; 3,500 smaller Oaks; 400 large Beech; 600 smaller Beech; 1,000 Oak poles. The estate is twenty-eight miles from London, and about seven miles from the Grand Junction Canal at Boxmoor. —Mr. George Hudson, Auctioneeer and Surveyor, Woolwich; or Mr. Mellor, Auctioneer, Dunstable.

March 7.—At the Hall of Commerce, Threadneedle-street: 500 loads of large Yellow Pine Timber, 20,000 Baltic and Colonial Deals.—Churchill and Sim, brokers, 75, Old Broad-street.

March 10.—A quantity of excellent Scaffolding, &c., lately used in erecting a division of Westbourne-terrace, near the Great Western Railway.—Mr. Charles Green, Auctioneer, 8, Grove-end-place, St. John's-wood-road.

March 11.—At the King's Head Inn, Enfield, Middlesex; 200 Oak Timber Trees of large dimensions and excellent quality, 34 Elm and 24 Ash Trees.—Mr. Henry Cobb, surveyor and land-agent, 18, Lincoln's-Inn Fields.

Shortly.—A valuable cargo of Mahogany and Cedar in Logs and Planks.—Mr. R. Marvin, auctioneer, 34, Queen-street, Portsea.

COMPETITIONS.

Designs and Plans are required for a Corn Exchange, to be built in the centre of the Corn Market, at Romford, Essex. Ten guineas will be given for the most approved Design, and five guineas for the next best.—Mr. Harvey George, Romford. March 1.

Plans and Elevations for a new Workhouse with the requisite offices, capable of accommodating 400 inmates, for the Canterbury Incorporation. The architect is requested to state the amount of premium he will require for the use of his plan and specifications in the event of the Court of Guardians adopting the same, and appointing their own surveyor to superintend the works.—Mr. W. M. Smithson, Clerk, Canterbury. March 8.

The Committee of the Liverpool Docks are desirous of receiving Plans for the most convenient mode of landing or embarking passengers, carriages, &c., &c., at George's Pier-head. A Premium of 200*l.* will be given for the Plan selected and acted upon, and a Premium of 100*l.* will be given for that Plan which may be deemed to be the next in utility.—Daniel Mason, Esq., secretary, Dock Offices, Revenue-buildings, Liverpool. March 19.

TO CORRESPONDENTS.

Received with thanks.—*A Proposition on the National Debt, by Luke James Hansard; Suggestions for a Collection of Studies of our National Architecture, by C. B. Lamb; Prospectus of Tardley's Pneumatic Wind Guard; Rules of East London Building Association.*

"Dr. D." *is thanked; a notice of the meeting was in type before his letter arrived.*

"Caouchoue" *has our thanks.*

"J. W. Archer."—*The addition is not advisable.*

"A.P. (Datchett)."—*Without wishing to say any thing to the prejudice of the other materials mentioned, we should give the preference to Claridge's Seyssel Asphalte.*

"Embryo Architect" *will find an answer to part of his question in another page. He can obtain a prospectus of Corrugated Iron at the Grove, Southwark.*

"J. White and Sons."—*Our remark did not apply to the cement. We have so good an opinion of Keene's Marble Cement, that we would willingly assist in drawing public attention to it.*

"H. A. (Manchester)."—*We do not see at the moment, how we can aid his purpose.*

"H. R. A."—*Does our correspondent mean an architectural, or a general cyclopædia?*

"I. I. I."—*Next week.*

"A. R. C."—*Mr. Manfred No.* 36, *Palace-street, Pimlico.*

Received—Joseph Ash; M. J. S. Romford; D. W. B.; Lieut. Higginson; Censor.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, February 24. — *Geographical*, Waterloo-place, 8½ P.M.; *British Architec* 16, Grosvenor-street, 8 P.M.; *Medical*, Bolt-cou Fleet-street, 8 P.M.

TUESDAY, 25. — *Medical and Chirurgical*, Berners-street, 8½ P.M.; *Civil Engineers*, Great George-street, 8 P.M.; *Zoological*, Hanov square, 8½ P.M.

WEDNESDAY, 26.—*Society of Arts*, Adelphi, P.M.; *Geological*, Somerset House, 8½ P. *Pharmaceutical*, 17, Bloomsbury-square, 9 P.M.

THURSDAY, 27.— *Royal*, Somerset House, P.M.; *Antiquaries*, Somerset House, 8 P. *Royal Society of Literature*, 4, St. Martin place, 4 P.M.; *Medico-Botanical*, 32, Sackvil street, 8 P.M.; *Numismatic*, Somerset Hou 7 P.M.

FRIDAY, 28.—*Royal Institution*, Albemar street, 8½ P.M.; *Philological*, 49, Pall M 8 P.M.

SATURDAY, March 1.—*Asiatic*, 14, Graft 2 P.M.; *Westminster Medical*, 32, Sackvil street, 8 P.M.; *United Service Institution*, Whi hall-yard, 9 P.M. (anniversary); *Medical Chirurgical*, 53, Berners-street, 8½ P.M. (an versary).

ADVERTISEMENTS.

PERSONS having Second-hand D Frame, Saws, Tools for Matching and Plan Boards, or for Rebating or Cutting Moulding, suitable Working with Steam Power, may hear of a Purchaser addressing a letter to B., at the Office of "The Builder."

HENDRY and GLOVER, IRO FOUNDERS, beg to inform their customers they have removed their Foundry (from Smart's-buildi to CHARLES-STREET and 168, DRURY-LANE, w they have adopted every improvement to enable them compete successfully in quality, price, and punctuality. have also an extensive and well-arranged stock of patte for every description of Castings.

BY HER MAJESTY'S ROYAL LETTERS PATEN LIEUTENANT FRANCIS HIGGE SON'S Substitution of Iron for Wood, in jo girders, all floor-supporting, well-covering, and strengt ing parts of house-building, by which the remotest positi of danger from fire is obviated, without in anywise in fering with, or altering the present methods or principl construction. May be obtained from Messrs. Boulton, W and Co., London-street, Fenchurch-street, London; Soho, Birmingham; by application to the Inventor Patentee, Lieutenant Higginson, Saint Margaret's Bu Rochester, Kent. All letters pre-paid.

TO ARCHITECTS AND BUILDERS. DOULTON AND WATTS, LAMBE POTTERY, LONDON.—Manufacturers in TE COTTA of VASES, FOUNTAINS, &c., for Pleas Grounds. FIGURES for Public Buildings, and ARC TECTURAL WORK of all kinds.

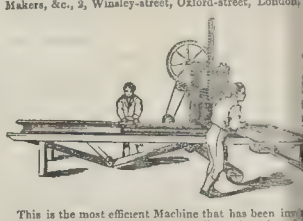
This TERRA COTTA has all the appearance of St and being subjected to a high degree of fire is imperish thus possessing a decided superiority over cement or a cial stone.

Stone-ware, Water-pipes for Houses, Drains, &c., W closet pans, with simple and perfect trap; the cheapt efficiency, and easy adaptation of which render them de able not only for public institutions, but for every house

ARCHITECTS.—NOTICE IS here given that the TRUSTEES appointed by SIR JO SOANE will meet at the Museum, in Lincoln's-Inn Fi on Monday, the 24th of March, at three o'clock in the a noon precisely, to distribute the dividends which shall accrued during the preceding year from the sum of 5,8 reduced 3 per cent. Bank Annuities invested by the la John Soane, among distressed Architects, and the Wi and Children of deceased Architects left in destitute or tressed circumstances.

Forms of application may be had at the Museum, must be filled up and delivered there on or before Satur the 15th of March, after which day no application ca received.

HATCHER'S BENNENDEN TI MACHINE, Manufactured and Sold only by C TAM and HALLEN, Engineers, Agricultural Implem Makers, &c., 2, Winsley-street, Oxford-street, London,



This is the most efficient Machine that has been inv for the purpose of making Drain Tiles. Any shape can be made by merely changing the die, which can be in a few minutes. It requires but few hands, viz. man and three boys. With this amount of labour, the duct of a day of 10 hours is as follows, viz:—

1 inch diameter of Tile, 11,000 | 1½ inches diameter of Tile,
1¼ " " " " 8,000 | 2½ " " "

The Machine is moveable down the drying-sheds, s it requires no extra boys to carry the Tiles, nor are a required in drying. It has been in full operation upwards of four months at Hempstead Park, near brook, Kent. No charge made for Patent dues or lic The purchase of the machine includes free use of it.

The Builder.

No. CVIII.

SATURDAY, MARCH 1, 1845.

AN examination of the very interesting example of iron-work at Chelsea Hospital, represented by the accompanying engraving (p. 102), leads us to express regret hat art is now so seldom employed on this naterial, and that in the modern manufacture f works in iron right principles are not pur-ued. It is a blot upon the age, that modern rt has done so little in a material with which odern science has done so much. Cast iron as taken the place of wrought, and in many spects offers considerable facilities, and might e very advantageously and effectively used in chitecture if it were applied in accordance th true principles, *in forms adapted to the aterial.* Ironwork should look like ironwork, d stone should shew itself to be stone. An cient iron railing has a beauty of its own, ite distinct from the beauty of a stone balus-de; but we unfortunately seldom use iron any other way than as an imitation of some her material.

To apply iron in construction properly, very ferent proportions should be used from what uld be necessary for stone, and these would d to new combinations, and ultimately to a w style of architecture. We have the means our hands to produce very extraordinary cts, but as yet we don't know how to use m efficiently.

What we are now about to say, however, re-s chiefly to iron applied decoratively, not cturally. In ancient works, such as hinges, s, bolts, rivets, railings, or screens, the test ingenuity to produce beauty, in addi-to skill to render the work sound and fit ts purpose, is apparent. You see that the was an *artist* as well as a smith, that he rstood the material on which he was ing, and knew how an effect was to be ned by it. The beauty of the foliage in works of the 16th century formed out of iron plates, simply twisted up by a tool, rvellous. Tracery was produced by plates ently pierced, laid one over the other, ut any attempt at disguise, and flat bars rivetted together, and made ornamental e very rivets. These men, as we said e, were artists as well as smiths: one of indeed, Quentin Matsys, shewed himself he world in another material; but his ation as the worker of the iron screen ng Edward the Fourth's tomb in St. e's Chapel, at Windsor, is as great as r his well-known picture of the Misers, ndsor Castle.

t extraordinary piece of ironwork is now repair at Messrs. Bramah's, and must be ered one of the finest specimens in the y, presenting paneling and tracery, s, finials, and minute ornaments, t in the most perfect and artistical r. Inquiring of one of the firm whether ld be able to produce a similar work, y was, "Certainly; but not *by contract*, r limitation of time:" and these, there oubt, are the great bars against the ment of our own mechanics and arti-The master cannot afford to develope a bility; what he is obliged to seek for reatest quantity of work in the smallest space of time: excellent work won't do; work that will pass is all that he can hope to give. And the result, as might have been expected, is a lamentable decline in many of the constructive arts.

To return to the ironwork by Matsys;—it is to be regretted, that in the repairs now making, *cast* iron is partially employed, probably on the ground of expense. In a work of this sort, however, expense should not be considered; and if the screen be restored at all, it should be restored in the most perfect manner possible. The cast portions, notwithstanding the able hands to which the work is confided, contrasts very badly with that which is wrought, having none of the sharpness and vigour which distinguishes the original. In saying this we do not wish to attach the slightest discredit to the workmanship,—the defect is a consequence of the material; it is to the use of this we object; and we hope, as there is still much to be restored, that the remainder will be executed as nearly like the original as possible, and this can only be done with *wrought* iron.

Another fine work by Matsys is to be seen at Antwerp, near the Cathedral. It is a sort of cage over a well, and displays great skill.

Formerly, there were many admirable examples of ancient ironwork around the tombs in Westminster Abbey; but, about the year 1820, they were taken down and sold as old iron to one Samuel Tansley. Some stir was made in the House of Commons at the time, and part of the railings from Henry the Fifth's tomb was sent back; but all the other railings were lost irretrievably. The ironwork from Queen Eleanor's tomb was very beautiful, and included eleven divisions of scroll-like foliage, all varying in design. The screen round Henry the Seventh's tomb in the Abbey, which still remains, is a fine specimen, and shews fully the principle which the ancient workers in metal pursued.

DOINGS OF THE OFFICIAL REFEREES.

WE mentioned some time ago, amongst other matters connected with the new Buildings Act, that the surveyor of the Greenwich district had laid before the official referees, a complaint against the owner of a certain house for an alleged illegal projection of a shop-front, and cellar-flap and way, but that as he had omitted to state all the grounds and particulars of his objection, and the parts of the new Act to which the said works were not conformable, its consideration was deferred, in order that he might do so. Since then, the matter has been formally investigated and decided; and, as the award in this case determines one question which has been submitted to us on several occasions, we will briefly state the admissions on both sides, and the referees' decision.

The surveyor's objections to the shop-front were, that the end adjoining the neighbouring houses was not formed of fire-proof materials: that it was a new structure, having been put up since the 1st of January, and extended over part of the front where no projection existed before: that the projection of part of the shop-front, not being the cornice, was sixteen inches, which was contrary to the statute. The objection to the cellar-flap was, that it was not formerly adjoining to the passage-way; that the alteration brought it within the meaning of the Act, and therefore it was unlawfully placed, projecting as it did before the front into the street or public way.

The owner's reply was, that the shop-front had not been disturbed, merely the windows; that it did not extend over any other part now than it did before, and that the alterations both of the front and the cellar-flap were commenced before the 1st of January. At the hearing before the referees (not insisted on by them, it is as well to state, but required by the owner), the surveyor admitted the *commencement* of works before the 1st, but urged that each alteration was a distinct feature: also that the old entablature remained, and did not extend over any other part now than it always did.

The owner admitted that the *refixing* was begun after 1st January; that the oblong and circular portions of the front were removed before the 1st; that the new structure extended over parts of the front, where no portion but the entablature existed before; and that the *formation* of the cellar-flap and way had not commenced before the 1st of January.

The decision of the official referees was, that the alterations, so far as related to the projection of the shop-front and of the cellar-flap, were within the statute, and ought to have been executed according to its provisions; that these provisions had not been attended to; that the shop-front, so far as it had been made by the alterations to project into the street (in parts not being the cornice), more than 10 inches* from the face of the wall to which it is annexed, should be pulled down, and that the cellar-flaps should not be made to encroach upon any part of the public way.

We have received two or three letters complaining of the refusal, on the part of the referees, to give any information without a "case" and a fee, and of the time occupied in making their award, whereby builders are injured. One correspondent, who signs himself "Censor," further says—

"Sir,—Have you had occasion to make any application to the official referees or registrar in Trafalgar-square? If so, have you ever *seen* them?

"From my own experience, I suspect they wish to make themselves as inaccessible as eastern potentates; petitions or representations must be submitted before the oracular response can be obtained. Nothing can be done without written applications (the fees for which are, of course, carefully registered and charged, or a notice sent you, that unless the fee is paid, they will not be laid before the officials), or else you are referred to the clerk, who can, of course, settle or do nothing, except book the charge for the interview.

"On calling in Trafalgar-square, you are always met with the reply 'The registrar or referees are engaged with the board.' Can you tell me who, and what is 'the board?' as I can find no allusion to it in 'the Act.'

"I hope the three gentlemen appointed to carry the Act into effect will not require all the formularies of a master in chancery's office, or we should have been enabled to get disputed points settled under the old Act quicker by going to law, *than* under the present one. It was anticipated that the reverse would have been the case.

"There is no want of courtesy in words, but I apprehend the present feeling of the profession is that 'the board' are not giving the facilities for carrying on building works which they expected to obtain from the supervision of professional gentlemen.

"I hope we shall not find registrar's law as troublesome as the old magistrates' law."

* The street is above 30 feet wide.

Now, we do not insert this letter as agreeing with the statement in it, our own experience contradicts it completely, but as a timely hint to the excellent official referees to use as much despatch as may be, to simplify their proceedings, and to aid in rendering clear the intention of the Act. To ask them to see every gentleman who called in Trafalgar-square to make an inquiry, would, however, be a very foolish request on the part of those who wish them to get quickly through their business. At present every thing is new, and requires more deliberation than will hereafter be necessary. The difficulty in the way of obtaining information, too, will be very much lessened in a short time, as every case decided by the referees is fully recorded, and will be made accessible on payment of some small charge, perhaps sixpence.

A PAPER ON MONUMENTS AND NATIONAL MAUSOLEA.

The corpse of the Gothic king Alaric was laid in the bed of the river Busentinus, in a sepulchre adorned with spoils of vanquished Rome. The stream had been diverted by the labour of the captives, afterwards murdered, that the place of burial might remain concealed. And it seems well that no visible monument should mark the grave of him, who spread rapine and bloodshed through the whole of Italy. The body of the barbarian Attila was inclosed in coffins of gold, of silver, and of iron; spoils of conquered nations were thrown into the grave, and the prisoners who had opened the ground were massacred. But we, in later times, delight to honour the virtues which accelerate, rather than the vices which retard the progress of civilization. Our poets, artists, and philosophers, have bequeathed to us living monuments, in works which, like the waves circling on the pool, will continue to undulate, in effect, on the ocean of time, long subsequent to the earlier and more sensible agitation. The *works* of Homer, of Raphael, of Newton, are their best monuments, and all have concurred in praising the peculiar appositeness of that epitaph so well known to architects, which in the words, "*Lector! si monumentum requiris, circumspice*," points to the self-created monument of a great artist.

But, if by the evidence of a monument, and an appropriate epitaph, we can evince our gratitude for benefits conferred, and thus, by publishing that efforts are appreciated, stimulate emulation in others; if it be merely a delight to honour the memory of the departed great, and to be reminded that they had "senses, affections, passions," like ourselves, we should foster these pleasurable emotions with such tangible record. The monuments of the dead are the most interesting records which one age can hand down to another; they exist while temple and dwelling alike moulder and disappear, reflecting on succeeding ages the manners and habits of their originators, and the memory of great names and noble deeds. The name of Watt will live long as England's arts shall flourish, yet do we look with pride and pleasure on the monument to that lofty genius which made England great among the nations. Let us, therefore, grant that this homage to the manes of our illustrious men is, if not the vital principle, at least an important function in the matter of our progress, and now call to mind in what manner we have executed the duty.

Monuments may be classed, according to their distinctive objects and characteristics, as religious or "ecclesiastical," and civil, or as monuments to the dead and to the living. In the first category should be included all such as are placed in churches, and tombs or erections over the grave of the departed, in which the design should be conducive to all that may draw the mind of the beholder to thoughts of virtue and immortality. In contra-distinction to these are such as direct an honourable ambition to paths where fame awaits the philanthropist, the discoverer, and the defender of his country. Each description of testimonial requires a distinct mode of treatment, which must also be considered in reference to the intended *locale*. Of all styles of monumental design, none observe the rules of propriety so strictly as the Gothic; they have all a devotional character, and, until the later period of decline in the art, are devoid of allusion to earthly honours and achievements. But up to the present moment in modern times, we have entirely disregarded these obvious canons of art, repeating the same gods and goddesses in the cathedral and the public square, and altogether shutting out a style of design which would present to modern sculptors, from its comparative novelty alone, a fertile source for invention, and a greater scope of design in a right channel, than the mythology and far-fetched allegory to which they have hitherto restricted themselves.

Whoever has examined the images in our Gothic cathedrals, will have been struck with their peculiar form and impress. Their attitudes, the folds of their drapery, their whole execution and design, bear an assimilation to the character of the edifices, of which they are part. The smaller decorations of the capital or the boss often shew great grotesqueness of fancy, and pliancy of curvature, but the larger figures, which partake less of detail, and more of the general effect, have an expression of stability in accordance with that of the mass. In all points these are strictly architectural; the crusader rests in unbroken sleep, recumbent on the tombstone, the saint stands erect in solemn meditation. In other styles of architecture, we find not an equal propriety of design. It is forgotten that sculpture is for the most part seen in connection with architecture: it should be subservient to it whenever the arts are employed together.

The sculptures on the fronts of Grecian temples, faultless as they are in themselves, have less of accordance with that motionless character, if we may thus apply the term, which the Grecian style, more than any other, presents. The centaurs, in violent contest with the Lapithæ, are hurling huge rocks at their opponents, whilst women, with fluttering garments, are flying from the scene of action. In the Panathenaic procession in the Parthenon, the horses bound with their riders, and no one can look at this fine frieze, without feeling the impression of motion in the actual marble before him, most powerfully depicted in his mind. During two thousand years these sculptures have remained unsurpassed, and it may seem little short of hypercriticism to question in any respect their propriety as works of art. In the buildings of the later Italians, we find statues beautiful, perhaps, if they could be viewed apart from the edifices which they are designed to decorate; but, placed in a niche or a pediment, they are entirely out of keeping with the building. Palladio, in his designs, has given figures with extended arms and distorted attitudes, and Wren himself, in his statues on St. Paul's, has shewn some want of the architectural character for which we contend.*

Westminster Abbey is inferior to several of our cathedrals in its exterior effect, but is surpassed by none in the majesty of its interior. While, as we shall presently shew, its architecture has suffered, it has yet all but escaped the greatest opponent to architectural beauty, alike delighted in by the country churchwarden and the improving rector—the detestable whitewash. As we have before said, it would be infinitely better to do nothing in the way of repairs than to convert beautifully foliated capitals into shapeless knobs, by repeated colourings and whitewashings, of which we could name a hundred instances—of others, in which the whole character of a church has been destroyed by absurd attempts at improvement. It is scarcely too much to say, that what the Protestants did in the sixteenth century, and the Puritans in the seventeenth, the restorers and improvers of Gothic edifices have again done—with no religious zeal to extenuate—in the nineteenth. We must hope that the English Government may follow the example of those of other countries, and preserve the still existing relics from decay.

But to return to the abbey: huge monuments, in the styles prevalent during the reigns of Elizabeth and James, or before the art of sculpture had been created in England by Bacon and Flaxman, block up the aisles or the windows, whilst architectural decorations of surpassing beauty have been cut away, to make room for tasteless monuments to men unknown to the pages of history. In the east walk of the cloisters, over the door leading to the Record-office, may be seen the most beautiful bit of architecture which the abbey affords. Two brackets support mutilated figures of angels, and the third is thought to have borne a figure of the Virgin and child; the whole being surrounded with scroll-work of most beautiful design: but in the very centre of the composition a square tablet has been inserted. Of such barbarisms there are several hundred instances. The range of beautiful arches beneath the windows of the aisles, once enriched with colour and gilding, have almost disappeared, being replaced by tablets of the most objectionable character. Every part of the building is crowded; a huge figure of Watt nearly fills the chapel of St. Paul, a window in the south aisle is blocked up with a mountain of clouds; even the elegant chapel of Henry the Seventh is defaced. It is much to be deplored that the dean and chapter do not take it into their immediate and anxious consideration, whether some change in the disposition of the monuments may not be effected less detrimental to the fabric itself, and more conducive to the ends of monumental design. It has been suggested* that the chapter-house would be an appropriate place for some of the monuments, but we should deprecate any step, which would only remove the evil, and prevent the restoration of the building to the exact state in which it formerly existed. The triforium is sufficiently lofty for a large portion of the monuments; it is well lighted, and would, in our opinion, be the most desirable place. There is no architectural decoration which they would interfere with, and we urge that the advantages of this position be well considered. We have not had the opportunity of personal examination, but we believe that the height of the triforium is nearly 15 feet in the highest part, from which it takes the slope of the roof; it is lighted by the upper range of windows, and is, of course, the same width as the aisle, and has a good floor laid upon the groining. The monument to Wilberforce, an admirable work, though hardly adapted to its locality, is 9 feet high including the pedestal, and the greater part of the objectionable works are much smaller. The monument to William Pitt, Earl of Chatham, is the largest in the abbey, reaching to the capitals of the piers; several others are near the same size, and for these another locality must be found, unless they are consigned to the lime-burner, a way of getting rid of them, which, for ourselves, we should hardly regret. Whether some of them could be placed in St. Paul's, without injury to the edifice, or whether, as has been suggested by us, a cloister could be built in Dean's-yard for their reception, is matter for very careful consideration; but we could well consent to the remaining as at present, if other monuments were removed.

From all we have said, it seems that an edifice in which monuments, not of a devotional character, may be erected to individuals, in commemoration of actual services, and of private or public worth, is urgently demanded. Mr. Barry has allotted a space in his design for the New Houses of Parliament, which, if devoted to the reception of monuments, as he suggests, will answer the object, provided the modern style of sculpture can be made to accord with that of the building. Some space might be got in Chelsea Hospital, and a series of statues to great naval heroes might be advantageously placed in the colonnades of Greenwich Hospital. The terrace in front of Somerset-house, which most unaccountably is always closed to the public, might be made into a magnificent promenade, if thrown open and enriched with appropriate works of sculpture.

In St. Paul's Cathedral the sculptures are nearly all well placed, and add to, instead of detracting from, the beauty of the building. They in part fulfil the intention of the ar-

* That talented architect, Sir William Chambers, speaking of statues on a building, has said, "Their attitudes must be upright, or, if any thing, bending a little forwards, but never inclined to evil. Their legs must be close to each other, and their arms close to their bodies; for when working-dresses, loose draperies, with bodies tortured into a variety of heads, and draperies waving in the wind, as those placed on the colonnades of St. Peter's, they have a most disagreeable effect, especially at a distance; from whence they appear like lumps of unformed materials, ready to drop upon the heads of passengers."

* First by Mr. G. Godwin, in "Civil Engineer's Jour. 1843, and afterwards by Mr. Richard Westmacott, A.R.

ect, whose original idea may be seen in the ublished section; and all must regret that his lesign has never been carried out. A proposal vas once made by Barry, Reynolds, and other igh-minded artists, to decorate the building, ree of expense; but their offer was declined n grounds which could hardly have weight in he present day. Whilst the cathedral of St. eter displays the accumulated enrichments of enturies in its interior, our own St. Paul's as not a single painting. Popery does not enrely consist of pomp and decoration; and it is be hoped we have passed the time when men ould be so led away from truth. Rather is ainting a powerful instrument, in the hands f a true religion, for good. The best evidence iat an improvement is in progress is obserible in the altered character of our new urches. The church-commissioners did deed try their utmost to stem that progress, d have inundated the land with a multitude cheap structures, to which the term Gothic in one sense, rightly applied. But we now ar of new painted windows for our cathedrals, d in the Temple Church decoration has en carried to an extraordinary extent.

There can hardly be a richer treat than estminster Abbey affords in its epitaphs one; and it must be allowed that its monuents, if not all displaying the originality of a ubiliac, or the dexterous chiselling of a antrey, are at least interesting *per se*, as ming a complete history of the art of ulpture in England.†

Though the greater part are remarkable, her from the individuals with whose mes they are associated, from their epitaphs, from their design, it must, as we have d, be regretted that, to erect some of least interesting, architectural decora- ns of surpassing beauty have been hlessly sacrificed. How much better would e, instead of multiplying such instances, to ive the monumental brasses, than which re can hardly be a more beautiful and exssive form of commemoration. The Dean Chichester has adopted the painted window memorial, and thus has not lessened, but eased the beautiful effect of the cathedral.

If, instead of the slabs and spiritless relievos with which our cathedrals are patched in black and white, windows and pinnacles were restored, or unfinished portions completed, the same end would be attained as of old, when one good Christian gave the stone and another bequeathed money to erect the spire; and, instead of our pleasure being mingled with regret, we should look through "the long-drawn aisle and fretted vault" with no emotion but one of unqualified delight. E. H.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At an ordinary meeting of the Institute, held on Monday evening, the 24th inst., Mr. George Smith, of Mercers'-hall, in the chair, Mr. Bland Hood Galland was elected an associate. Mr. Matthew Habershon exhibited a Doric capital, and other architectural remnants, found at Mount Sion, 30 or 40 feet below the surface, when excavating for a church, which is about to be erected there. Mr. Scoles remarked that the capital resembled those he had seen in the valley of Jehosophat, and was probably not older than the time of our Saviour. The echinus was peculiarly straight. These relics were interesting, as being the only fragments in this country, connected with Jerusalem.

The hon. sec., Mr. Bailey, read the report of the council on the essays submitted in competition for the institute medal. From this it appeared that three had been received, and that the council considered one of them sufficiently meritorious, as a careful compilation, to deserve the offered reward. One of the three was a verbal transcript from an Encyclopædia, and the council commented in strong terms on the author of the attempted imposition. For the Soane medallion no designs had been received in time. A set, signed "H., an associate," had been recently forwarded, which, if sent by the stated date, would probably have been rewarded.

The selected essay was then read. It gave the derivation and nature of slate, and traced its introduction and increased use in England. It was not employed in London before the end of the eighteenth century; Spafields' Chapel was one of the earliest buildings slated. For some time after its introduction it cost from 2*l.* 15*s.* to 2*l* 18*s.* per square. A square foot of slate weighing only 11¼ lbs., while a square foot of tiling weighed 16½ lbs., it was found that lighter timbers might be employed in roofs; and this, with other circumstances, led to its constant use. Slates were at one time imported from France, but were found to be indifferent; and now Bangor slates are sent by us into that country. Its power of resisting damp was shewn by the fact that the whitewash on many slate cisterns, which had been in use ten or fifteen years, was in no degree bulged, which would have been the case if any dampness had exuded. It was too soft for paving, but well adapted by its strength for balconies. Slate, 1 inch thick, was equal to Portland stone 5 inches thick. It might be advantageously used to make buildings fireproof. Without following the essay further, suffice it to say it contained a fair amount of information, and was a praiseworthy effort for a student, but certainly was not of that character which the institute might expect, or were called on to reward with their medal. The author was found to be Mr. S. J. Nicholl, of Argyll-place. Mr. Poynter, in a conversation on the subject which afterwards took place, mentioned that in Pembrokeshire slate was used for every thing. They made even posts and rails of it, of the same scantling as if of wood. The walls of buildings were of square blocks, rough-cast. Having a range of stables to build there, he had used rough blocks for the walls, but had made all the door and window-frames of worked slate. There was a prejudice against the use of squared blocks of slate without plastering them, on the ground that they admitted damp. This he thought singular, as slate was not absorbent, and was used for cisterns. He had found, however, that if there was the smallest hole in the slate, or if, as was often the case from the want of absorption, that the joints were not perfectly close, that the rain drove through; and this explained the origin of the prejudice. He obviated the difficulty by laying every block with the bed lightly inclining outwards.

Mr. Tite then made a number of observations, displaying, as what he says usually does, sound sense, and great knowledge, and urged on the younger members of the profession the importance of obtaining practical information, and of the study of construction. Notes bearing on these points they would find useful throughout their practice. He drew attention to what was called Horsham slate, but was in reality a limestone. There was no limit to its durability, but being very heavy, proper preparation was necessary for it; they must avoid the fashion of rafters 4 inches by 2½ inches when they used it. He had had experience of French slates; they were very light, and should be used on boards, not battens, or the wind would act on them. The French were in the habit of bedding them in plaster on the boarding, and this was a good arrangement. We should be careful how we altered any modes adopted in a country until we knew exactly all the requirements and peculiarities of the locality. A slate with the colour of Westmoreland slate, and at the price of Bangor, was a *desideratum*. In their specifications it was desirable to state weight per square of the slating required. Slates were now made so thin, that without this being specified the architect might not have power to obtain a sound covering. As to the use of slates to make buildings fire-proof, he did not consider that any slate would stand fire, and would not himself risk its employment for such a purpose. He would offer one caution in the use of non-absorbent materials, which should be borne in mind, and that was, to guard against the effect of condensation. In some of our cheap churches—*too* cheap churches, as he thought,—the slating was sometimes made to form the ceiling. The external atmosphere kept this cold, and the result was the condensation of all the moisture which ascended to the roof. In one that he had seen, where iron beams were employed, the water dripped on the congregation to such an extent that an action was brought against the architect for forming an unsound roof. In a chapel built by himself, where the gallery was supported on iron beams, the condensation was so great as to form a positive drip at the lowest end of each beam. In exposed situations near the sea, if the walls were only nine inches thick, the external atmosphere condensed the internal moisture. What was wanted was a space to contain an internal atmosphere, as by that means rapid cooling was prevented. The meeting was then adjourned till the 10th of March.

BATHS AND WASH-HOUSES FOR THE LABOURING CLASSES.

In reply to a formal application for leave to examine the various plans submitted to the committee, we received the following note:—

"Sir,—I regret that I have not at present any instructions that will authorize my giving the permission you request to examine the plans submitted in competition.

"The plans have not been shewn to any one not of the Committee of Works, or of the Committee for General Purposes.

"By a resolution of the committee for general purposes, the committee of works was instructed not to allow the plans to be seen by any but members of that committee and myself, until they should have come to a decision; and since the decision, the exhibition has been restricted to the committee for general purposes.

"I will take care to lay your note before the committee at the first meeting, which, however, will not be for some days, and I will immediately inform you of the result. I shall have much pleasure in shewing you the plans, if the committee so direct.—I am, Sir,

"Your most obedient servant,

"George Stonehouse Griffith,

"Assistant Secretary.

"Committee-room, Crosby-square,

"February 20th, 1845."

The 27*th*, however, has passed (the day named for the return of the drawings to competitors), and no permission has been given. Far be it from us to impute motives which may not exist, but the general impression out of doors raised by this determination of the committee to prevent any examination, will unquestionably be, that their decision could not be justified. We protest

Many of the epitaphs were written by men of high rity. That to Goldsmith was by Dr. Johnson, who s his high admiration of his friend in the words "Qui rn fere scribendi genus non tetigit, nullum quod tetigit rnavit." Four epitaphs are by Pope—those to Gay, gs, Withers, and Kneller. The last of these is much he epitaph on Raphael by Cardinal Bembo, which ran —

Ille est hic Raphael, timuit quo sospite, vinci
Rerum magna Parens, et moriente mori."

ast lines of Kneller's epitaph,

Living, great Nature fear'd he might outvie
Her works; and, dying, fears herself may die,"

pass for a translation. The lines on Lord Mansfield's nent,

Here Murray, long enough his country's pride,
Is now no more than Tully, or than Hyde,"

to Pope's, with slight variation. The monument to limes Fairborne has an epitaph by Dryden, and that to ne by Mason.

epitaph on Draiton's monument, said to have been by Jonson, is worth preserving, as it will shortly ced:—"Michaell Draiton, Esq., a memorable poet age, exchanged his laurell for a crowne of glorye

Doe, pious marble, let thy readers knowe
What they and what their children owe
To Draiton's name, whose sacred dust
Wee recommend unto thy trust,
Protect his mem'ry, and preserve his storye,
Remaine a lastinge monument of his glorye,
And when thy ruines shall disclaime
To be the treas'rer of his name,
His name, that cannot fade, shall be
An everlasting monument to thee."

monument to Chaucer, erected about the time of VI., has the character of decline which marked hitecture of that age; but even its association ie name of one who has the credit of being er of poetry in England, has not prevented its wilful ion. Near Chaucer's monument are deposited the of Denham, the poet; and near St. Benedict's hose of Beaumont, the dramatist: but neither have norial. In the nave are two monuments to the wives Samuel Morland, Bart., with inscriptions in the Greek, Hebrew, and Ethiopic languages. In all ether from a want of power to express the virtues of ased, or otherwise, there has been a great love of pitaphs; and we find in the Abbey two singular s. "On the grave of D'Avenant are the words, Sir William D'Avenant!" and on Jonson's monuas well as upon his grave. "Oh rare Ben Johnson!" having erroneously the letter "h" inserted. This ion of simplicity in sepulchral inscriptions" is com- upon by Lord Byron in his notes to Childe Harold. lains that we are often left in the dark as to the time the monument was erected, and have no means aining whether it was an actual tomb, or a simple to a living hero. "Machiavelli's earth returned to s rose" affords an example.

"Tanto nomini nullum par elogium
Niccolaus Machiavelli"

ords on his monument in the church of Santa Croce. ron, in another note, gives the epitaph on Count siste, viator—heron calcas,"

in the strongest terms, in the name of the profession and the public, against the course adopted by the committee, and will spare no pains to ascertain in what way they have discharged the duty confided to them. Correspondents complain, amongst other things, that they were put to considerable extra trouble by the largeness of the scale on which the drawings were required to be, and that they received no thanks (a cheap return), in the letter informing them they might obtain their drawings again. As, however, we do not wish to raise an angry feeling, if it can be avoided, we refrain from printing the letters, and further comment at this moment.

DISSOLUTION OF THE CAMBRIDGE CAMDEN SOCIETY.

A REPORT to the effect that the society intended to appeal against Sir H. Jenner Fust's judgment in the stone-altar case, which was very generally circulated a fortnight ago, was afterwards as generally contradicted. A few days since, however, at a meeting of the parishioners of St. Sepulchre's, the parish in which the Round Church stands, it was formally announced that the report was correct, and that an appeal to the Privy Council, on the part of the Camden Society, was in progress. The result remains to be seen, but is hardly doubtful.

The proposed dissolution of the society has led to much correspondence, as might have been expected, especially in the local papers. One of these writers says, if it is to be abolished, why, "at any rate, should not another society be modelled upon its remains? In the sister university, a society has existed even longer than the Camden; and, notwithstanding the theological contests with which the harmony of that university has been disturbed, has pursued a quiet course of usefulness. Why not, then, establish afresh an architectural society at Cambridge, as well as at Oxford? And why should not one go on as quietly and usefully as the other has done? The very title of the Camden Society was a misnomer; no one knew what it meant; whether it was assumed in honour of our late revered chancellor, during whose term of presidency over the university the society was formed, or whether it derived its name from the author of the "Britannia," there being in London a society already bearing that title. Let the name, therefore, of the society be changed, and let its constitution be changed also; but let not the country lose the benefits which such a society must confer."

As a further inducement to the re-modelling of the society, it is suggested "that, unless a new society be formed, the valuable collections of books, drawings, models, plans, &c., of the old society will be dispersed, which would be a sin and a shame: but if a new society were formed, I have little doubt, from the well-known liberality of the Camden Society, that they would be glad to transfer this collection to the keeping of the new society, as the nucleus of a more extensive collection."

It is to be regretted that in controversies, such as that produced by the proceedings of this society, advocates adopt the most opposite extremes. Thus the Rev. Mr. Close publishes a sermon, entitled "The restoration of churches is the restoration of popery;" while a late Hulsean lecturer issues a discourse, headed "The restoration of Churches is the duty of Christians." So that a Romish logician might say, as the *conclusion* of the syllogism with protestant *premises*, "therefore, the restoration of popery is the duty of Christians."

We insert, with pleasure, the following letter from a revered and accomplished correspondent:—

Sir,—I have just read in THE BUILDER, with much painful interest, the report of the late meeting of the Cambridge Camden Society, and the announcement of its intended dissolution.

Surely this is both an unwise and unnecessary step. The society has been the means of doing a vast amount of good in various ways, and is in a position to direct, or at least to assist, the growing taste for the study of church architecture, of late years unhappily, but little understood.

I was one of its earliest members, and shall be one of its latest defenders. I am no supporter of any of the extreme ecclesiastical and theological opinions which have been mixed up in the minds and doings of some, and do not see any necessary connection between the simple study of architectural design and those views referred to.

Cannot the Society be remodelled and reformed, and its objects be definitely and decisively determined? This done, it would be the means of yet greater utility, and secure the co-operation of many who have looked upon it with coldness or suspicion, or even utter dislike.

At least, it is due to the members (and especially to those who, like myself, have compounded by one subscription for all future payments), to give them an opportunity of expressing their opinion as to the question of dissolution. That such an evil may be averted, and that the present unhappy dissension in our church may soon pass away, is the earnest wish of your's, truly,

A YORKSHIRE CAMDENIAN.

Feb. 24th, 1845.

INSTITUTION OF CIVIL ENGINEERS.

FEB. 18.—Sir John Rennie, president, in the chair.

The paper read was by Mr. De la Garde, with a supplement, by Mr. James Green, M. Inst. C.E. It contained a history of the Canal of Exeter, from the year 1540, when it was first projected, to the present time.* In 1563 the Chamber of Exeter engaged John Trew, of Glamorganshire, as their engineer, and under his directions a canal, with pound locks, similar in all essential points to those of the present day, was constructed from Wear to Exeter. The depths of the canal at first was 3 ft. by 16 ft. in width; subsequently, at various periods, as the commerce of the city increased, the dimensions were enlarged, and after an arduous struggle, which extended from the year 1563 until 1835, when the Chamber ceased to exist as a corporate body, it succeeded in perfecting a ship canal from Turf, near Topsham, on the river Exe, capable of conveying vessels of 500 tons burthen to the quays of Exeter. The latter work was accomplished by Mr. James Green, whose reports were given, confirmed by those of Mr. Telford. They abounded in interesting illustrations of engineering difficulties, and the method of overcoming them. We may mention one. This was in the excavation for the entrance lock at Turf, which, after being carried to a depth of 20 feet through a stiff alluvial clay without water, was pressed down by the embankment 10 feet, and the bottom of the lock-pit rose to a greater height than the sides, exhibiting on its surface peat moss, marine plants, fern, &c. A complete kerbing or sheating of whole timber piles was therefore driven, the same being strutted by transverse timbers, and the excavation made and the lock founded in lengths between the transverse struts: as it was feared that the pressure of water from the tide would have a tendency to raise the invert and gate platforms, trunks of elm planking were laid in the rubble masonry, forming the bed of the invert, which were carried under and throughout the lock, and terminated in a vertical well beyond the higher gates of the lock; this allowed the subwater to circulate and rise without obstruction.

This, as well as other ingenious modes of overcoming impediments encountered by Mr. Green, was highly applauded. The archæological researches of Mr. De la Garde, and the extracts from old acts and charters respecting this canal, were of an interesting character, and deserve careful attention, as it must be concluded that this is the oldest canal, with locks, in the kingdom, having been commenced nearly fifty years before the Sankey cut.

The discussion which ensued, drew from Mr. Cubitt a promise of a description of the works and oblique weirs on the river Severn, which have excited so much discussion among engineers.

The meeting was adjourned to Tuesday evening, the 25th inst.

HOUSES IN HULL.—Mr. Cardwell, in a lecture "on the architecture of the present age," says, for bad construction, no town in the kingdom can furnish a greater number of houses than the town of Hull.

* An account of this canal, by Mr. De la Garde, will be found in the "Archæologia," vol. xxviii. p. 7.—ED.

THE MARQUIS OF NORTHAMPTON'S FIRST SOIREE.

ON Saturday last, Lord Northampton gave his first soirée to the Fellows of the Royal Society. The rooms were crowded with men of station or of note. Royalty, rank, wealth, and talent, were all represented. The noble, the legislator, the poet, the man of science, the artist, were all congregated together, to confer mutual pleasure, and, by extending each other's views, mutual advantage.

Amongst the various objects of interest displayed on the tables were a *fac-simile* of the "late lamented Portland vase" (as a shopkeeper in Regent-street calls it); a model of the Chapter House of Salisbury Cathedral, exhibited by Mr. Britton; a recently invented instrument, called the "volute delineator," for forming the lines of the characteristic feature of the Ionic capital; a fine portrait of George IV., in *mosaic*, from Mr. Rogers's collection, and some specimens of glass pavement. The noble and amiable host exerted himself, as he always does, to increase the gratification of his guests.

ON PORTLAND STONE.

BY C. H. SMITH.

AT the Isle of Portland there are the remains of several buildings that were erected with stone from the neighbouring quarries, long before that material was generally known or considered of sufficient value to be used in the construction of the principal buildings of the metropolis. A large portion of the island has been the property of the Crown during many centuries, and so early as the reign of Henry the Eighth, that monarch caused a castle to be erected at Portland, and another on the opposite shore, near Weymouth; one of these has been continued as a garrison to the present time, the other has long since been left to ruin: nevertheless the stone with which the walls are built does not appear to have undergone any decomposition worthy of notice. Holinshed, who wrote his Chronicles of England prior to the year 1574, has given rather a long account of Portland Isle; he has also, in another part of his works, devoted an entire chapter to the subject of "Quarries of stone for building;" but in neither case has he made even the slightest allusion to Portland stone. Camden the historian (who died in 1623) has also minutely described the Island of Portland without mentioning the stone quarries; and it is worthy of remark, that in the next paragraph he describes the island of Purbeck, distant about fifteen or twenty miles, as having "many sorts of good stone, from which large quantities are carried to London, to the great advantage of the inhabitants." From these two eminent writers being wholly silent on the subject of Portland stone, we may reasonably infer that at that time it was a material not generally known or used, except in the immediate vicinity of the quarries.

James the First appointed Inigo Jones the chief architect and surveyor-general of his Majesty's works; under this appointment he had to survey the crown lands at Portland, and his discrimination very soon led to the introduction of Portland stone for all the principal buildings in and about London. The banquetting-room, or military chapel at Whitehall, was begun in the year 1619, and finished in two years. As far as I can search or learn this is the earliest building of magnitude constructed with Portland stone in London, or any considerable distance from the quarry. In 1631, Inigo Jones received orders to repair the old cathedral of St. Paul; this was performed by "casing great part of the outside and adding a grand Corinthian portico to the west front, all of Portland stone." From this time it became the chief material used for ornamental architecture, not only in the south of England, but in many parts round the coast of this country and Ireland.

After the fire of London in 1666, up to the beginning of the present century, the architects and builders of London scarcely ever thought of using any other kind of stone except for pavements and similar subordinate purposes. Sir Christopher Wren used Portland stone for St. Paul's Cathedral and other public buildings, because he considered it the best material then known, and on account of the quarries belonging to the Crown, as well as their being most eligibly situated for ve

carriage. Among the writings of Sir Christopher Wren relative to the stone for St. Paul's, he states, that "All the most eminent masons of England were of opinion that stone of the largest scantlings were there to be found, or no where. An inquiry was made after all the good stone that England afforded; and next to Portland, Rock Abbey stone,* and some others in Yorkshire, seemed the best and most durable; but large stone for the Paul's works was not easily to be had even there."

At first, all the stone brought from Portland was obtained from the crown lands on the north-east of the island; but, as the demand increased, private property in different parts became more valuable, and large quantities of stone were brought from the west and south-east cliffs, without the slightest regard to quality, durability, or any other consideration of fitness, except that of meeting with an immediate sale in the market. I have carefully looked over many specifications for public and private buildings, and find the materials usually described to be of the best quality; but the general tenour of those parts describing the stone to be used rarely amounts to any thing more than the mere well-known name, preceded by an adjective, such as "*good* Portland stone;" but what is to constitute that "*goodness*" is altogether undefined.

Large quantities of Portland stone of an inferior quality are brought to London, not because the island is deficient in the best kind, but because all our large buildings are executed by contracts, at so remarkably low a price, that the mason's study is not what kind of stone will be most durable, but what stone can be wrought by the workmen most expeditiously, and thereby yield the largest profit; and of course the proprietors of quarries will only send such stone into the market as is likely to suit his customers. St. Paul's Cathedral, and many of the churches and other large buildings, erected in the reign of Queen Anne, were constructed with stone very superior, as far as regards durability, to the greater quantity now used; and yet the quarries from whence those sources were derived have been deserted beyond the memory of any inhabitants now living at Portland; and the only reason assigned is, because the merchants find they cannot sell such stone, on account of its being a little harder, and thereby more expensive to work.

Whenever a number of large buildings are being erected at the same time, the demand for one of the best quality is greater than the quarries already opened can supply. The contractors are bound under a heavy penalty to finish the work by a given time, and hence are compelled to use a material which perhaps they would otherwise reject. It may be owing to circumstances of this kind that portions of the stone used in buildings so recently erected, as the park entrances from Piccadilly, are already in a state of decomposition; the same remarks may be applied to some of the stone used about the new buildings of the British Museum. Most readers are probably aware of the deplorable condition that Blackfriars Bridge was in before the repairs were commenced: I have been informed by persons who collected the building of it, that the masonry presented innumerable evidences of slow, though certain decay, before the bridge was even finished, in the year 1770. I shall notice one more example, merely to shew how completely this subject has been neglected heretofore, even by men of first-rate eminence. The whom we all admired for his abilities and munificence, who had risen to the most distinguished rank in his profession, whose perception and discernment in most things were more than in the generality of men,—yes, the Sir John Soane, about twenty or twenty-five years since, allowed the front of his own old residence in Lincoln's Inn Fields to be constructed with Portland stone of such an inferior quality, that it is already evidently moldering away. It is probable that too much confidence was placed in the mason, who ought to have known better, and have acted differently.

Abundant examples of defective Portland stone might be pointed out; but when we consider that the stone brought from the island, is bad, and indifferent, is all shipped from the same pier, which is a very small one, and that notwithstanding the blocks are marked in the quarry, so as to denote from whence they were obtained, it is possible that some of them may be misplaced, we ought not to be surprised if occasionally a very bad stone is conspicuously placed in a building that is otherwise in excellent condition; and this we find more particularly to be the case in our modern structures, arising no doubt sometimes from ignorance or inattention, but often from some trifling interest, such as using a stone because it is just of the dimensions required.

These events seem to have brought about an important investigation, in which the reputation and interest of persons connected with architecture are deeply concerned. The Portland merchants had enjoyed the supply of stone to London and the south of England for an almost uninterrupted period of more than 200 years; I say almost, because in the year 1804 a duty of 26*l.* 8*s.* per cent. was imposed on all stone conveyed by sea from one port of Great Britain to another. This was a temporary injury to the Portland trade, for large quantities of Bath stone were brought to London by canals, and consequently free of duty; but in 1823 the coast-duty was taken off, and Portland again took the lead for all superior buildings. But its character was stained, and public confidence was lost, in consequence of a few individuals bringing shiploads of rubbishing stone into the markets, which was used by the unwary masons for all purposes. Many of our noblest structures, which were constructed with these defective materials, rapidly assumed the appearance of premature ruin; the architects and proprietors of buildings united in one universal outcry against all kinds of Portland stone; and it has been condemned without inquiring into the cause of complaint, as wholly unfit and unworthy of being used in substantial edifices.

To explain and illustrate the numerous qualities and localities of Portland stone would far exceed the usual limits of an essay. You will see by analysis* that the ingredients are apportioned in this stone much the same as in most other oolites, therefore, its quality depends greatly upon the manner in which the component parts are united. There are not fewer than fifty or sixty quarries already opened at the Isle of Portland, most of them along the north-east and north-west cliffs, at an elevation of several hundred feet above the sea. The stone from each of these quarries, and from different beds in the same quarry, almost always presents some minute particularities, which, on very attentive examination, serve to distinguish it from others. In many instances, these distinctions are so conspicuous as to be evident on the most casual inspection.

By minutely and attentively examining a specimen of Portland stone that is found after fifteen or twenty years' exposure to the weather, to be in a decomposing condition, its characteristic features will be on the whole lighter coloured than such as is known to be good stone, arising partly from the entire mass being less crystalline, and from spots, veins, and rings of a lighter tint than the ground. The whitest parts are generally least cemented and most friable; the stone is altogether of an open, powdery texture: and the pores or vacuities being numerous compared with the bulk of solid matter, render it deficient in weight for its size.

Portland stone of the most durable quality is comparatively heavy, of a uniform colour, or rather darker than the last described, owing to the quantity of cement of a compact crystalline texture regularly dispersed throughout the pores; and hence it will resist a greater force to crush it, or to disintegrate the particles. The following comparison will shew the relative peculiarities of good and bad Portland stone, considering the specimen when examined, subject in every respect to the same conditions, such as being equally wet, or dry, &c.

GOOD.	BAD.
Preponderance of weight	Deficiency of weight.
Dark coloured	Light coloured.
Uniform colour	Party coloured.
Compact and crystalline	Open and powdery.
Hard to crush	Friable.

What are technically called glass veins vary from a line to an inch or more in breadth, and often run completely through a block; they retain their original whiteness, while all the remaining surface becomes covered with lichens; or if, in London, with soot and dirt; whereas the "party-coloured" just named looks more as if some whitish fluid had been sprinkled or thrown upon the stone in patches. Glass veins may be considered unsightly, but they are by no means perishable, neither do they facilitate decay in way whatever. If they occur in steps, pavements, or any other situation, subject to considerable wear, there hardness will soon occasion them to be conspicuously above the general level; therefore such variation of colour is no defect beyond appearance, and causing a surface to wear irregularly.

According to the observations of Professors Daniell and Wheatstone, at the end of the report on the selection of stone for building the new Houses of Parliament, the following inference may be drawn: that in all stones of the same class, the heaviest kind, or that which has the greatest specific gravity, is the most durable and best suited for architectural works; this is given as a sort of general rule, "though liable to individual exceptions;" but it appears to hold good with all the varieties of Portland stone. The specimens from which the following weights have been obtained are among those which have been most tested by exposure to weather:—

	Weight per Cubic Foot. lbs.	oz.	drs.
Grove quarries, best or lower bed, stands the weather pretty well*	147	10	11
Way-croft quarries, top bed, best stone in the island	135	8	12
Yearn-street quarry, top bed	134	10	0
Castles quarry, between the flint beds, decomposing quality	132	5	8
Gosling's quarry, bottom bed, decomposes rapidly	131	4	8

—*Lithology; in Trans. of British Architects.*

THE SMOKE NUISANCE. — On Thursday week, Mr. Mackinnon moved for leave to bring in a Bill to "prohibit the nuisance of smoke from the furnaces of factories." The hon. gentleman stated, that the bill was almost identical in its provisions with that he obtained leave to bring in last session. He proposed to take the discussion on the second reading. After a conversation between Mr. Bright, Mr. Ferrand, Mr. Ricardo, Mr. Milnes, Mr. Borthwick, Mr. Hawes, and Mr. M. Phillips, the Earl of Lincoln said he apprehended that there were two questions before the house—first, whether it was possible by any legislation to suppress this nuisance, and in the second place, whether the scheme proposed was practicable? With reference to the first question, he was inclined to believe that it was possible considerably to abate, if not altogether to remove, the nuisance. He had been in communication with some scientific gentlemen on the subject, but he doubted whether the bill of his hon. friend would be operative. If on discussion the house should be of that opinion, he should be prepared to introduce a measure of his own, being persuaded that the subject itself was not only important with reference to the public health, but also in an economical point of view. Mr. Muntz said that there were many difficulties connected with the subject. It might be practicable to effect the hon. mover's object in respect of some trades, but it would be impracticable in the case of others. Any attempt of the sort with respect to the iron trade would ruin it. Any legislation on the subject required great care, and ought to be well considered. After a few words from Mr. M. Phillips, Mr. Becket, Mr. Gill, and Mr. Alderman Copeland, leave was given to bring in the bill.

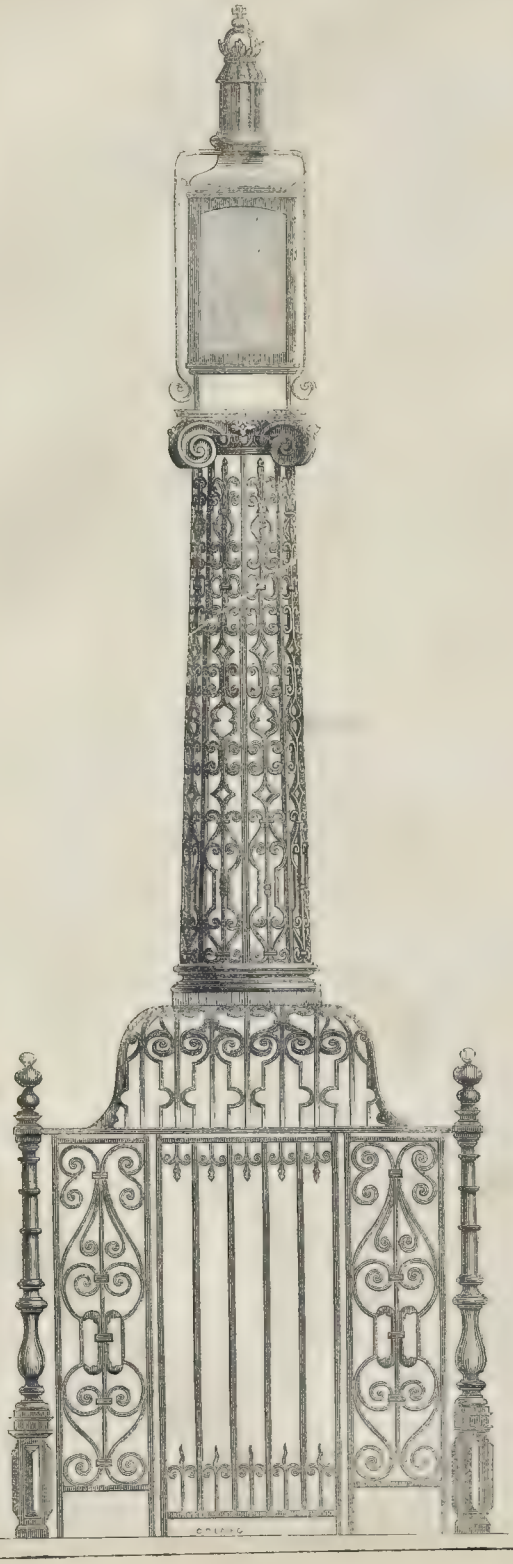
e ashlar at the east end of Greenwich Hospital appears Roche Abbey stone, which is likely to be the case, as Wren had a high opinion of that material.

* The following analysis of oolites, as given by Professor Daniell, in the report on the selection of stone for building the new Houses of Parliament, will shew how nearly the proportional quantities of the component parts in four specimens, possessing very different degrees of durability when exposed to the weather, approach each other. They are chiefly composed of carbonate of lime; the greatest difference does not amount to three per cent. of that material, and the Portland contains a small quantity of silica.

	Ancaster.	Bath, Box Quarries.	Portland, Way-croft Quarries.	Ketton.
Silica	...	....	1·20	....
Carbonate of lime	93·59	91·52	95·16	92·17
Carbonate of magnesia	2·90	2·50	1·20	4·10
Iron alumina	·80	1·20	·50	·90
Water and loss	2·71	1·78	1·94	2·83
Bitumen	A trace.	A trace.	A trace.	A trace.

* The reason of this stone being so much heavier than any other marketable stone in the island, is its being so full of shells, which are of much greater specific gravity than the general mass; we must not thereby infer that this stone is considerably more durable than any of the others, notwithstanding its weight far exceeds them.

LAMP-POST AND TROPHY FROM CHELSEA HOSPITAL.



IRON LAMP-POST AND TROPHY FROM CHELSEA HOSPITAL.

Sir,—I have been long desirous of adding to the beautiful collection of sketches which have appeared in your journal. The continued publication of judiciously-selected examples from the works of ancient and modern art is of infinite use to the inquiring reader; and forms a very powerful auxiliary to the attempts which the Government is now making to diffuse a correct taste among all classes.

With this idea, I have sent you a drawing of what at first sight may appear a very humble subject. It is but a lamp-post, but it is one designed by the master-hand of Sir Christopher Wren, and it illustrates in a remarkable manner what may be done in small matters by the pencil of genius, and how the admiration of the spectator may be excited without straining after effect, or violating the laws of propriety.

The lamp-post stands in the middle of the west court of Chelsea Hospital. It is of iron, and 19 feet in height; the pedestal 5 feet 8 inches square.

There appears to be no doubt that it is as old as the hospital, the first stone of which was laid by King Charles II., in 1682, and the buildings were completed in 1690, from the design, as is well known, of that unrivalled English architect, Sir Christopher Wren.

Such a composition as this simple stand, placed on two or three steps with proper angle-posts and curb, would make a very much better ornamental centre to some of our public thoroughfares than many which have been put up of late years. Compare it, for instance, with the strange affair at Charing-cross, the bodkins at the end of the Poultry, the Waithman block, or that poor dear departed monument they have just pulled down at Battle-bridge (I suppose because it was so ugly, as to make the omnibus horses shy at it) with its statue of George IV., immortalized by the satiric needle of George Cruickshank as resembling at a distant view a sack of flour, and at a nearer approach Dusty Bob in a blanket.

As an inhabitant of Chelsea, I may perhaps be excused for my excessive admiration of Wren's noble building; I devoutly believe, and I know several eminent architects are of the same opinion, that the chapel of Chelsea Hospital is a finer work of art than the chapel at Greenwich,—the latter was designed by Athenian Stuart.

I have endeavoured to represent in my smaller sketch one of the military trophies



carved in stone at the entrance gates, which are very original and of striking beauty. These sketches from the outside of the building afford some little proof of what might be obtained from the structure itself. C.

LANDLORD AND TENANT.

In a report on the agriculture of Norfolk by Mr. Barugh Almack, published in the last part of the journal of the Royal Agricultural Society of England, there is a valuable chapter on "Tenure," wherein the writer very properly urges:—

"1st. That to induce a man to exert to the utmost such ability as he possesses, you must shew him that his doing so will be rewarded by benefits to himself, and not merely to others, who have no just claim to the exclusive advantages of the fruit of his labour; in other words, to prompt men to great and extraordinary industry, you must satisfy them they shall certainly be rewarded for their exertions, by at least participating in those permanent improvements which they alone have created.

"2nd. That, in order to gain the advantage of first-rate talent, added to sufficient capital, you must not trust to chance, but hold out some advantages to attract and secure to yourself those select men as tenants."

The late Mr. Coke (afterwards Earl of Leicester), to whom Norfolk owes great part of its fame as an agricultural district, acted on these principles, and both granted leases and offered inducements to good tenants.

"To secure the assistance and advantages of first-rate talent in the improvement of his estates," says Mr. Almack, "Mr. Coke gave, not only security that each should reap a certain portion of the benefits arising from his own exertions and skill, but he provided superior houses, and other accommodation, for his first-class tenants. This, undoubtedly, was well adapted to the object in view. I am not about to advocate a great outlay, in every case, on farm-houses and farm-buildings, nor any outlay inconsistent with the occupation and business of the tenants; but there should be, on all farms, such buildings, conveniently arranged, as are necessary for the economical carrying on of the farm, and no more than are necessary, so that they may be kept in good order at moderate expense.

"There should also be such a dwelling-house as is suitable for the management of the farm, and appropriate, as a residence, for the family of a man who possesses talent, and such amount of capital, as is invested in that occupation. When, in any thing, we are determined to have the best of its kind, we must be prepared to pay the best price for it, more especially in this case, when the value is certainly known to the party who has it to dispose of."

The advantages of this course are so apparent, that we might expect to find it universally followed. Such, however, is not the case; for though landlords may admit it to be the best means of obtaining great and permanent improvement in the soil, they are not willing to give up the power they have over their own property.

In order to meet this objection, Mr. Almack says,—"I would venture to submit, that if Great Britain were divided into three parts, and each let separately under one of the following agreements, all the land might be cultivated in the highest possible manner; for, though this division would allow each owner or each tenant to select the one agreement best suited to his own feelings, all would be so far founded on justice to the party who expended his capital for the improvement of the land, as to insure the most liberal outlay of it:

1st. Leases.

2nd. Insert a clause in the lease granted, under which the owner should have the power to cancel it, on giving eighteen months' notice, and paying to the tenant such sum as two arbitrators (one for each party) should think a fair compensation to the tenant for his permanent improvements, bearing in mind all the circumstances of the case affecting landlord or tenant.

3rd. By giving the tenant a clause, under an agreement as a yearly tenancy, by which he would be entitled to a fair and equitable allowance for all permanent improvements made at his expense, but with the sanction of the owner, and written notice of such intended improvements having been given to the latter or his agent, and not having been answered within a certain period, or in time to prevent that outlay which the owner of the land would not sanction."

We recommend this view of the question to the consideration of all landowners.



LETTERN-STAND, LITTLEBURY CHURCH.

The reading-desk in the choir of ancient churches was termed a lettern, or lecturn, from *lego*, to read; and a reader was called a lector, or lecturer. The earliest letterns known in this country are of wood, but many are found of brass, often in the shape of an eagle, with extended wings, upon a pedestal.

The annexed engraving represents the lower part of a lettern belonging to Littlebury Church near Audley End, Essex. It was found by our artist about two years ago in a lumber-room attached to the church, where also, amongst other *rubbish*, was the font-cover. The plan of the stand is six-sided; each side is slightly curved inward. It belongs to the last period of pointed architecture.

WORKS IN THE PROVINCES.

At Portsmouth, the fortifications are being repaired and strengthened. The old gun-carriages on the King's Bastion have been replaced by new, and eight 32-pounders, instead of four, mounted. Blockhouse Fort, commanding the mouth of the harbour, will shortly display a double instead of a single (as formerly) row of teeth; and it is contemplated to remove the old victualling store, upon which stands the old telegraph on the platform, in order to extend the Platform Battery to the Round Tower. Works will also be erected on Southsea Common, between the Castle and the King's Bastion.

At Wolverhampton, a project is on foot to establish a company for the purpose of supplying the town with water. The services of Mr. Thomas Wickstead, the engineer, have been secured. The estimated outlay required is 25,500*l*.

At Louth, a public meeting was lately held, for the purpose of determining the best mode of testifying respect for the memory of the late William Allison; when it was resolved that the most appropriate mode of testifying the public estimation of his worth would be in the erection of alms-houses in the town of Louth, to be called "Allison's Alms-houses," the patronage of which shall be invested in the family and descendants of the deceased, in such manner as shall be hereafter settled by a deed of trust. Subscriptions were forthwith entered into.

At Southend, the extension of the pier is proceeding so rapidly as to leave no doubt of its being completed early in the approaching season. With the exception of only twenty-seven piles, the whole of them have been driven, and most of them braced. The planking is also ready, and the workmen are employed in preparing the railing, which is to be of wood. This important addition, when completed, will afford to the visitors a distinct view of the fleets, both inward and outward bound,

conveying the commerce of the world. At the head of the pier, ships of every burthen will not only be distinguishable, but in most instances within hail; and the depth of water will enable them to land or receive passengers during the ebb of the tide.

At Bungay, the theatrical speculation having so entirely failed as to bring the stage properties and theatre to the hammer, the building has been purchased by a company, who intend immediately to convert it into a corn-hall. The building, being in the centre of the town, is eligibly situated, and easy of access. It is intended to throw ample light upon the stalls from the roof, and it is understood that there will be one or more rooms attached, suitable for committees or other parties requiring a public place of meeting.

At Wisbeach, a great addition to the number of houses has been made in the last few months. Several pieces of land have been sold at high rates for building purposes. The piece known as the late Mr. Girdleston's garden, near Blackfriars-brige, has been built upon and graced with the names "Angenoria" and "Ruby" streets. Other new streets are in course of erection at the back of the new parade, in East-field. A stimulus to improvement in domestic architecture has been given by the examples of Messrs. W. and A. Peckover, the bankers, whose new erections on the north beach are now approaching completion, and present a striking contrast to the dingy dwellings which until lately occupied their sites. Mr. W. Peckover's residence is in the old English style, with high pitched roofs, ornamental gables, twisted chimneys, &c. That destined for Mr. A Peckover, though less ornate, forms a more substantial-looking pile, and has a good appearance.

At Lincoln, it is confidently expected that during the present year greater improvements will take place in that city than have ever taken place in one year before, so that mechanics and labourers will be fully employed. The county goal is to be enlarged at the cost of several thousand pounds; the hospital is also to be enlarged; the temperance hall will be erected; a public walk constructed; many of the shops are to be pulled down and rebuilt in the London style, and it is expected that not less than fifty new houses will shortly be commenced. Extensive sales of household property in Lincoln are continually taking place, and generally speaking the prices obtained are exorbitant.

At York, a new lecture-hall for the Mechanics' Institute is about to be built. The money already raised amounts to 520*l.*

At Sandwich, it is in contemplation to erect a new day school in connection with the Independent Chapel in that town. W. Harris, Esq., who upon all occasions affecting the well-being of the poor is foremost to assist, has contributed 100*l.* towards the building fund.

At Burton, in Lincolnshire, a new day school, in connection with Wesleyan Dissenters, has just been completed. The building consists of two stories, with a wide passage in the centre. The upper room is for the school, and is 53 feet long by 25 feet wide. Beneath, on one side of the passage, is a comfortable house of three rooms for the teacher, and on the other side, a room, about 23 feet by 25 feet, possibly for an infant school, at some time. The whole of the common bricks—the front is of stock-bricks—amounting probably to seventy thousand, were the gift of a wealthy member of the Wesleyan body.

The Church of All Saints, Dorchester, has been recently rebuilt, under the direction of Mr. Benjamin Ferrey. It formerly stood in a very objectionable position, blocking up the pavement, and at the west, and close to the entrance, were fish shambles. These, by the interference of the Town Council, have been removed. The new building is erected in the Decorated style of architecture: it consists of three bodies separated by arcades; the whole building is finished in a superior manner. The stained glass in the east window will be presented by the Bishop of Salisbury. At present the tower terminates a little above the roofs; but it is intended that it shall be surmounted by a lofty stone spire. The expense of the building, exclusive of the spire, has been about 3,000*l.* The church contains 700 sittings.

THE EXCAVATIONS AT POMPEII.

The Academy of Fine Arts, in Paris, has received a report from its perpetual secretary, M. Raoul-Rochette, on the present progress and condition of the excavations at Pompeii, in which he earnestly calls attention to the rapid decay by which the exhumation of these remains is speedily followed, for want of due precautions.

"While rendering justice (he says) to the intelligence with which these explorations are conducted under the direction of a minister so enlightened as the Chevalier Santangelo, it is impossible to see without pain the gradual decay of the buildings of Pompeii. After an interval of six years I have found almost effaced paintings which I had previously beheld fresh and uninjured. This ruin, with which Pompeii is threatened, seems owing to the neglect, in the majority of instances, of the most simple precautions demanded for the preservation of paintings; such, for instance, as that of adding a roof to the walls on which they are found; or, better still, covering them with glazed frames, as has been done in parts, and might be done everywhere at trifling expense. For want of repair, however, these frames, where they have been employed, are rendered ineffectual, as I found lamentably proved in the 'House of Adonis.' A general belief prevails in Naples that Pompeii is destined once more—and this time irrevocably—to perish at no distant day; and owing to this anticipation, but too well grounded, there is a disposition to abandon the place to its fate without an attempt at retarding the destruction by measures of precaution, which in any case would cost but little, and which might be more effectual than is imagined. The Neapolitan Government will owe a serious reckoning to the learning of Europe, when the disappearance of Pompeii, daily going on before its eyes, shall have been consummated by the fault of those whom fortune had made the masters of such a treasure. They seem to think they do all that can be required of them when they transport from the old city to the museums of Naples its most important paintings. But how are these very paintings, affirmed to be thus snatched from destruction, treated? They are placed between layers of plaster, and shut up in wooden cases, where they remain for years buried in the warerooms of the Museum. Thus, the paintings removed before my former visit, more than six years ago, from the street of Fortune, and that of Mercury, are still at this moment in their prison of plaster and wood—as completely lost to us and science as they were beneath the volcanic crust, and far more compromised as to their preservation under the present than the former covering. Who shall venture to say in what condition these paintings will be found when withdrawn, at the close of seven or eight years, from their plaster beds? And what, at any rate, can justify this seclusion, for a term so prolonged, of these works in a museum, all whose treasures should be open to the student and the public?"—*Globe.*

The Royal Exchange.—It appears from a report presented to the corporation that the payments already made in respect of the new Exchange, and the new Gresham College, amount together to the sum of £100,244. 17s. 7d., and the amount yet required is estimated by the committee at £15,000. A detailed report is promised at Midsummer next.

Drawings by the late Adam Lee.—We perceive that the entire series of very beautiful and highly interesting drawings in water-colours, by Adam Lee, Esq., F.S.A., deceased, late resident officer of the Royal Office of Works at Westminster, are to be sold by auction towards the close of April. They consist of plans, sections, and perspective views of the ancient Palace of Westminster, in the times of Edward the Confessor, Rufus, Stephen, Edward III., Richard II., and Elizabeth; particularly, two most elaborate and beautiful drawings of the interior of St. Stephen's Chapel, as it appeared in the time of Edward III., beautifully illuminated with gold, and giving all the elaborate details of the painted glass and architectural ornaments. Also, plans for restoring the Palace, and views illustrative of the coronation ceremonials of George IV. and William IV.

New Books.

The Geometric Tracery of Brancepeth Church, in the County of Durham. By Robert William Billings. Published for the Author by T. and W. Boone. London, 1845.

This is a further exposition of the mode in which the Gothic architects produced by rule their apparently capricious tracery, as before set forth in the author's "Geometric Paneling of Carlisle Cathedral," and should be studied by all who wish to understand the spirit of pointed architecture. The paneling here illustrated belonged, it is supposed, to the ancient rood-screen of Brancepeth Church, and is attributed to about the year 1500. Although only about 10 feet long, and 4 feet 3 inches high, it contains twenty-seven panels of tracery, each widely differing from the other, yet all formed on geometric principles.

"It is satisfactory to find (says the author) that the more we examine Gothic architecture, the more we are convinced that chance was in no possible way connected with the linear designs of construction. The most exuberant richness of contour can, by a careful analysis, be reduced to simple geometric rules; and, in the investigation of laws of description which we have here endeavoured to exhibit, it has been curious to observe how extraordinary an alteration, in the general features of such panels as have fallen under our notice, is effected by a very slight deviation in that most simple of all curves—the arc of a circle."

We propose to represent one of the Carlisle panels in an early number of this journal; and, by means of it, to explain the mode adopted to produce them: in the interim we recommend all our readers who are engaged either in designing or executing Gothic tracery, to obtain the little volume of which we are now speaking. Mr. Billings, although still a young man, has produced a number of elaborate and excellent works on architectural subjects, and is entitled to warm commendation and support. His work on Carlisle Cathedral contains forty-eight drawings; that on Durham Cathedral seventy-five; and his first book, the Temple Church, thirty-one; the latter, moreover, were wholly engraved by the author, as well as drawn.

The Antiquarian and Architectural Year Book for 1844. Newby, Mortimer-street, Cavendish-square. London: 1845.

The object of this work, which is to be continued annually, is to gather into one view all discoveries and proceedings for the year both in primeval and mediæval antiquities; to afford notices of new ecclesiastical structures and the restoration of buildings of the same character, where the erection or adaptation are of sufficient magnitude to warrant description, and to supply information on important works on antiquities and architecture, published during the year.

We think the idea a good one, and cordially wish success to the attempt. Nor indeed is there any reason to doubt it, for, as the editor remarks in his preface:—"No time can be more propitious for the publication of such a volume than the present. Our national monuments, nay every relic of our country which has undergone the baptism of years, is regarded with an interest which, though perhaps newly, has nevertheless been powerfully awakened. Antiquity and the study of it are no longer exclusive, and antiquarians have ceased to be objects of contempt, or, to speak mildly, of derision. Antiquity has become popular. It has found its way out of the libraries of the learned, and made for itself a abiding place in the book closet of the man of business—of the poor scholar—of the artist. It is among all and with all. Its professors find honour among us, and they who study any of its multiform divisions are regarded with more than common attention, and their labours looked upon with interest. Every literary effort, therefore, which has for its object the illustration of the past for the better knowledge of the present or the future, is likely to be received into favour, and its efforts crowned with success."

The present volume is dedicated, with great propriety, to "John Britton, Esq., F.S.A., as a slight acknowledgment of the high estimation

entertained for his talents and his labours;"* and forms a very interesting record of fugitive essays on archæological subjects that have come before the public during the past year, antiquarian investigations, and published works. The various articles are arranged under the heads,—primeval antiquities, mediæval antiquities, ecclesiastical architecture (chiefly notices of old churches and restorations), and bibliography. There are not many original communications, but these may be expected to increase in ensuing volumes when the publication is known. The principal papers are those which were read at the Canterbury meeting of the Archæological Association, a meeting which has led to more writing and printing than could possibly have been anticipated by those who projected and arranged it.

We shall be glad to learn that the "Antiquarian and Architectural Year Book" has had a large sale.

Correspondence.

URISDICTION OF OFFICIAL REFEREES AND CONSTRUCTION OF SCHEDULE (E) AS TO PROJECTIONS.

SIR,—In accordance with my promise to ontinue the discussion of this subject, I would rst, to supply an *hiatus* in my last letter, set ut the form of notice from the district surveyor, issued in consequence of an application rom him to the official referees: "That the aid works were not a sufficient commencement prior to the 1st day of January, 1845, to ake them out of the operations of the Metropolitan Building Act, 7 & 8 Vict.; and that, the event of your proceeding therewith ithout giving me such notice as is required y the aforsaid Act, the said work will be able to be abated as a nuisance."

Here is a palpable recognition of a "commencement," and where is the authority to define the extent of it? more especially, as ated in my last letter, the "commencement" aving been made upon admitted legal notice nder the former Act. The ground of complaint to the official referees, upon which by eir decision the summons was issued (a copy which was sent to the party complained of), so raised the question of the proposed buildgs being in contravention of sect. E as to ojections. The official referees upon this ound of complaint issue, or sanction the district surveyor issuing, his summons, and, with plan of the *locus in quo* before them, evintly admit the operation of sect. E, as reaining buildings from projecting before the neral line of buildings in any street: with s impression (signified in the same mmons), that under the new Act no such ildings could be erected, it would appear to a farce to complain "of your proceeding erewith without giving me due notice, as is reired by the aforesaid Act," which brings us the discussion of schedule E as relating to ojections. The ground of complaint by the trict surveyor to the official referees being s: "and, lastly, the whole are *projected ildings* beyond the general line of the fronts the houses, viz. being 29 feet before those eady erected in Princes-place, *vide* plan, and trary to the said schedule E." The hisy of the matter is this:—Princes-place, as ted, is 29 feet from the public road, then nes a vacant piece of ground on which se five fourth-rate houses are commenced, l then another row of houses in a line with nces-place. The information to the rees states that the intended houses comnced next the road have a return wall feet deep, or 5 feet short of the front of the ve-mentioned houses.

The beading of the clause in the Act is, rojected buildings beyond the general line uildings, and from other external walls;" ill be perceived in the above quoted infor-ion to the official referees, that the district veyor has quoted the words of this recital, hout pursuing the inquiry as to what the enact-t was, viz.: "And with regard to buildings ady built or hereafter to be re-built, as to windows or other projections of any kind."

The words here used seem clearly to define that what was contemplated as to projections related only "to buildings already built or hereafter to be rebuilt;" and then follows, "*Such* projections must neither be built with, nor be added to any buildings or any face of an external wall *thereof*, so as to extend beyond the general line of the fronts of the houses." Using the term projection in its ordinary sense (not claiming the limitation of the above clause), would imply buildings proceeding from, and not, as in this case, being commenced at, the edge of the road actually advancing in progress towards the general line of the houses in the street. After the great deliberation that was given to the subject, many sessions passing over before the bill was in a condition to become an Act, it would be injustice to the framers of it to imagine that other than the common sense reading of the above extract was their intention. Had the intention been that which the district surveyor assumes, sanctioned by the referees, it is impossible to imagine that the talent engaged in the preparation of the Act could have lost sight of the few words that, suggested in parenthesis, in addition to the existing enactment, would have made the matter thoroughly intelligible.

"And with regard to buildings already built or hereafter to be rebuilt, as to bow-windows or other projections of any kind" (*and with regard to buildings hereafter to be built*) "such projections must neither be built with, nor be added to, any (*such*) building on any face of an external wall thereof" (*and no new building shall be erected*) "so as to extend beyond the general line of the fronts of the houses, &c."

It would also appear, that to any new buildings now or hereafter erected, at a future period, projections might be made thereto "beyond the general line of the front of the houses," as not being controlled by the words "buildings already built or hereafter to be rebuilt."

A most important point presents itself for discussion, as to the extent of application of the large equitable powers intrusted to the referees, which would appear to have been so intrusted to them to accommodate the Act to peculiar cases not precisely met by any positive direction, and not to be applied in contravention of a special enactment. I shall be glad to induce the opinion of some of your correspondents learned in the law upon a case thus circumstanced, in which I am now professionally concerned, by putting the facts before them in a subsequent letter.—Your obedient servant,

GREENWAY ROBINS, Architect.

22nd Feb. 1845.

SALE OF ARCHITECTURAL PRINTS AND DRAWINGS.

SIR,—I read the letter of a member of the Association of Architectural Draughtsmen in your last number with pleasure, and am glad to find that they are looking forward to the establishment of a separate and distinct exhibition of architectural drawings and a museum.

In the first volume of THE BUILDER I ventured to offer a few suggestions to this society with every feeling of respect, and am now about to make a proposition, which I trust, will be received by them in the same spirit.

I am very fond of the study of architecture, and in my leisure hours can enjoy the luxury of being possessed, if only for a time, of a good engraving or drawing, and having but small means, as is the case with many of my class, I find some difficulty in supplying my wants for contemplation and study. I allude to the great difficulty found by young men who are anxious to obtain information from such sources, their being no place in London where architectural prints can be obtained in any great variety or quantity, therefore beg to call the attention of the above society to the consideration of the following plan:—

If they have an exhibition of architecture, they must have a large room, I therefore propose that they establish a *depôt for the sale and purchase of prints and drawings* of all styles of architecture, and every *art* and *trade* connected with it. With regard to myself, I often buy engravings, &c., that may strike me as having some peculiar effect, a door or window, or other feature which I may introduce into a design or sketch to advantage, or some place I may have visited or be about to do so, and when I have made such use of it, would be glad to dispose of the same at *a cheap rate*, or exchange it for others, consequently should find such an establishment very acceptable. Working drawings of buildings actually executed, machinery, furniture, &c., however *rough* and dirty, would be useful and readily purchased by those requiring such in their early studies, and again, after being copied, find their way back for the use of new comers, at a very trifling cost to all parties; nothing should be refused; and this plan will offer the opportunity to young artists to send their drawings for sale, and bring their names before the public; assist them greatly in obtaining employment, and induce them, when taking sketches from the actual buildings, to make them more accurate, as the sketches will become valuable to those who have not been there, and sell for a small sum.

The plan of management would be simple, and might be arranged as follows:—each party sending a drawing or print *for sale* would write the name and price at the back, inclosing a letter with his name and address, which would be kept private; after being numbered, it would be entered in one book open to the public; and when sold, struck out and entered in a ledger, the name, address, and price being stated and paid when demanded, deducting a commission, which may be agreed upon. The drawings, &c., by a little judgment could be arranged in the various styles, so as to be shewn immediately.

During the continuance of the exhibition, the drawings and engravings might be kept in portfolios on a large table in the centre of the rooms, so that the public would have the additional advantage of inspecting and purchasing plans; and when the exhibition was terminated, they might be placed on the walls, and the public admitted free.*

By the assistance of the county members of the society, or others that might be appointed as agents to collect and send up portfolios of drawings, &c., and, in return, have such subjects as they may require, thus keep up a correspondence and diffusion of knowledge all over the kingdom, and, in the course of time, establish similar exhibitions in the large towns.

And you, Sir, might, by lending your powerful aid in THE BUILDER, assist them by having a weekly head; say—

THE PORTFOLIO OF THE ASSOCIATION OF THE ARCHITECTURAL DRAUGHTSMEN.

Drawings and Prints received for Sale this week.

DRAWINGS, &c.	SIZE, in. × in.
Saffron Walden Church.	Here some little description to follow, whether working drawings, coloured, outline, &c.

Prints, &c., similar to the above.

Such information would be very extensively circulated by the assistance of your excellent journal, and would be found useful.

Your most obedient servant,

WILLIAM J. SHORT.

2, Spring-terrace, Lambeth,
February 22nd, 1845.

THE PORTLAND VASE.

SIR,—As the Portland Vase has been lately brought into lamented notoriety, and you have noticed it with just execration of the vagabond sot who destroyed it, perhaps the following particulars, which will be found in "Granger's Letters and Miscellanies," may not be uninteresting in your journal. He, Granger, is describing the Portand Museum.

I am, Sir, &c., H. B. H.

"The most celebrated antique vase or sepulchral urn, from the Barberini cabinet, at Rome. It is the identical urn which contained the ashes of the Roman Emperor Alexander Severus, and his mother Mammea, which was deposited in the earth about the year 235 after Christ, and was dug up by order of Pope Barberini, named Urban VIII., between the years 1623 and 1644. The materials of which it is

We hear that a committee is being formed for the ose of paying some public compliment to this estimable eman in acknowledgment of his long career of extenusefulness. We will gladly aid such a proposition.

* The capital required would be very small—a table, portfolio, and a little furniture; and the whole might be managed by a clerk and boy, or porter. The clerk should be a draughtsman, well acquainted with the subjects he has to arrange; and if he be a man of talent, he might in the evenings, when the rooms were not otherwise engaged, give lectures to the younger members of the profession on the various styles and construction shewn in the numerous drawings and engravings on the walls, with instructions as to the best mode of pursuing their studies; thus making them *useful* when even under sale; and, by means of the fees, increase his salary, making the situation worthy the acceptation of a man of character and ability.

composed emulate an onyx, the ground of a rich transparent dark amethystine colour; and the snowy figures which adorn it are in bas-relief, of workmanship above all encomium, and such as cannot but excite in us the highest idea of the arts of the ancients.

"Its dimensions are 9¾ inches high, and 21¾ inches in circumference. A more particular account of this famous vase may be found in Montfaucon's Antiquities, vol. v. book ii. chap. 6; in Signor Bartoli delle Sepulchri Antichi; in the Ædes Barberinæ; in Wright's, Breval's, and Misson's Travels; in Winckleman on the Arts of the Ancients, &c. &c.; and an accurate engraving, with a particular description of it, was given in "Gentleman's Magazine," vol. lvi. p. 97. 1,029*l.*"

N.B. This sum is the price it fetched at the sale of the Duchess of Portland's collection, by Mr. Alderman Skinner, who was thirty-seven days employed in the sale at the duchess's house, in Privy-gardens, commencing his labours on the 24th April, 1786. I presume it was bought in by the family.

SLAB SLATING—CONDENSATION OF MOISTURE.

Sir,—It is generally known that the great objection to the use of slab slate as a covering to a building is the fact of its being liable to dampness on the underside in certain states of the weather. The evil no doubt arises from damp air, which, as it comes in contact with the slate, condenses and falls in drops of water; this especially occurs after a frost. If any of your readers are acquainted with an application as a simple remedy to prevent this defect, and would make it known through the medium of your journal, it would be a means of greatly extending the usefulness of that valuable material.

I am, yours, &c., &c.,
Southampton. An Architect.

[Our correspondent will find some remarks on this subject in the notice of proceedings at the Institute of Architects, in our present number. The evil would be lessened by covering the slate outside with any non-conductor of heat. —Ed.]

Miscellanea.

Novel Applications of Iron.—Experiments have for some years been in progress, chiefly under the superintendence of Herr Dase, inspector of mines in Richmond, in the Duchy of Brunswick, with a view to make cast-iron, as the cheaper and more durable material, applicable to the preparation of stereotype plates. The success of these experiments is attested by the publication of a cast-iron stereotype edition of the Bible, published at Nordhausen, the price of which, with marginal readings, is 9 ggr. (13d.) Another application of the same metal has lately arrested our attention, and for which it possesses certain capabilities. We refer to the use which is beginning to be made of it in perpetuating the memory of the dead. Sepulchral monuments, formed of cast-iron, are already to be found in our metropolitan church-yards and suburban cemeteries. We believe that to the late Mr. Thomas Wedlake, of the Fairkytes Foundry, near Romford, must be awarded whatever credit is due for the novelty of the application.

The New Chapel, Colchester, was erected in 1844, from the design of Mr. W. F. Poulton, architect, Reading. It is built of white Copford brick, the strings, entablature, &c., being formed of moulded brick. Stone is used only for the caps and bases of pilasters and for the impost mouldings. The colour of the facing brick being uniform, the building has the appearance of a stone erection. The size in the clear is 40 feet 6 inches by 51 feet 6 inches — accommodation for 500 persons. There is a shallow gallery across the entrance end. The pulpit is suspended from the back wall, with entrance by steps direct from the minister's private vestry. The size of vestry is 30 feet by 11 feet 6 inches. The contract (by Mr. Kemp, builder, Colchester), for the chapel and vestries, was 1,011*l.* Amount of extras, 18*l.* 15s.

Mahogany and Rosewood Veneers.—A question of some importance to the importers of foreign furniture woods has recently been raised by the customs officers at Hull. A parcel of veneers of mahogany and rosewood, cut from the log, were imported into that port from Hamburgh, which the revenue officers placed under detention, as being contrary to the navigation laws, *i.e.*, as being the produce of Asia, Africa, or America, and imported into this country from Europe, the logs, in this instance, having been imported into Germany from the place of growth, and there cut or sawn into the very fine thin slices of wood used in the making of cabinet furniture, and known by the trade as veneers. The officers, however, considered that this operation, performed in Hamburgh, did not constitute a manufacture, inasmuch as the wood retained its original state, having been simply sawn or cut from the log, and would require polishing &c., here, previously to being fit for use for the purpose to which it is applied. It has, however, been decided that, under the Treasury order of the 23rd February, 1833, the parties are entitled to the admission of the veneers as the manufacture of the country from which they were imported, although the wood itself, in its raw state, be the produce of either of the other quarters of the globe. This decision has been communicated to the officers for their information and future government.

First Judgments on New Discoveries.—However void of practical utility any discovery may at first appear, it is impossible to tell to what important results it may eventually lead. Who could have foreseen an acquaintance with the minutest wonders of the heavens from the child of a spectacle-maker amusing itself with convex glasses—the marvellous results of steam machinery from the steam issuing from a kettle—or the illumination of our towns from burning a piece of coal in the bowl of a tobacco pipe? One ingenious contriver of a steam-ship was advised by a former president of the Royal Society to employ his time on some practicable scheme, and not on a visionary speculation; and thus it is that the suspicion and distrust with which any novelty is commonly received has tended to damp inquiry and retard science. I have been assured by that eminent geologist, the Rev. W. D. Conybeare, that his early investigation of the more recent strata of this kingdom, and especially of the Portland oolite, &c., was treated as an idle occupation of time, and as leading to no useful purpose; whereas the progress of geology, since that time, has shown that the stability of our great public edifices depends on a proper selection from the rocks best adapted for building; and Mr. William Smith, who shared in the obloquy of following such useless pursuits in the infancy of the science, was in his old age employed by government, in conjunction with Mr. De la Beche and others, to examine the various strata of the United Kingdom, with a view to selecting the best stone for building the new Houses of Parliament.—*T. Sopwith on Glaciers in Great Britain.*

Schools of Design.—Mr. Edward Bannister, of Hull, in urging the establishment of a school of design in that locality, where, at present, there is no place for the study of the fine arts, remarks very justly:—"For the pursuit of that knowledge which is essential to the cultivation of design as applicable to our arts and manufactures, every facility should be afforded and every means held out to induce the artizan to become skilful and ready in the execution or invention of patterns which he may be called upon to produce. The acknowledged superiority possessed by the French in design is so generally admitted, that any observation in proof thereof would be needless. The demand by the public for all articles wherein elegance of design is exhibited fully proves that the people are already capable of appreciating their merits, and that in order to compete with other nations we must bring into operation an equal amount of talent in the production of goods both of a useful and ornamental nature. Design is the same arrangement and fitness of parts, to form an harmonious whole, whether employed in the grouping of materials for a shawl pattern, or in the disposing of figures for a cartoon; it may exist in the commonest and most ordinary article, rendering it chaste and beautiful, whilst without it the most costly and elaborate works are vulgar and contemptible. Designs must also be adopted suitable to the purposes for which the articles may be applied—a triangular coin or a square tea-cup would be as absurd as a fat Hamlet or a lean Falstaff; how often do we see used the most ridiculous and unmeaning patterns; nature in all her freaks never produced anything so incongruous, the willow pattern to wit, and the grafting of various flowers and fruits upon one stem, exhibiting monstrosities in form and colour which the painted Indian could never rival, nor the gay Chinese surpass."

Public Footpaths.—A few evenings since, Mr. Aglionby called the attention of the House of Commons to the unprotected state of the public footpaths, which are now frequently crossed and intersected by railway constructions, quite regardless of the rights and convenience of the neighbourhood. The consequence of this state of things was that footpaths to the church, the village, and through the fields, might be intersected by railway-cuttings, 20 or 30 feet deep, so that there would be a descent, and then an ascent of that magnitude, to be accomplished before the footpath could be regained. What he desired to have was, that public footpaths should be protected the same as railways. Lord G. Somerset expressed his willingness to give the subject his best consideration.

Galvanised Iron.—An action brought by Patteson and others, against Holland and others, for the infringement of a patent granted in 1837, for an "improvement in coating or covering iron or copper for the prevention of oxydation," was heard last week in the Court of Common Pleas. The defendants pleaded—first, that they were not guilty; secondly, that the plaintiffs, or those they represented, were not the first and true inventors, and, further, that the specification did not particularize and determine the nature of the invention, and in what manner the same was to be performed. The evidence, on the part of the plaintiffs, related to very few points, the main question being, that if the patent were valid, whether the defendants had infringed it. No witnesses were called on the part of the defendants, who relied upon the cross-examination of the witnesses put forward on the part of the plaintiffs; but several scientific persons were examined on behalf of the plaintiffs, and upon whose cross-examination the defence was rested. The specification stated, that the zinc by which the iron or copper was to be coated might be used either in a state of fusion, or in a solid state reduced into powder. The iron was to be previously scoured by immersing the metal in water acidulated with sulphuric acid, or by dipping it into a solution of sal ammoniac, or in water acidulated with muriatic acid. The metal pieces, after being dipped, were to be dried immediately, and, as the specification stated, might be dried by holding them over a reverberatory furnace. The zinc was to be melted in a crucible of earthenware, or of cast-iron with bricks, or an earthen lining of some kind. The specification then stated, that the zinc, being melted, must be skimmed carefully, and the surface covered with sal ammoniac, after which the plates of iron or copper were to be slowly introduced into the melted zinc. With regard to small pieces of metal such as nails, small chains, &c., they were to be thrown into the melted zinc, covered with sal almoniac, and afterwards put into a reverberatory surface, and covered with charcoal. A red heat was to be maintained there during a quarter of an hour, while the mass was moved and shaken, until the pieces of metal had discharged the excess of zinc which they had taken up. It was admitted, by the witnesses for the plaintiffs, that the coating of iron with zinc, as a means of preventing its oxidation, had been known in England, at least half a century. There was no evidence to shew that a reverberatory furnace had ever been used; and on of the witnesses admitted, that, although it might be possible to use an earthenware crucible, it would, practically speaking, be impracticable.—The jury, after an absence of half an hour, returned into court, finding for the plaintiffs on all the issues but the fifth, which they found for the defendants; thereby substantially, giving a verdict for them, and thus, in a great measure, stultifying the verdict given in favour of the plaintiffs on the other points.

Scott Monument.—The committee for s monument are now turning their atten-n to the necessary decoration of it, by ceeding to raise a fund for the purpose of ing its niches with figures of characters propriately selected from the works of the ottish Shakspeare. Those already erected the figures of the Last Minstrel, Lady of e Lake, Prince Charles, and Meg Mer-ees, which severally represent his first em, his most popular poem, his first vel, and his most popular novel. We glad to hear that the committee are be-rring themselves for the purpose of raising ditional funds to enable them to have the ier niches filled in a similar manner, as thout this, Mr. Kemp's design would be left complete in its most important object, that filling the mind of the spectator with re-llections of the great author's wonderful rks.

Old Fairlight Church, near Hast-gs.—The *Times*, says this humble, but rious and ancient structure, is about to be lled down. It is one of the last of a class religious edifices now almost swept from land by the ruthless hand of modern taste, d there seems to be really no just grounds destroying this church; it is not in a nous state, and is quite large enough for wants of the place; in fact, in the winter nths it is never full, and only so in the mmer, when visitors attend from the neigh-uring watering-place, chiefly on account of quiet, retired situation. The old inhabi-nts of the parish are against its demoli-n; they feel that if the building be not y or attractive in itself, it is nevertheless old church wherein the rude forefathers the hamlet worshipped for many ages, d around which many take their eternal t, and they view with surprise and aver-n its removal to make way for a new ucture. A very small sum would be enough put it into good repair, and it is to be ped that the dignitaries of the church will avert the doom to which the building l in a few days be consigned unless they erpose.

Belgian Engineering.—A short time ce, a portion of the tunnel of Cumptiel, on line of railway between Belgium and Rhe-h Prussia, gave way, but without causing s of life. Since that occurrence, the com-nication between the two countries has iously been retarded, both from apprehen-ns on the part of the public, and obstruc-ns created by the recent heavy falls of snow. ese circumstances attracted the notice of Government, who accordingly, a few days ce, brought before the Chamber of Repre-tatives a project for substituting an open for the tunnel in question, and applied for ,000f. to carry out that object. It was stated ring the discussion, that the falling in of a tion of the tunnel was to be ascribed to the l quality of the bricks which had been used he construction, and to the want of suffi-nt lime thickness in the partition walls. e member demanded the Minister of rks to institute a special inquiry into the ses of the accident, with the view of ascer-ning whether there were not sufficient unds for *prosecuting the engineers*. The nister, in reply, observed, that Belgian ineers were highly estimated abroad—that y had been engaged in the majority of the rman States, where the formation of rail-ys was commenced or contemplated—and t in no foreign railways had more talent cience been displayed than on the Belgian, that none presented greater pros pects or arantees for safety.

Cairo and Suez Railway.—By advices ich have recently been received from Alex-ria, it appears that His Highness Mehemet has arranged with Mr. Galloway, the Lon-engineer, for carrying out forthwith the cution of this long-projected railway. The t importance of this work to Great Britain, the advantage and facility it will afford to Indian passengers and mails, inasmuch as crossing this desert of eighty miles now upies as much time as going from Alex-ria to Cairo, a distance 220 miles, must be dent to every one; besides which, it is well own that the fatigue, inconvenience, and ense of the desert journey in many cases er-travellers from availing themselves of overland route to India. When this rail-road is completed, the journey across the desert may be accomplished in three hours with ease, comfort, security, and economy, as it will no longer be necessary to send out supplies of food and water to the desert, which at present are requisite, in consequence of the time occupied in the journey. We sincerely hope, that before three years shall have elapsed we may have it in our power to congratulate Great Britain on the achievement of this useful and gigantic work. The following are the distances across the desert between Cairo and Suez, dividing the line into stations :—

	M.	F.	P.
From Cairo to No. 2 station..... (Road sandy, and slightly irregular.)	17	4	18
From No. 2 to 4 station ..... (First stage sandy and irregular, second hard and smooth.)	20	5	7
From No. 4 to 6 station ..... (First stage hard and regular, last hard but rugged.)	23	7	2
From No. 6 to Suez ..... (Both stages hard and level.)	23	1	4
Total distance.....	85	1	31

NOTICES OF CONTRACTS.

For a survey of the Messuages, Lands, and Hereditaments liable to poor rates, in the parish of Tydd St. Mary, Lincolnshire; together with a plan thereof, upon a scale of three chains to an inch, a tracing of such plan, and a book of reference in duplicate. The parish contains from 4,000 to 5,000 acres. March 3.

For the Mason's and Pavior's Works, supply of Guernsey Granite Chippings and Yorkshire Paving, for one Year, from the 25th of March next, for the parish of St. George, Hanover-square. March 4.

For the supply of 20,000 tons of Iron Rails, and 7,000 tons of Iron Chains, for the Newcastle and Berwick Railway. March 4.

For the supply of 100,000 Railway Sleepers for the Newcastle and Berwick Railway. March 4.

For repairing or new-paving the Foot-ways and Carriage-ways in the parish of St. John the Evangelist, Westminster, and parts of St. Margaret's parish, for one year, from Lady-day next. March 4.

For a supply of thirty iron Lamp-posts and Columns, according to pattern, each weighing at least four cwt. March 5.

For supplying 2½ inch Yorkshire Paving, Granite Kerb, Circular Kerb, Granite Channel Paving, and faced Granite Stones for crossings, within the district of Camden Town for three years from the 25th of March next. March 6.

For completing the Works connected with the inclosing and annexing certain Land lately purchased for the improvement of Newport Bridewell, in the Isle of Wight. March 8.

For repairing the footway pavements, and providing and laying new curb and other stone; for repairing the carriage-way, pavements, and providing and laying new granite and other stone, during one year from Lady-day next, for the united parishes of St. Andrew, Holborn, and St. George-the-Martyr, Middlesex. March 8.

For paving and repairing the Carriage-ways and Foot-ways within the parish of St. Paul, Covent-garden. March 11.

For supplying and laying down about 400 yards of cast-iron Pipe, of 10 inches diameter, for the Commissioners of the Southampton Water-works. March 13.

For building a Sewer in the City-road, St. Luke's, near Charles-street, in length about 401 feet; and lowering an existing Sewer, in length about 130 feet. March 14.

For the repairs and restoration of the Tower and Nave of St. Mary's Church, Nottingham. March 17.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

March 3.—At the Greyhound, Sandy, Bedfordshire; a large fall of remarkably large Larch and excellent Scotch Spires.

March 4.—At the Green Man Inn, Plashet, Essex; 220 capital Timber Trees, 200 superior Poles, of large dimensions, part nearly timber-girth, consisting of Lime, Ash, Beech, Oak, Black Poplar, Birch, and Hornbeam.

March 4.—In the Wood on the Deadmonsey Estate, near Market-street, Herts: 1,100 large Oaks; 3,500 smaller Oaks; 400 large Beech; 600 smaller Beech; 1,000 Oak poles.

March 4.—At the Red Lion Inn, Worksop; a large quantity of very valuable Oak, Larch, Beech, Elm, and other Timber Trees, now standing at Worksop, Clumber, and Martin, near Bawtrey.

March 4.—At the Harrow Inn, Lower Warnborough, Wilts; 72 Elm Trees, 2 Oaks, and 1 Ash.

March 4.—At Whitton, near Hounslow and Twickenham; 350,000 Malm, Stock, and Grizzled Bricks, 13 tons of Lead, 12 squares of Slating, 3,000 feet of York and Portland Paving, 10,000 Glazed Pantiles, &c. &c.

March 7.—At the Hall of Commerce, Threadneedle-street: 500 loads of large Yellow Pine Timber, 20,000 Baltic and Colonial Deals.

March 11.—At the King's Head Inn, Enfield, Middlesex; 200 Oak Timber Trees of large dimensions and excellent quality, 34 Elm and 24 Ash Trees.

The last week in March, or the first week in April next.—A large quantity of Oak and Elm Timber, of superior quality and large dimensions, principally growing in the woods on the Orchardleigh Estate, near Frome, Somerset.

Shortly. — At Portsea: a valuable cargo of Mahogany and Cedar in Logs and Planks.

COMPETITIONS.

Plans and Elevations for a new Workhouse with the requisite offices, capable of accommodating 400 inmates, for the Canterbury Incorporation. The architect is requested to state the amount of premium he will require for the use of his plan and specifications in the event of the Court of Guardians adopting the same, and appointing their own surveyor to superintend the works. March 8.

Plans for the most convenient mode of landing or embarking passengers, carriages, &c., &c., at George's Pier-head, Liverpool. A Premium of 200*l.* will be given for the Plan selected and acted upon, and a Premium of 100*l.* will be given for that Plan which may be deemed to be the next in utility. March 19.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

Monday, March 3.—*Entomological*, 17, Old Bond-street, 8 P.M.; *Chemical (Society of Arts)*, Adelphi, 8 P.M.; *Medical*, Bolt-court, Fleet-street, 8 P.M.

Tuesday, 4.—*Linnæan*, Soho-square, 8 P.M.; *Horticultural*, 21, Regent-street, 3 P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.

Wednesday, 5.—*Society of Arts*, Adelphi, 8 P.M.

Thursday, 6. — *Zoological*, Hanover-square, 3 P.M.; *Royal*, Somerset House, 8½ P.M.; *Antiquaries*, Somerset House, 8 P.M.

Friday, 7. — *Royal Institution*, Albemarle-street, 8½ P.M.; *Botanical*, 20, Bedford-street, Covent-garden, 8 P.M.

Saturday, 8.—*Royal Botanic*, Regents-park, 4 P.M.; *Westminster Medical*, 32, Sackville-street, 8 P.M.; *Medical*, Bolt-court, Fleet-street (Anniversary).

TO CORRESPONDENTS.

"W. F. P."—*The sketch is declined with thanks.*

"New Corn Exchange, Romford."—*We cannot lend ourselves to attacks on individuals without being fully satisfied that they are just. The papers sent give no such assurance. As to the amount of premium offered, if architects can be found sufficiently foolish to submit plans for a Corn-Exchange, Lecture and Reading-rooms, &c., to a tribunal of which they know nothing, for the remote chance of obtaining* ten guineas! *they will deserve just what they are likely to get, namely, their trouble and outlay for their pains and weakness.*

"Pro bono publico" (Colchester) *must remember that we have many classes of readers to gratify. His wishes, however, shall not be lost sight of.*

"The Rev. W. D." (Montreal).—*Any information on the state of architecture and building in the colonies will be acceptable.*

"A Hand-railist" *inquires "what course we would recommend to a person who knew how to construct an exceedingly useful and valuable machine of novel character, but whose means were not such as would enable him to obtain a patent."—Consult confidentially some capitalist.*

"The Rev. J. F." (Yorkshire).—*The appeal shall be read. As to the drawings, it would be wrong to answer without seeing them; but we have no doubt they would be useful.*

"D. W. B."—*We "are quite willing to aid the wishes and intentions of those who are resolved to agitate the subject of Architectural Competitions, until a system, acknowledging principles of justice and honesty (at least), shall become recognized;" but we think the "Translator" has hardly case enough at present.*

"M. B. A."—*Next week.*

"A Subscriber" (Liverpool) *wishes to be referred to the best works on copper-smelting, and the construction of smelting-furnaces, with the names of the publishers.*

"G. L." (City-road) *shall be written to.*

"Railway Masonry."—*Messrs. Groombridge and Sons, of Paternoster-row, and Mr. Thurnam, of Carlisle, intend very shortly to issue a new edition of the late Peter Nicholson's work on Railway Masonry.*

Received: Part I. of Dr. Young's Lectures on Natural Philosophy; edited by the Rev. P. Kelland. (Taylor and Walton.)—Dolman's Magazine, No. 1.—*Minutes of Proceedings of the Institution of Civil Engineers — D. Finney— J. W. S—An Enquirer.*

Current Prices of Wood and Metals.

February 25, 1845.

	£.	s.	d.	£.	s.	d.
Box, Turkey, bd. per ton..	4	0	0 —	6	0	0
Cedar, Pencil, per foot ..	0	0	3 —	0	0	4
Cuba	0	0	3 —	0	0	4
N. S. Wales	0	0	3½ —	0	0	5½
Green, per ton ..	5	5	0 —	9	0	0
Ebony, Ceylon, large	6	0	0 —	7	0	0
small	4	10	0 —	5	15	0
Madagascar, small	5	0	0 —	6	0	0
Lignum Vitæ, Jamaica ..	3	0	0 —	5	0	0
St. Domingo	8	0	0 —	12	0	0
Mahogany, Cuba, per foot	0	0	8 —	0	1	2
St. Domingo	0	0	9 —	0	1	2
Honduras	0	0	5½ —	0	0	10
Timber:—						
Teake, African, per load ..	11	0	0 —	12	0	0
Oak, Quebec	7	0	0 —	7	10	0
Fir, Riga	4	7	6 —	0	0	0
Dantzic and Memel ..	4	0	0 —	4	10	0
Swedish.....	3	17	6 —	4	0	0
Pine, Quebec, red, per load	4	5	0 —	4	7	6
yellow	4	0	0 —	0	0	0
Miramichi & St. Johns	4	10	0 —	0	0	0
Wainscot Logs, 18 ft. each	5	10	0 —	0	0	0
Lathwood, Memel, &c. fm.	9	0	0 —	0	0	0
Deals, Gefle, 14ft. 3in. by 9	31	0	0 —	32	0	0
Stockholm	28	0	0 —	29	0	0
Gottenburg, 12ft. 3by9	27	0	0 —	0	0	0
Christiana, 1st & 2nd	30	0	0 —	31	0	0
St. Petersb'g, Memel, Dantzic, 12f.1½ 11in.	18	10	0 —	19	0	0
Quebec yellow Pine, first quality	17	0	0 —	18	0	0
second ditto	13	0	0 —	0	0	0
White Spruce, 120..	18	0	0 —	21	0	0
Dantzic Deck, each..	0	18	0 —	1	6	0
Plank, Dantzic Oak, load..	9	0	0 —	10	0	0
Staves, Baltic, per 1200..	140	0	0 —	0	0	0
Quebec Pipe, 1200	70	0	0 —	0	0	0
Copper—Brit. Cake, p. ton	84	0	0 —	0	0	0
Tile	83	0	0 —	0	0	0
Sheet, p. lb.	0	0	9½ —	0	0	0
Old	0	0	8½ —	0	0	0
South Amer., ton	71	0	0 —	0	0	0
Iron, British Bars.....	8	5	0 —	0	0	0
Rods.....	8	15	0 —	9	0	0
Hoops	10	5	0 —	0	0	0
Sheets	11	0	0 —	0	0	0
Cargo in Wales, Bars	7	10	0 —	8	0	0
Pigs No. 1, Wales ..	5	0	0 —	5	5	0
No. 1, Clyde ..	4	10	0 —	0	0	0
Swedish	10	10	0 —	12	0	0
Lead—British, Pig, p. ton	16	15	0 —	17	0	0
Sheet, milled	17	5	0 —	17	10	0
Shot, patent	19	15	0 —	0	0	0
Red or Minium ..	21	10	0 —	0	0	0
White	23	10	0 —	24	10	0
Litharge	20	0	0 —	0	0	0
Spanish Pig	16	0	0 —	16	10	0
Steel—Swedish Keg	16	0	0 —	16	10	0
Faggot	17	0	0 —	0	0	0
Tin— In blocks, p. cwt. ..	3	11	0 —	3	12	0
Ingots	3	11	0 —	3	12	0
In Bars	3	13	0 —	0	0	0
Banca.....	3	4	0 —	3	5	0
Straits	3	2	0 —	0	0	0
Peruvian.....	1	7	0 —	1	13	0
Plates, p. box, 225 shts.—						
No. I. C. 13¾ by 10 in.	1	6	0 —	1	12	0
I. X.	1	13	0 —	1	19	0
Spelter—On the spot, ton	22	5	0 —	22	10	0
Delivery.....	22	0	0 —	22	5	0
Zinc, English Sheet.....	32	0	0 —	0	0	0
Obsidew .....lb.	0	3	0 —	0	0	0
Quicksilver .....lb.	0	4	6 —	0	0	0

ADVERTISEMENTS.

TO ARCHITECTS.—To be SOLD, Sir WILLIAM CHAMBERS'S TREATISE on the DECORATIVE PART of CIVIL ARCHITECTURE, with valuable Notes and Examinations of Grecian Architecture, by Joseph Gwilt. Numerous fine plates, two very large vols., imperial 8vo., half-morocco, gilt backs, for 32s. 1825. Apply to Thomas Cole, bookseller, 38, Princes-street, Leicester-square. Only a few copies remain for sale.

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MANUFACTURERS,

11, GREAT MARLBOROUGH-STREET, LONDON, Offer to Painters, Builders, &c., Painting Brushes of quality far superior to those generally offered for sale, which they beg to call the attention of all who prefer quality and durability to apparent cheapness.

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Sash Tools, and Common Tools.
Tar Brushes and Masons' Brushes, and all other Brushes used by Painters and Artists.

Lists of Prices of Painting Brushes, and of all other kinds of Brushes, forwarded on application. Established 1777.

HOLBORN AND FINSBURY SEWERS, MIDDLESEX.

THE COMMISSIONERS of SEWERS for the LIMITS give NOTICE, that their Office, Hatton Garden, is open daily between the hours of Ten and Four, where information can be obtained (gratis) by persons about to Purchase or Rent Houses or Property, or take Leases for Building purposes, of the situation and level of the public Sewers, capable of affording sufficient Drainage, and which they recommend all such Persons to apply for at the above Office.

By the Court,
STABLE and LUSH, Clerks.

TO BUILDERS AND OTHERS.

NOTICE IS HEREBY GIVEN, that the Commissioners of Sewers for Holborn and Finsbury divisions, Middlesex, will meet at their office in Hatton-garden, on Friday, the 14th day of March next, at Two o'clock in the afternoon precisely, to receive TENDERS for building a Sewer in the City-road, St. Luke's, near Charles-street, for a length of about 4 feet; and lowering an existing Sewer southward, to the extent of about 130 feet, conformably to Plans and a Specification, which may be seen daily between the hours of ten and three. The parties offering must attend at the above time of meeting with their Tenders sealed up, which must contain the names of two sureties, for the due execution of the works. The Commissioners will not consider themselves bound to accept the lowest Tender.

By the Court, Stable and Lush, Clerks.

Office of Sewers, Hatton-garden,
February 22nd, 1845.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. (chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, or public way, or in any part intended to become a street, lane, or public way, or to carry off or drain off water from any house, building, yard, or ground, into any sewer under the management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewers or drains shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, when application being made at this office previous to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, whenever the lower floors or pavements of buildings shall be laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

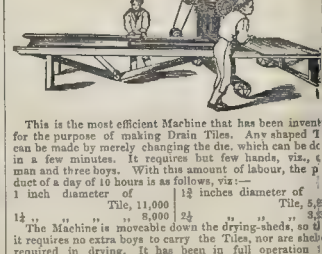
It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings must in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners, will be cut off, and the parties making the same will subject themselves to a fine.

By order of the Court,
LEWIS C. HERTSLET, Clerk.

HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HAILEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., 1 man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz:—

1 inch diameter of Tile, 11,000	1½ inches diameter of Tile, 5,5
1½ ,, ,, ,, 8,000	2½ ,, ,, ,, 3,5

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are sheds required in drying. It has been in full operation upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the machine includes free use of it.

The Builder.

No. CIX.

SATURDAY, MARCH 8, 1845.

THE applications made to us for information on various points in the Metropolitan Buildings Act are still so numerous, as to lead us to believe that a large proportion of our readers are greatly interested in the subject. The inquiry, When may we omit sending for the district surveyor? has been repeated, it is hardly necessary to say, oftener than any other. One correspondent, a respectable builder, whose letter represents a dozen others now before us, asks:—

"Can you inform me, if it is really necessary that notice should be given to the district surveyor of such trifling works as the following, viz.: in fixing a kitchen range, for instance, it is generally necessary to *cut or bore a hole through the jamb*, to lay on the service from the feeding cistern; another case is, that of laying on service-pipes or gas-mains to houses, where it is often necessary that the pipes should be carried *through the walls?* Surely no district surveyor would compel the giving of notice in such cases, although I am well aware the wording of the Act is very strong, *two* days' notice being required to be given, sec. 13, '*before any party wall, external wall, chimney stack or flues, shall be begun to be built, pulled down, rebuilt, cut into, or altered.*' Another case of far greater importance, is that respecting chimney-tubes, &c., above four feet high. Schedule F states that all such pots, tubes, &c. shall be fixed two feet at the least into the brick or stone-work of the flue;' now if I make my tubes so as to *slip down two feet into the flue*, is it necessary that I give notice to the district surveyor before so doing? This appears to me to be a point of great importance to the building trade, and I trust will soon be settled officially. It appears to me it can never be meant *that in all such trifling cases* notice must be given, and a (I will not say the) fee paid, as in many cases the fee would be far more than the value of the work done, and what for? It would simply have the effect of increasing the fees of the district surveyor, without any adequate advantage to the public, who would have to bear the expense, which, in very many cases, would be equal to the *poor rates*. In order that these, and many other points of such great importance to the builder, should be settled without delay, I would suggest that a society be formed of the builders for their protection; for should a difference arise between the builder and the district surveyor, it would be well that such a matter should be settled at once, and that the best advice should be had. It would fall hard on a single individual to be put to the expense and inconvenience of settling points which concern the trade; besides, the district surveyors have a society of their own for that purpose."

We referred to the points raised in the foregoing letter in our leading article of January the 4th (p. 37 *ante*), and expressed our opinion that, strictly speaking, a man may not let in an open air-brick, for example, to his front or back wall, or make a hole for a bell-wire by the street-door, without sending notice to the district surveyor, and paying such fee as may be ordered by the official referees. Section 13 says two days' notice shall be given before *any* matter or thing shall be done which by this Act is *placed under the supervision of the surveyor*, unless specially excepted. And schedule I. provides, that for *any* service performed by any surveyor, which is required by this Act, but not comprehended under the stated heads, such a fee is to be paid as the official referees may order, not exceeding 2*l*.

There seems to be no doubt that wherever instructions are given in the Act for the performance of certain things, wherever a mode is prescribed for the execution of works, they are placed under the supervision of the surveyor, and he may demand notice and a fee. Relative, then, to fixing chimney-pots, tubes, funnels, or cowls, if *more than 4 feet above* the brick or stone-work of the flue, insomuch as schedule F provides, that in that case they must be fixed at least 2 feet into the brick or stone-work of the flue, notice to the district surveyor (whose duty it is to see the provisions of the Act carried out) is required, and a fee may be demanded. Mr. Biers, in a letter to us on this subject (p. 45 *ante*), says, it cannot be admitted that the Act requires any notice to the district surveyor, and less so that any fee is payable if the directions be properly attended to. "I am borne out in this opinion," continues Mr. Biers, "upon reference to the amended Bill in the committee of the House of Commons, previous to the *amendments and alterations* proposed to the committee of the House, and assented to by them. In that Bill, among a great many other objectionable fees, was a fee specially set forth, of 10s. for inspecting chimney-pots, shafts, funnels, &c., above a certain height;" and which Mr. B. says, was expunged in consequence of the objections raised.

Taking out the special fee, however, while the clause remained that the fee for any service required by the Act and performed by any surveyor, not specified, should be appointed by the referees, did not get rid of its payment, but simply left open the question of "how much." Let us hope that the referees may name a fee for this, and similar trifling services, so low as to prevent just complaint. If, moreover, the enactment in question should lead to greater attention to the construction and arrangement of flues and fire-places, so as to obviate the necessity for unsightly and dangerous long pipes and cowls, it will, after all, do good service.

The steps to be pursued before taking down and rebuilding party-walls are matters in dispute, and shall have our early attention. Several cases are now before the referees, and will be decided in a few days. A letter on one of them will be found in another part of the present number.

An award of considerable importance has been recently made by the referees. Schedule K provides, with regard to back yards, or open spaces attached to dwelling-houses, that "every house hereafter built or rebuilt, must have an enclosed back yard or open space of at the least one square, exclusive of any building thereon, unless all the rooms of such house can be lighted and ventilated from the street, or from an area of the extent of at the least three-quarters of a square above the level of the second story, into which the owner of the house to be rebuilt is entitled to open windows for every room adjoining thereto." The builder of three houses at the corner of St. Martin's-lane and Cranbourn-street, thought that this provision did not require one square, or even three-fourths of a square, for *each* house, but that a building owner might, if he pleased, light and ventilate even three or more houses into an open area of only one square, and in this opinion he was supported by an eminent architect. The district surveyor, however, thought differently, and as at the houses in question the area left was only 17 feet 6 inches by 10 feet 7 inches, making little more than $1\frac{3}{4}$ square for the three houses, the works were stopped, and the case submitted to the referees.

Their award was, "that inasmuch as according to the plan which was submitted, the buildings are to have each a back yard, each such back yard must be of at the least one square, containing one hundred superficial feet, exclusive of any building thereon. And that if the site of the proposed back yards were occupied by buildings to the level of the third floor, then, inasmuch as the light and air would not have to descend so low, an area of three-quarters of a square, that is to say an area of seventy-five superficial feet, to each house instead of such back yards of one square each would suffice, but subject to the condition that the owner of every such house be entitled to open windows into such area for every such room adjoining thereto. And that if more than one of such houses be lighted and ventilated from one and the same area, then such area must consist of a space as many times greater than three-fourths of a square of 100 superficial feet, as there are more houses than one having rooms to be lighted and ventilated therefrom, subject as to every house, to the aforesaid condition, that owners thereof are entitled to open windows into such area for every room adjoining thereto."

The portion of schedule K which relates to *back yards*, and under which this award is made, seems obscure and defective, and the referees have doubtless decided according to what they believed was the intention of the legislature. By requiring an area of three-fourths of a square for *each* house, they ask no more than is necessary for health, but it is certainly doubtful whether the strict *words* of the schedule go so far. The requirement is, that every house must have an enclosed back yard or open space, of at least one square, *unless* all the rooms can be lighted and ventilated from the street, or from an area of at least three-quarters of a square above the level of the second story; but the schedule certainly does not *say* that this area shall be appropriated exclusively to this one house, any more than that the street should be. And before this award was made, we unquestionably should have urged, there was nothing in the schedule to prevent the erection of three or more houses, around an area equal to three-fourths of a square (inefficient as such an area would be), provided the other requirements of the schedule were complied with.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—We have purposely omitted any allusion to the unfortunate differences which have arisen in the council of this association, hoping that a little consideration would lead to an adjustment, and knowing that every word that was printed would probably make this more difficult. The objects of the association are so excellent, and its organization so far advanced, that we should greatly lament to see its existence jeopardized by what is, after all, a mere personal dispute.

WESTMINSTER ABBEY.

In the last number of this journal, will be found some suggestions for the better arrangement of the monuments in this edifice. We believe that the subject has long engaged the attention of the Dean and Chapter, and important changes would doubtless have been made ere this, were not very considerable difficulties in the way of alteration.

It is considered, that the removal of monuments, originally in churches, to buildings of distinct character, would be attended with impropriety. If this view be persevered in, it will be quite sufficient to obviate the removal to Mr. Barry's proposed quadrangle in New Palace-yard. The arrangement advocated by us, has been found to answer well in the Temple Church, and would unquestionably be a great improvement to the Abbey. However, matters are not likely to remain long as they are, and the attention bestowed, by those now in authority, to the improvement of the building in some other particulars, augurs well for its future condition. It has been decided to eject the organ from its present objectionable position over the doorway of the rood-screen, where it greatly impedes the view, from the nave, of the eastern extremity of the building. It will be divided into two portions, each of which will stand on opposite ends beneath the arches, the small choir organ being allowed to remain. We are by no means ready to assent to the opinion of Mr. Cockerell, and to consider the organ well placed, as it now stands in the Abbey, and in most of our cathedrals. The length of the Gothic cathedral unquestionably adds to the majesty of the pile, and we would not sacrifice the effect, resulting from the long perspective of the interior, which the original architect tried successfully to gain, for the supposed advantage in the modern arrangement. We do not deny that the situation of a building, and the approaches to it, do not receive that attention in this day, which resulted in so much delight to the beholder in the temples of the Greeks. Our monuments may not be effectively placed at the ends of streets, or in open squares, but to sacrifice the unquestionable advantages of space, size, and length, in a building, is, we deem, extending a favourite theory farther than sound judgment warrants. Also, it may be well to recollect, that the same rules are not always applicable to what we are looking *at*, and which is *before* our eyes, as to that we are standing in, and which is around and about us. The Gothic architects were probably as well aware of the adjuncts to beauty in a building as those of any age.

The organ at Westminster, seen from below, is somewhat ineffective, but, on close examination, proves to be rather rich in ornament, carved with elaborate care and delicacy, and evincing considerable feeling for the style.

The stained glass for the windows of the south transept has been completed by Messrs. Ward and Nixon, and is already within the precincts of the Abbey. We may, therefore, expect to see something of it very shortly.

We believe that no decision has yet been arrived at, as to the placing of seats for the overflowing congregation in the transepts, which change was so strongly commented upon in some of the daily papers. If increased accommodation be urgently demanded, we trust it may be gained in some way less opposed to the distinctive character of a Gothic church. The works of architecture are the most valuable records of the past, but their importance is lessened or destroyed whenever an innovation is permitted to creep in. The nave and triforium were at one time occupied by worshippers, and a considerable number might find room in either now. Were the nave made available, there would probably be a greater observance of decorum than appears to be now practised by the visitors: people are too much accustomed to consider all that is not in the choir the same as what is without the walls of the church. The removal of the monuments would have similar tendency.

We hope at no distant period to see the unsightly stalls of the choir replaced by rich and elegant carving, equal to any existing. The skill of modern artists in this branch is not inferior to that of their predecessors, yet, strange to say, it is little known or called for. The space eastward of the stalls should be enclosed with parcloses of wood or stone, as in the cathedrals. E. H.

ON RENDERING PAPER-HANGINGS USEFUL AS WELL AS ORNAMENTAL.

BY MR. F. WHISHAW,

Paper-hangings are of several kinds, some of which are made in imitation of velvet, damask, chintzes, &c., while others are in imitation of marbles, stucco-work, &c.

There are three methods by which paper-hangings are painted: the first by printing on the colours, the second by means of the stencil, and the third by using the pencil as in other kinds of painting.

In the first method the impression is made by wooden blocks, in which the patterns are cut, the parts to be shewn being made to project from the surface by cutting away all the other parts. The blocks being charged with the required colour, properly tempered, are pressed on the paper prepared with a proper ground of colour or varnish.

The colour to be used by the printer is spread on oil-cloth, laid on a flat block a little larger than the print; this operation is performed by an attendant, who spreads the colour with a brush on the block, between every stroke and impression made by the printer.

When the sheet is printed throughout, it is hung up to dry, and the operation is repeated with another piece of paper.

For each separate colour in a particular pattern there is a separate block, so that a piece of paper has to pass under the printer's hands as many times as there are distinct colours in the pattern to be produced; some modern papers have required as many as seventy-two separate blocks. The placing of the different blocks in the exact position on the paper requires considerable skill on the part of the printer.

The second method, which is adopted for common paper-hangings, is merely to print the outlines, and fill in the colours by stencilling.

The stencils are either of leather or oil-cloth, and are cut out to correspond with all the figures to be printed in one colour, and, being placed flat on the paper to be printed, the colour is rubbed over the upper side, thus passing through all the parts cut out, and giving the proper impression on the paper below.

This method is only applicable for patterns of the most common description, it being impossible to represent fine lines by the stencilling process.

The third method, *viz.*, by pencilling, is only used for the more costly hangings in imitation of Chinese and India papers, and is performed in the same manner as other paintings in water or varnish; sometimes the outline is printed, and then the colouring performed by pencilling. The first of the three methods which I have endeavoured briefly to describe is the one in ordinary use, in which the order of printing is first to lay on the ground colour, next the various shades, then the lights, and lastly the outline. Very fine lines and points, or dots, are introduced by means of rules and points of the particular forms required, which are let into the wooden blocks, as types are let into the small blocks used for printing illustrations to books.

The above is only an outline of the ordinary methods used; but, as my object is to introduce a system of useful paper-hangings, I need not enter more into detail with regard to methods in practice of producing the finest specimens of hangings, but proceed at once to the object of this communication.

My mind has long been impressed with the idea of rendering the modern hangings of walls useful as well as ornamental.

For this purpose I have proposed that useful information should, in the more ornamental patterns, be so blended with the design as not to disfigure it, and thus ornament, with amusement and instruction combined, would add greatly to the value of paper-hangings, and often serve as a ready mode of reference for information desired. When wanted especially for use, without any regard to ornamental appearance—as, for instance, Sunday and other schools, for the lecture-room of colleges and seminaries—I propose to introduce the information in panels.

I have arranged, mixed with several ordinary patterns, some specimens illustrative of my proposition; and, I think, it will be allowed that in one or two of them the patterns are not disfigured by the introduction of the useful information they contain in the shape of historical and other facts.

In one pattern I have introduced words in several languages, which would be especially useful if carried out to a sufficient extent.

The greatest—indeed I believe the only objection which has been raised against the introduction of these useful paper-hangings is the cost.

Now, for patterns likely to be extensively used in infant and other schools and seminaries, it would be worth while to cut out the writing in wood blocks, or fix in metal letters for each particular sentence to be introduced.

Another mode I propose is, to have moveable types introduced into a frame, so arranged as to form a substitute for one of the numerous blocks required in cases where the pattern is made up of a variety of colours. Thus, when as many copies as are likely to be required at the time have been printed, the type is to be distributed, and again set up for another piece of information, while the rest of the pattern is printed with the different blocks as usual.

A third mode which I propose is to print the patterns complete in the ordinary way, leaving, however, spaces for the writing to be inserted according to the style and fancy of individuals. This is by no means so expensive a method as persons unacquainted with the process would be led to suppose.—*Transactions of Soc. of Arts, Vol. LV.*

[A similar suggestion appears in Loudon's "Encyclopædia of Cottage and Villa Architecture." There is no reason but the expense, says the Encyclopædia, why a geographical paper should not be formed; or one exhibiting all the principal rivers, mountains, and cities in the world; or the portraits of eminent men with their names; or perpetual almanacs; or lists of weights and measures; or chronological or arithmetical tables; or, in short, any useful and instructive subject which it would be beneficial to the cottager to have constantly before his eyes. We all know how easily, and yet how deeply, the mind is impressed with objects that we are continually in the habit of seeing; and that what is learned through that medium in childhood is rarely, if ever, forgotten in after life. There is also a paper on this same subject in the ninth volume of the "Penny Magazine," p. 52, with an engraved pattern. We should be glad to see it carried out.—Ed.]

BURIAL-GROUND PRACTICES.

Since the publication in our journal of Mr. G. A. Walker's communications on the subject of proceedings at Spafield's burial-ground, evidence has been adduced not simply confirmatory of all that was then asserted, but of horrors and atrocities almost incredible and public attention is so fully aroused, that we may now confidently expect, before long, some legislative enactment to protect her Majesty's liege from the fatal evils of the system. One witness, a lady, stated before the magistrate at Clerkenwell, that she lived in a house near the grave-yard, but had been obliged to leave it as well as many other persons in the neighbourhood, in consequence of the intolerable and unearthly stench proceeding from the bone-house. One frosty night the smell was still worse than usual. She and her son ascended the top of the wash-house, which commands a view of the ground, thick volumes of smoke and sparks were issuing from the chimney of the bone house; she saw two men carrying something in a basket which appeared very soft and to shake; took it to be human flesh. Her tenants who lived near the place were constantly complaining of illness from the smell. The weather became hot, and two of the children died from putrid fever. "Great sensation" was excited by this statement, say the newspaper accounts; and well there might be.

The loud cheering with which Sir James Graham was greeted in the House of Commons when he said this case was one in which, if clearly made out, he should certainly be inclined to interfere, shewed plainly the state of public opinion on the subject. The audacity displayed by the manager, Mr. A. Bird, in the cool denial of the facts as first mentioned, and threat of legal proceedings, which we admit

into our columns, almost hoping, for the sake of humanity, that the statement of which he complained *was* exaggerated,—has seldom been surpassed. This *rara avis* will be thought a "black swan," we fear.

TRAFALGAR-SQUARE FOUNTAINS.

After many months of expectation and preparation the two fountains have at last made their appearance in the centre of the two large basins made to receive them, which have been so often and so facetiously reported upon by our ubiquitous friend *Punch*. The first thing that strikes the spectator, on looking at these tazza, is their diminutiveness when compared to the extent of the square, and also to the basins in which they are placed; there is no doubt but that they are a trifle too small. I venture to think myself that the effect would have been much better if the upper tazza of each of the fountains had been equal in size to the bottom one as now erected, and the bottom one itself some three feet larger in diameter.

Perhaps the difficulty of getting good sound blocks of granite, suitable for a basin of such large dimensions, was considered as a matter of too much uncertainty to run the risk of attempting; but still even admitting the probable difficulty, I think an attempt might have been made to get a block sufficiently large that the whole proportion of the fountains might have been very considerably increased, so as to render them suitable to the great space they have to fill.

The fact of their being surrounded on three sides with a high wall, and on the remaining side with a lofty column, is a certain argument that unless they were of large dimensions, they would appear *smaller than they really are*, and look comparatively insignificant when viewed in juxtaposition with the surrounding objects overtopping them on all sides.

Taken by themselves, without any reference to their local position, they are exceedingly chaste in design, plain, simple, and unadorned, as all works in granite ever should be, without any attempt at minute detail, or elaborate sculpture. Ornamental work, when made of granite, loses all its effect, if cut up into any thing like florid design, tracery, or open-work, as it is quite contrary to the character of the stone; so far, then, these fountains are strictly in keeping, in my opinion, with the character of the material of which they are made, and, with the exception above alluded to, also in keeping with the prevailing design of the square itself. Not that I consider the design of the terraces, &c., the best that might have been adopted for such a situation, as I feel convinced that there are several errors in the artistic perspective of the general planning of the square and terraces, which, in certain positions, have any thing but a pleasing effect.

With respect to the workmanship and skill displayed in the finish of these fountains, I think it may be unhesitatingly stated, that there is nothing in the country of the same material to surpass, if indeed to equal them; they are made of fine, deep red-coloured Peterhead granite, so finely chiseled and polished, as to be equal in brilliance to the finest and smoothest statuary marble; on this head, at least, they have elicited the highest admiration from practical men and connoisseurs in such matters.

They are the work of the Messrs. Macdonald, who made the pedestal for the Wellington statue in front of the Royal Exchange, also a very beautiful specimen of granite work; the hydraulic part of the matter was intrusted to Messrs. Easton and Amos, who are well known for their practical acquaintance with such matters; the water to supply the fountains is obtained from two wells, one in front of the National Gallery and the other behind it which are connected together by means of a tunnel, that of course passes directly under the National Gallery, behind which is also placed the engine-house for raising the required water into the tanks, &c., before it is forced through the fountains, which will be at the rate of between five and six hundred gallons per hour: it will be forced up a considerable height from the central jet; it will then be received into the first or upper basin or tazza, over the sides of which it will flow into the second basin or tazza in a continuous stream, and from hence into the large basin; in addition to which there are four spouts from the dolphin's heads immediately under the bottom basin. The lower fall, however, would be much more effective if it stood on a higher base than at present.

Joseph Lockwood, Surveyor.
6, Childs-place, Temple.

JOHN SMEATON, THE ENGINEER.

Mr. Parker has commenced the publication of a series of instructive books at low prices for general use in families, under the title of "Collections in Popular Literature." They include history, biography, science, travels, and miscellanies, and though uniform in appearance and object, each work is complete in itself. To one of the volumes of this series, in the class of science, we have already referred. The following sketch of the life of Smeaton is from the biographical series, wherein it is proposed to connect with the life of an individual the history of the particular department of knowledge that he aided to extend. Thus, with Watt, the steam-engine would be spoken of; with Brindley, canals; and with Smeaton, light-houses. In our present extracts we confine ourselves to the individual, and may perhaps speak of his great undertaking hereafter.

John Smeaton was born the 28th of May, 1724, at Austhorpe, near Leeds, Yorkshire. Little is recorded of his parentage or early education: but we find that his father was a respectable attorney, and that the family lived in a house built by the grandfather of the younger Smeaton.

Smeaton seems to have been born an engineer. The originality of his genius and the strength of his understanding appeared at a very early age. His playthings were not the toys of children, but the tools men work with; and his greatest amusement was to observe artificers, and to ask them questions. Having watched some millwrights at work, he conceived the idea of constructing a windmill, and, to the alarm of his friends, was one day perceived on the top of his father's barn attempting to fix his model. On another occasion he accompanied some men who went to fix a pump at a neighbouring village, and observing them cut off a piece of bored pipe, he managed to procure it, and made a working model of a pump that raised water very well. These anecdotes are related of him while he was yet a mere child in petticoats, and probably before he had attained his sixth year. At the age of fourteen or fifteen he had made for himself an engine to turn rose-work, and he made several presents to his friends of boxes in wood and ivory, as specimens of its operation.

In the year 1742, Mr. Holmes, afterwards his partner in the Deptford Water-works, visited Smeaton, and could not conceal his astonishment at the mechanical skill displayed by the young engineer; he forged his iron and steel and melted his metal; he had tools of every sort for working in wood, ivory, and metals. He had made a lathe, by which he had cut a perpetual screw in brass, a thing very little known at that day. All these resources were not furnished to him by rich and wealthy parents, nor had he the advantage of masters in his various pursuits; on the contrary, by the strength of his genius, and by indefatigable industry, he acquired at the age of eighteen an extensive set of tools, and the art of working in most of the mechanical trades, and Mr. Holmes, himself a good mechanic, says that few men could work better.

Astronomy was one of his most favourite studies, and he contrived and made several astronomical instruments for himself and friends. In later years, after fitting up an observatory at his house at Austhorpe, he devoted much time to it when he was there, even in preference to engineering.

Smeaton's father being an attorney, was desirous to educate his son for the same profession. He was therefore sent to London in 1742, where during a few terms he attended court; but finding the legal profession distasteful to him, and not to suit "the bent of his genius," he wrote a strong memorial on the subject to his father, who had the good sense to allow him from that time to pursue the path which nature pointed out to him. He continued to reside in London, and about the year 1750 he commenced the business of mathematical instrument maker. In 1751 he invented a machine to measure a ship's way at sea, and a compass of peculiar construction, touched by Dr. Knight's artificial magnet. He made two voyages in company with Dr. Knight for the purpose of ascertaining the merits of these contrivances.

In 1753 he was elected a fellow of the Royal Society, and his admirable papers inserted in the Transactions of that body sufficiently evince how highly he deserved that distinction. In 1759 he received by an unanimous vote their gold medal, for his paper entitled "An Experimental Inquiry concerning the natural powers of wind and water to turn mills and other machines depending on a circular motion." This paper was the result of experiments made on working models in 1752 and 1753, but not communicated to the society till 1759, by which time he had had abundant opportunity of applying these experiments to practice in a variety of cases, and for various purposes, so as to assure the society that he had found them to answer. He discovered by these means that wind and water could be made to do one-third more than was before known. In the year 1754 he made a voyage to Holland, travelling for the most part on foot, or in the trekschuiten or drag-boats, the national conveyance of the country, and thus made himself acquainted with the most remarkable works of art in the low countries.

In December, 1755, the Eddystone Light-house was burnt down. Mr. Weston the chief proprietor, and others, were desirous of rebuilding it in the most substantial manner, and through the recommendation of the Earl of Macclesfield, whose friendly conduct to Smeaton we have already noticed, they were induced to appoint Smeaton as the most proper person to rebuild it.

Smeaton undertook the work, and completed it in the summer of 1759. The completion of the work does not seem to have had the immediate effect of procuring him full employment as a civil-engineer: in 1764, being in Yorkshire, he offered himself a candidate for the office of one of the receivers to the Greenwich Hospital estates;* and on the 31st December in that year he was appointed, at a full board at Greenwich Hospital, in a manner highly flattering to himself. In this appointment he was greatly assisted by his partner Mr. Walter, who managed the accounts, and left Smeaton leisure and opportunity to exert his abilities on public works, as well as to make many improvements in the mills, and in the estates of Greenwich Hospital. By the year 1775 he had so much business as an engineer, that he wished to resign this appointment, but was prevailed upon to continue in the office about two years longer.

Among the many valuable public services of Smeaton a few only can be mentioned in this place. He completed the erection of new lighthouses at Spurn Head at the mouth of the Humber: he built the fine bridge over the Tay at Perth: he laid out the line of the great canal connecting the Forth and Clyde, and made the river Calder navigable; a work that required great skill and judgment, on account of its impetuous floods. On the opening of the great arch at London-bridge by throwing two arches into one, and the removal of a large pier, the excavation around and under the starlings was so considerable, that the bridge was thought to be in great danger of falling. Smeaton was then in Yorkshire, but was sent for by express, and arrived with the utmost dispatch: on his arrival the fear that the bridge was about to fall prevailed so generally, that few persons would pass over or under it. Smeaton applied himself immediately to examine it, and to sound about the starlings as minutely as possible: his advice to the committee was to repurchase the stones which had been taken from the middle pier, then lying in Moorfields, and to throw them into the river to guard the starlings. This advice was adopted with the utmost alacrity, by which simple means the bridge was probably saved from falling, and time afforded for securing it

* This was the Derwentwater estate, which was forfeited in the year 1715, and its revenues applied by Parliament towards the funds of Greenwich Hospital. It consists of mines of lead, containing much silver, as well as lands. It required careful management, and the knowledge of mining details to make it profitable. Smeaton contrived more efficient machines and better modes of working the mines and managing the estate.

in a more effectual manner. "This method of stopping the impetuous ravages of water," says Mr. Holmes, "he had practised before with success on the river Calder; on my calling on him in the neighbourhood of Wakefield, he shewed me the effects of a great flood, which had made a considerable passage over the land; this he stopped at the bank of the river, by throwing in a quantity of large rough stones, which with the sand, and other materials washed down by the river, filling up their interstices, had become a barrier to keep the river in its usual course."

In 1771 Smeaton and Holmes made a joint purchase of the water-works for supplying Deptford and Greenwich with water. On examining the books of the former proprietors, it appeared to have been a losing concern during many years; but the skill of Smeaton soon brought the undertaking into such a state as to be of general use to those for whom it was intended, and moderately profitable to himself and partner. In noticing this subject Mr. Holmes makes a few general remarks on the character of Smeaton:—"His language either in speaking or writing was so strong and perspicuous, that there was no misunderstanding his meaning, and I had that confidence in his abilties as never to consider any plan of improvement which he proposed, but only to see it executed with scrupulous exactness; at the same time, he was so open to reason in all matters, that during a constant communication of our opinions for upwards of twenty years, after we had laid them fully before each other we always agreed, and never had the slightest difference."

It must be remembered that Smeaton lived before the time when the genius of Watt had rendered the steam-engine the useful and obedient servant of man; and consequently that much of the power now furnished by steam was then supplied by the wind. Hence the mechanics of windmills was an important study to the engineer, and Smeaton erected a vast variety of mills in which he turned to useful account the results of his experiments in 1752 and 1753. His usual habit was to confirm the conclusions of theory by direct experiment. He also erected a steam-engine at Austhorpe, and made experiments thereon to ascertain the power of Newcomen's engine, which he improved and brought to a far greater degree of certainty both in its construction and powers.

During many years the opinion of Smeaton was held in such high esteem, that no great works were undertaken throughout the kingdom without first applying to him; he was constantly consulted in parliament, and was regarded as an ultimate reference on all difficult questions connected with his profession. It was his constant practice to make himself fully acquainted with every subject before he would engage in it, and then his known integrity and lucid powers of description secured the respect and attention of all. In the courts of law he was frequently complimented by Lord Mansfield and others for the new light he threw on difficult subjects.

About the year 1785 Smeaton's health began to decline, and he then endeavoured to retire from business in order to gain time to publish an account of his inventions and works. This was one of the wishes nearest to his heart, for as he often said, "he thought he could not render better service to his country than by doing that." He had just completed his account of the Eddystone lighthouse when he was prevailed on to continue his services as engineer to the trustees for Ramsgate harbour. The works at Ramsgate were begun in 1749, but had been conducted with very indifferent success until Smeaton was called in to superintend them in 1774. He completed the magnificent pier and harbour of this place in 1791, and thus established a secure and much needed place of shelter in the Downs.

A man whose life is so beneficially devoted to the service of the public can scarcely hope to enjoy leisure and retirement during which he may look back upon the past, and leave a written record of his exertions. Smeaton was so constantly and urgently employed, that he could not achieve much with his pen. On the 16th September, 1792, he was seized with an attack of paralysis, induced by over-exertion, and this attack carried him to the grave on the 28th of the next month, in the 69th year of his age.

During his illness he dictated several letters to his old friend Mr. Holmes. In one of them he describes minutely his health and feelings, and says, "in consequence of the foregoing, I conclude myself nine-tenths dead, and the greatest favour the Almighty can do (as I think) will be to complete the other part, but as it is likely to be a lingering illness, it is only in His power to say when that is likely to happen." His daughter, Mrs. Dickson, says that he always apprehended the attack which terminated his life, as it was hereditary in his family. He dreaded it only as it gave the melancholy possibility of outliving his faculties or the power of doing good; or, to use his own words, "lingering over the dregs after the spirit had evaporated." Indeed, the decay of his mental faculties seems to have been that which he most dreaded. He would sometimes complain of slowness of apprehension, and would then excuse it with a smile, saying, "it could not be otherwise, the shadow must lengthen as the sun went down." When seized with paralysis he was resigned to the event, anxious to soften any alarm to his family, and was thankful that his intellect was spared. But his invariable wish was to be released. He expressed particular pleasure in seeing the usual occupations of his family resumed; and reading, drawing, music, and conversation excited the same interest and the same cheerful and judicious observations as ever. One evening he was requested to explain some phenomena respecting the moon, which was seen from the room shining brightly. He gave a full explanation, then fixed his eyes full upon the object in question, and after regarding it stedfastly for some time, he observed, "How often have I looked up to it with inquiry and wonder, and to the period when I shall have the vast and privileged views of an hereafter, and all will be comprehension and pleasure."

We learn from his daughter Mrs. Dickson, that early in life Smeaton attracted the notice of the eccentic Duke and Duchess of Queensbury, on account of the strong personal likeness which he bore to their favourite Gay the poet. Their first acquaintance was made in a singular manner: it was at Ranelagh when walking with Mrs. Smeaton, he observed an elderly lady and gentlemen gaze steadily upon him, they stopped and the duchess said, "Sir, I don't know who you are, or what you are, but so strongly do you resemble my poor dear Gay, that we *must* be acquainted; you shall go home and sup with us, and if the minds of the two men accord as do the countenance, you will find two cheerful old folks who can love you well, and I think (or you are an hypocrite) you can as well deserve it." The invitation was accepted, and as long as the duke and duchess lived the friendship was cordial and uninterrupted. During his visits cards were sometimes introduced. Smeaton detested cards, and could not confine his attention to the game. On one occasion the stakes were already high, and it fell to Smeaton to double them when, neglecting to deal the cards, he was busily occupied in making some calculations on paper which he placed upon the table. The duchess asked eagerly what it was, and Smeaton replied coolly, "You will recollect the field in which my house stands may be about five acres three roods and seven perches, which, at thirty years' purchase, will be just my stake, and if your grace will make a duke of me, I presume the winner will not dislike my mortgage." The joke and the lesson had their effect, for they never played again but for the merest trifle.

Smeaton procured a situation in a public office for a clerk in whom he placed the greatest confidence, and jointly with another became security for him to a considerable amount. This man committed the crime of forgery, was detected, and given up to justice. Mrs. Dickson says, "The same post brought news of the melancholy transaction, of the man's compunction and danger, of the claim of the bond forfeited, and of the refusal of the other person to pay the moiety! Being present when he read his letters, which arrived at a period of Mrs. Smeaton's declining health, so entirely did the command of himself second his anxious attention to her, that no emotion was visible on their perusal, nor, till all was put into the best train possible, did a word or look betray the exquisite distress it occasioned him. In the interim, all which could soothe the remorse of a prisoner, every means which could save (which did, at least from public execution), were exerted for him, with a characteristic benevolence, active and unobtrusive."

Smeaton was a man of indefatigable industry and great moral probity. With ample opportunity of amassing wealth, he rendered its acquisition but a secondary object on all occasions; his first aim always being to execute the task intrusted to him in the most skilful and perfect manner. Had his object been to amass a fortune, he might have received many lucrative appointments besides those which he actually held. The empress Catherine of Russia attempted to secure his services for her own country by most magnificent offers; but Smeaton preferred to dedicate his time and talents to the service of his country. "The disinterested moderation of his pecuniary ambition," says his daughter, "every transaction in private life evinced; his public ones bore the same stamp; and after his health had withdrawn him from the labours of his profession, many instances may be given by those whose concerns induced them to press importunately for a resumption of it; and when some of them seemed disposed to enforce their entreaties by further prospects of lucrative recompense, his reply was strongly characteristic of his simple manners and moderation. He introduced the old woman who took care of his chambers in Gray's Inn, and shewing her, asserted "that her attendance sufficed for all his wants." The inference was indisputable, for money could not tempt that man to forego his ease, leisure, or independence, whose requisites of accomodation were compressed within such limits! Before this, the princess Daschkaw made an apt comment upon this trait of his character; when, after vainly using every persuasion to induce him to accept a carte blanche from the empress of Russia as a recompense for directing the vast projects in that kingdom —she observed "Sir, you are a great man, and I honour you! you may have an equal in abilities, perhaps, but in character you stand single, The English minister, Sir Robert Walpole, was mistaken, and my sovereign has the misfortune to find one man who has not his price."

In all the social duties of life Smeaton was most exemplary; and he was a lover and encourager of real merit in whatever station of life he found it. To strangers, his mode of expression appeared warm and even harsh; but Mr. Holmes refers it to the intense application of his mind, which was always in the pursuit of truth, or engaged in investigating difficult subjects; hence, when any thing was said that did not tally with his ideas, he would sometimes break out hastily. As a friend, he was warm, zealous, and sincere; as a companion, always entertaining and instructive, and none could spend their time in his company without improvement. In his person Smeaton was of middle stature, but broad and strong-made, and possessed of an excellent constitution. He was remarkable for the plainness and simplicity of his manners.

After his death, his papers, consisting of plans, reports, and treatises, on almost every branch of engineering, were published by the Society of Civil Engineers.

THE MORMON TEMPLE AND ITS BUILDERS.

At the summit, overlooking the whole landscape for nearly twenty-five miles in all directions, stands the Mormon temple, the largest structure in any of the western states. When completed, it is assumed that the entire cost will not vary much from four hundred thousand dollars. Nothing can be more original in architecture—each of its huge pilasters rests upon a block of stone, bearing in relief on its face the profile of a new moon, represented with a nose, eye, and mouth, as sometimes seen in almanacs. On the top, not far from fifty feet high, is an ideal representation of the rising sun, which is a monstrous prominent stone face, the features of which are colossal, and singularly expressive. Still higher are two enormously large hands, grasping two trumpets, crossed. These all stand out on the stone boldly. Their finish is admirable, and as complete as any of the best specimens of chiselling on the Girard College, at Philadelphia. The interior is to be one vast apartment, about 128 feet by 80, simply sub-

divided by three great veils of rich crimson drapery, suspended from the ceiling overhead. Neither pews, stools, cushions, nor chairs are to encumber the holy edifice. In the basement is the font for baptism, which, when completed according to the design, will be a pretty exact imitation of the brazen laver in Solomon's Temple. The tank is perhaps eight feet square, resting on the backs of twelve carved oxen. They are of noble dimensions, with large spreading horns, represented to be standing in water half-way up to their knees. The execution of the twelve oxen evinces a degree of ingenuity, skill, and perseverance, that would redound to the reputation of an artist in any community. When they are finally gilded, as intended, and the laver is made to resemble cast brass, together with the finishing up of the place in which this unique apparatus of the church is lodged, as a whole, that part of the temple will be one of the most striking artificial curiosities in this country. When the officiating priests, in their long robes of office, lead on a solemn procession of worshippers through the sombre avenues of the basement story, chanting as they go, the effect must be exceedingly imposing even to those who may deplore the infatuation of a whole city of Mormon devotees. Although estimated to cost so large a sum, the walls of the temple are gradually rising from day to day, by the concurrent, unceasing labour of voluntary labourers. Every brother gives one day in ten to the undertaking. Thus there are always as many hands employed as can be conveniently on the work at the same time. The architect and different master-workmen are constantly at hand to direct the operations. Each day, therefore, ushers in a new set of operatives. Some fine brick buildings are already raised on the different streets, and stores are continually growing up. Even were the Mormons to abandon the city, as it is asserted that they will, somebody will own the property; and a city it is, and a city it will continue to be, of importance, unconnected with the false religious tenets of its inhabitants. But the Mormons will never leave Nauvoe; no, never! Its associations are hallowed to their excited imaginations. They would relinquish life as soon as they would voluntarily, *en masse*, leave their glorious habitation, which to them is the gate of heaven.—*Boston Paper.* [Is this account *American* in more senses than one?—Ed.]

RECOMMENDATIONS CONTAINED IN THE SECOND REPORT OF THE HEALTH OF TOWNS COMMISSION. Feb. 1845.

1st. That in all cases the local administrative body, appointed for the purpose, have the special charge and direction of all the works required for sanatory purposes, but that the Crown possess a general power of supervision.

2nd. That before the adoption of any general measure for drainage, a plan and survey, upon a proper scale, including all necessary details, be obtained, and submitted for approval to a competent authority.

3rd. That the Crown be empowered to define and to enlarge, from time to time, the area for drainage included within the jurisdiction of the local administrative body.

4th. That the local administrative body appoint the executive and other officers under it; that the appointment and dismissal of the chief surveyor be subject to approval; that such officer produce proof of his qualification for the office to which he shall be appointed, and, if required, be subject to an examination.

5th. That upon representation being made by the municipal or other authority, or by a certain number of inhabitants of any town or district, or part thereof, setting forth the defects in the condition of such place as to drainage, sewerage, paving, cleansing, or other sanatory matters, the Crown direct a competent person to inspect and report upon the state of the defects, and if satisfied of the necessity, have power to enforce upon the local administrative body the due execution of the law.

6th. That the management of the drainage of the entire area as defined for each district be placed under the jurisdiction of one body.

7th. That the local administrative body be empowered to raise money for purchasing the rights of mill-owners or others, when the mill-dams or other obstructions injuriously affect the drainage of the district comprised within the area defined, inquiry in each case having been previously made by the proper officer into the necessity of the purchase and the amount to be paid.

8th. That the construction of sewers, branch sewers, and house drains, be intrusted to the local administrative body.

9th. That the landlords of houses be rated for the purposes of the Act when the houses are let in separate apartments, or when the rent is collected more frequently than once a quarter, or when the yearly rent is less than ten pounds, such a deduction being made from the gross amount of the rate, as may be considered a fair equivalent for the labour and losses incident to the collection of rent on such property.

10th. That the duty of providing the funds necessary, be imposed upon the local administrative body, and that the cost of making the main and branch sewers be equitably distributed among the owners of the property benefited; and that the expense of making the house drains be charged upon the owners of the houses to which the drains are attached. That the expense remain a charge upon the properties, to be levied by a special rate upon the occupiers, and recovered with interest by annual instalments within a certain number of years, unless the owners prefer to pay the cost in the first instance, and except in the cases mentioned in the ninth recommendation.

11th. That some restriction be placed on the proportionate rates in the pound to be levied in each year; but if the local administrative body finds that there is need of larger funds for the immediate execution of the works for sanatory measures than can be provided by such rates, it be empowered to raise by loan, on security of the rates, subject to the approval of the crown, such sums as may be requisite for effecting the objects in view. That provision always be made for the gradual liquidation of such debts, within a limited number of years.

12th. That the whole of the paving, and the construction of the surface of all streets, courts, and alleys be placed under the management of the same authority as the drainage, and that the limits of jurisdiction, for both purposes, wherever practicable, be co-extensive. That the principle above submitted, in respect to the cost of making drains and sewers, and the equitable distribution of the expense, be adhered to in the case of laying out, levelling, and paving of streets, courts, and alleys; but for the purpose of ensuring the greatest efficiency and economy in the execution of the work, it be performed by the local public officers.

13th. That the provisions in local Acts, vesting the right to all the dust, ashes, and street-refuse, in the local administrative body, be made general; and that the cleansing of all privies and cesspools at proper times, and on due notice, be exclusively intrusted to it.

14th. That many of the more common nuisances which prevail within towns, such as large collections of dung, be declared a nuisance, and be summarily abated.

15th. That, after such a period as it may be deemed advisable to fix, the provisions in local Acts for preventing the escape of dense black smoke from furnaces and steam-engines in towns, be made general. Also that these provisions be applied, so far as is practicable, to steam-boats usually plying within the limits of any city or town, subject to the operation of such Act.

16th. That in cases where complaints shall be substantiated, that the inhabitants of any house, street, or district in towns, are injuriously affected by the noxious exhalations of any factory, power be given to the local administrative body to ascertain the cause of such exhalations, and to take legal proceedings for the abatement of the evils, in the event of such evils not being removed on due representation.

17th. That it be rendered imperative on the local administrative body charged with the management of the sewerage and drainage to procure a supply of water in sufficient quantities not only for the domestic wants of the inhabitants, but also for cleansing the streets, scouring the sewers and drains, and the extinction of fire. That the said body have power to contract with companies or other parties or make other necessary arrangements.

18th. That where any independent body has the management of the supply of water, it be liable to comply with the demand of the local administrative body on equitable terms; and that further, the local administrative body be empowered to purchase the interest in water-works, subject to the control of the Crown whenever the proprietors are willing to dispose of them. Further, that on the establishment of new companies, it be made a condition that the local administrative body be enabled to purchase the works after the lapse of a certain number of years, upon certain terms, and upon a rate of interest to be fixed; and that with a view to economy, competition between water-companies be discouraged as far as practicable.

19th. That as soon as pipes are laid down and a supply of water can be afforded to the inhabitants, all dwelling-houses, capable of benefiting by such supply, be rated in the same way as for sewerage and other local purposes; and the owners of small tenements be made liable to pay the rates for water as already recommended in respect to drainage.

20th. That every facility be afforded to furnish ample supplies of water to public baths and wash-houses, that may be established for the use of the poorer classes.

21st. That for increasing the protection of property from fire, in all cases the supply of water in the mains be not only constant, but also at as high a pressure as circumstances will permit, and that fire plugs be inserted in the mains at short intervals.

22nd. That, subject to proper control, the local administrative body be empowered to raise money for the purchase of property for the purpose of opening thoroughfares, and widening streets, courts, and alleys, so as to improve the ventilation of the densely crowded districts of towns, as well as to increase the general convenience of traffic.

23rd. That courts and alleys be not built of less width than 20 feet, and that they have an opening of not less than 10 feet from the ground upwards at each end, the width of the court being in proportion to the height of the houses.

24th. That such provisions be made general, and that after a limited period the use of cellars as dwellings be prohibited, unless the rooms are of certain dimensions, are provided with a fire-place and window of sufficient size and made to open, and have an open space in front, and the foundations be properly drained.

25th. That the provisions above referred to be made general, and that all new houses be provided with proper necessaries for the accommodation of the inmates.

26th. That measures be adopted for promoting a proper system of ventilation in all edifices for public assemblage and resort, especially those for the education of youth.

27th. That on the complaint of the parish, medical, or other authorized officer, that any house or premises are in such a filthy and unwholesome state as to endanger the health of the public, and an infectious disorder exists therein, the local administrative body have power to require the landlord to cleanse it properly without delay, and in case of his neglect or inability, to do so by its own officers, and recover the expense from the landlord.

28th. That magistrates have power to license and to issue rules to be approved of by the Crown, for the regulation of lodging-houses for the reception of vagrants, trampers, and other such wayfarers.

29th. That the local administrative body have power to appoint, subject to the approval of the Crown, a medical officer properly qualified to inspect and report periodically upon the sanatory condition of the town or district, to ascertain the true causes of disease and death, more especially of epidemics increasing the rates of mortality, and the circumstances which originate and maintain such diseases, and injuriously affect the public health of such town or populous district.

30th. That for the purpose of aiding the establishment of public walks, in addition to the legal facilities adverted to, the local administrative body be empowered to raise the necessary funds for the management and care of the walks when established.

PERSPECTIVE VIEW OF CHRIST CHURCH, ST. GILES'S.



CHRIST CHURCH, ENDELL-STREET, ST. GILES'S.

This church is built in the new street, leading from Long Acre to Broad-street, High Holborn, now in progress under her Majesty's Commissioners of Woods, authorized by certain Acts of Parliament for the improvement of the metropolis. The opening was very much wanted, and an improvement it unquestionably will be, but half its value is destroyed by the imperfect character of the plan adopted. As originally proposed, the new street would have been commenced exactly opposite to Bow-street, and would have been *altogether* a new street as far as Belton-street. In order, however, to save a comparatively trifling immediate outlay, an existing street to the west of Bow-street (Hanover-street), was made use of, and the line rendered crooked, so that every vehicle coming from the north to the theatres, the market, or elsewhere, will have to turn a sharp corner to get into Bow-street. Moreover the street itself will never be a good one, for however handsomely the houses on the new side may be built, the general appearance will be destroyed by the old side left standing. There can be no doubt that it is better economy in the end to form an entirely new street than to widen an old one, as in the first case a double frontage of greatly increased value may be obtained, while in the other, the value of the one new frontage is kept down by the character of the houses which are left.

This was forcibly urged by the *Westminster Review*, and by the Metropolitan Improvement Society, before Endell-street (as it is now called), was commenced, but ineffectually; the result, it is already clear, will shew the correctness of their anticipations.

The ground on which the building stands, is of very contracted dimensions, and the church commissioners having stipulated that it should contain 1,000 sittings, every inch was required in order to get the necessary accommodation. Further, on two sides little or no light could be obtained, as the east end abuts against the workhouse, and the south side is to form the party-wall between the church and the new houses, so that the architect had many difficulties to contend with.

In order to obtain light, the building has been carried up very high so as to get a lofty clerestory with a series of unobstructed windows; and by the aid of a small well-hole or area, taken from the workhouse, some partial light has been obtained for the east window. The wedge-like shape of the ground regulated the position of the tower and spire, at the north-west angle.

As may be seen in the engraving, the building is designed in the early English style (the style of the 13th century), and is faced externally with Kentish rag, and Bath stone dressings. The principal features of the west front are the five lancet-headed windows seen in the engraving, ornamented with dog-tooth mouldings. In the gable above them is a triangular window, and below them is the principal doorway, recessed and ornamented. There is another entrance on the north side of the tower. The height of the building as compared with its length is very observable

ernally, and gives it a continental cha-
ter.
nside, aisles are formed in the nave by
mns and arches, and in the chancel by
n wainscot screens. The columns of the
e are built of blue lias, from Glastonbury,
Somersetshire, which is a tolerable substi-
for Petworth marble, and was often so
d in ancient buildings. There is a gallery
ach aisle, which injures the appearance of
interior, but under the circumstances
unavoidable. They are supported on
columns behind the blue lias columns,
have an open front. The roofing is open,
is stained to represent oak. So also are
seats, which, being *all free*, have no doors.
this particular, that none of the seats are
ropriated, Christ Church stands alone in
metropolis. The old and infirm occupants
the workhouse are specially cared for, and
enabled by means of a communication
h their wards on the south side of the east
of the church, to attend service without
ng into the air.
The chancel is paved with encaustic tiles,
sented by Messrs. Copeland and Garrett,
some of the windows are filled with stained
s; that in the east window, a triplet, was
offering to the church made by Messrs.
dson, pupils of Mr. Dyce. In the chancel
es there are some small obituary windows
stained glass, executed by Mr. Wille-
t, and presented by him, Captain Hardy,
others, to the church. One on the
th side is inscribed "To the memory
Ellen, daughter of Benjamin Ferrey and
nie, his wife. She departed on the 22nd
of June, A.D. 1841, aged twelve months."
. Ferrey was the architect under whose
ections the church was built, and deserves
ch praise for the ability displayed.* The
th of the church within the walls is 50 feet,
whole length 64 feet 6 inches. The width
the nave is 22 feet 6 inches, and the height,
he apex of the roof, 52 feet 6 inches. The
ght of the spire is 120 feet.
The site cost 1,250*l.* The whole expense of
building, inclusive of every charge, will be
ler 4,800*l.* Mr. Winsland was the builder.
The church was erected by Her Majesty's
urch Commissioners, aided by grants from
Metropolis Churches Fund, the Incorpo-
ed Society, and private subscriptions. A
all fund has been raised for the endowment,
d the rector of St. Giles's, the Rev. James
dell Tyler, in whom the presentation is
ted, has nominated the chaplain of St.
es's workhouse to be the first minister.
additional amount is required, and the
ellent rector, by whose exertions chiefly
church has been obtained, has issued an
eal, which we gladly insert:—
"The munificence of the church societies,
d the bounty of individual benefactors, have
bled us to provide a church of stone,
lable of containing one thousand persons.
e whole church being free, and there being,
ssequently, no income from pew-rents, our
ef anxiety now, is to realize an endowment
ficient to secure for ever the daily perform-
e of Divine worship, and for this object
scriptions are still earnestly solicited. Whilst,
wever, we have good hope that under God's
ssing adequate means will be supplied by
ristian benevolence, we unfeignedly desire
to lay an additional burthen on those who
e with such unsparing liberality already
isted in this work and labour of love."

*Mr. Ferrey was a pupil of the late Augustus Pugin, and executed numerous creditable works; one of which, the Met County Hospital, is mentioned elsewhere in the present number of the journal.

GOTHIC ORNAMENTS FROM THE CATHEDRAL CHURCH OF YORK.



Fig. 5.

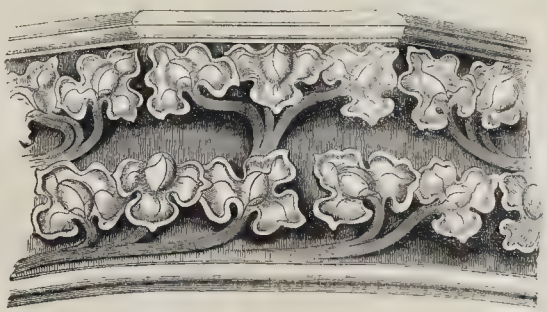


Fig. 6.

In continuation of the series of details from this noble building, commenced on page 90 of the present volume, we here give two from the nave and aisles, commenced, as before mentioned, in the year 1291, and completed about 1330.

Fig. 5 represents the capital of one of the semi-pillars attached to the wall in the south aisle of the nave. It is 1 foot 2 inches in height, and 26 feet from the floor. It is composed of three cylinders with a flat surface between them; the centre cylinder is 9 inches in diameter, the others 6 inches in diameter. From these pillars spring the groins of the vaulting by which the aisles are covered. The foliage is sharply cut, and is very beautiful.

Fig. 6 represents the foliage in the capital of one of the pillars in the nave. All these capitals are different, and display great luxuriance of fancy. The aisles of the nave in this building are very lofty and magnificent, perhaps more so than those of any other of our cathedrals. The windows are in three lights with quatre-foils in the arched heads, and the wall below them is adorned with paneling, which displays crocketted gables and pinnacles in great profusion. The whole of this part of the minster, namely, the nave and aisles, belongs to the decorated period of Pointed architecture, but being an early example, some of the ornaments have much of the character of the previous style.

THE INTERIOR DECORATIONS OF ST. STEPHEN'S, WESTMINSTER.

On Wednesday, the 26th ult., a paper was read by Mr. Crabb, before the Decorative Art Society, upon the "Interior decorations of the collegiate chapel of St. Stephen, as finished by Edward III., in his palace of Westminster, A.D. 1348."

The paper was interesting, the information it contained being unpublished, and derived from Mr. Crabb's acquaintance with the original painting, and with Adam Lee, Esq., who for twenty-five years was the officer in trust of the buildings that had formed the ancient palace of Westminster. In 1800 the act of union rendered it necessary to provide accommodation for the Irish members, and in taking down the wainscotting, it was discovered that the walls of the House of Commons were covered with paintings and gilding; copies of those at the east end were taken, and published by Mr. Smith in 1807, as also by the Antiquarian Society. Extensive subsequent discoveries were made, and the hon. speakers, Lords Sidmouth, Colchester, and Canterbury, gave every facility and encouragement to Mr. Lee, who eventually obtained sufficient information to make out the original plan of the painted decorations which had adorned the chapel, and to restore them in a miniature series of most interesting water-colour drawings.

Mr. Crabb then noticed the localities of the ancient palace of Westminster, describing the decorations of various apartments, particularly the *Chamber of the Holy Cross*, built by

Henry III., and adorned with historical paintings, which continued to be used as a council room down to the age of Queen Elizabeth; also many precepts of this king. In one he directs "That a list or border shall be made well painted," with images of our Lord and angels with incense pots scattered over the border; also the four Evangelists. Another leads one to suppose the paintings, ordered to be done in a certain low chamber in the king's garden, were intended to be representations of the siege of Antioch, taken by the Christians in the first crusade, 1098, as a book in French on that subject is ordered by a former mandate to be delivered to Henry, the keeper of the wardrobe, for the Queen's use.

The *Painted Chamber, St. Edward's*, was of great interest, the ceiling flat and curiously designed with scroll-work and the heads of prophets, and the seraphim with seven wings from Isaiah. The walls had been painted with subjects, part of which were battle-pieces taken from the two books of Maccabees; these were certainly as old as 1322, probably older, for in a MS. of Simson Simson and Hugo, the illuminator in the year 1322, existing in the library of Bennett College, Cambridge, this passage occurs: "At the other end of the city (London), is a monastery of black monks, named Westminster, in which all the kings of England lie buried, and immediately joined, is that most famous palace of the king, in which is that well-known chamber on whose walls all the histories of the wars of the whole Bible are painted beyond description, and with most complete and perfect inscriptions in French, to the great admiration of all beholders, and with the greatest regal magnificence." Many other records exist of great interest where the name of Master William, the painter and monk of Westminster and of Florence, is mentioned, and thus we know he was an Italian. Henry III. was a great admirer and encourager of the fine arts, and by the Exchequer mandates we obtain an insight into the nature of the painted decorations in use at this early period, and by the examination of the items in the Exchequer Rolls of Edward I., relative to the first chapel of St. Stephen, such as white lead, red-lead, vermilion, and azure, gold and silver *oils* and varnishes, we learn that oil-painting was in use as early as 1292, 150 years prior to its supposed invention by John Van Eyck.

Mr. Crabb proceeded to mention that, in conformity with the ancient custom of attaching a chapel to every residence of importance, the first chapel for the use of the palace of Westminster was founded by King Stephen, A.D. 1150. And upon King Edward III. and his Queen Philippa's return from their conquests in France, they determined to rebuild the chapel with the utmost magnificence, in a style that should surpass whatever had been previously attempted in any land. The *principle of design* upon which the arrangement and decorations of the chapel were made was explained, with observations upon the richness of dress at the period, and the interest attached to these peculiarly illuminated edifices raised by our ancestors at a time when the arts, struggling for existence, yet appear to have held no inconsiderable power over the warlike taste of the period. Bearing in mind this feeling for magnificent effect, we can entertain with comparative ease the accompanying desire for its extension to their buildings and to their architectural embellishments, by an assimilating sumptuousness of style in coloured decorations, and much more easily understand the plan of the *design* adopted by our munificent Edward for his chapel royal, produced on the principle that no work of beauty should be "*void of signification*." The architectural design would thus be formed in conjunction with the sculptured and pictorial embellishments. The chapel consisted of a nave without aisles, the roof rising to a very high pitch; the five windows on each side were remarkably enlarged by deep splayings, thus a strikingly peculiar effect was obtained. The piers narrowed, richly painted, and relieved by gray purbeck marble shafts embellished with thousands of gilt pateræ, continued one successive varied, but unbroken, effect of magnificence along the whole side, again carried upwards by the coloured and gilded cornice, and timber roof. In the piers it was purposed to place the statues of our kings from the Norman Conquest down to Edward III. Upon the walls, under a superb canopy of open tracery and slender clustered columns, were painted figures of angels, each bearing a mantle emblazoned and of different colours, being the armorial bearings of noble contributors, and the holy knights to whose honourable keeping the edifice was particularly intrusted. At the east end, upon each side of the altar, were to be introduced the king and his family kneeling; and upon the walls themselves, together with the windows, were to be depicted the history of the Bible, all the leading events from the Creation to the death of the Apostles. The quarterings of the French arms and the English lions were to be freely introduced, as also the fleur-de-lis and French lily, as marks of Edward's supremacy.

Thus the general notion will be understood as one to create an apartment of magnificent size, to adorn it with a picturesque roof, rich architecture elaborately sculptured, and to fill the walls and windows with a connected series of historical paintings of our faith, and the minor portions with single figures, emblazonry, and gilded and painted tracery-work. The habiliments of the priests were also provided of the richest materials, as also others for the court to wear during mass. The paintings were peculiarly treated, and the most careful finish pervaded the whole.

The chapel was suppressed, and its wealth transferred by Henry VIII. The lecturer traced it down to the period of 1800, giving the authorities upon which his descriptions were founded, and quoting the existing Exchequer Rolls relating to its first erection and subsequent repairs by different kings. And he concluded by saying, "That magnificent example of Italian ecclesiastical decorative art I recently had the pleasure of bringing before you should not be forgotten on the present occasion. The rebuilding of St. Stephen's resulted from a vow made by Edward and his Queen during the French wars, and was finished in eighteen years, A.D. 1348. The *Certosa of Pavia*, whose sumptuous decorations were continued with equal taste and spirit and expense during three centuries, and form a perfect chain and example of the fine arts in Lombardy, was commenced A.D. 1396; and arose from the fruits of repentance in one of the noble house of Visconti, who had murdered his uncle and his family. In atonement for this guilt, and in expiation of his crimes, Visconti, in dedication to the Queen of Heaven, laid the foundation of a mass of edifices, destined to become a glorious monument of perfection in every branch of the fine arts. Those who are disposed to pursue for themselves the gratifying inquiries which my limited leisure only allows me to hint at, will discover the close connection of the fundamental principles of design exhibited in each building for its peculiar purpose. The chapel of St. Stephen, intended for a sumptuous temple fit for princes to worship in, was a single space uninterrupted by pillars, of rich and elegant Gothic architecture, every ingenuity being used to increase richness by the aid of an unusual breadth of light gilding and colour. Its roof, pavement, walls, and windows combined in solemn history with the richest habiliments to produce an apartment suitable for the chapel of a royal palace, and justly rendered it the most magnificent the arts of the era could produce.

The church of the Certosa was later. Art was then advancing with giant strides towards the creation of names yet continuing to shed an undiminished lustre over the country. This building was for a different purpose. The interior, with all its profusion of rich expenditure, was to prepossess the spectator with solemn grandeur, its massive columns, widespread arches, subdued light, quietly illuminating the lengthy vista of marble walls, and rendering dimly visible the sparkling of gilded stars, from its deep azure-coloured vaults, all tending, as a portion of the design, to produce the impression of indefinite space. Grandeur and rich harmony which tends, through the power of effect, to soothe those turbulent and stormy passions of man's mind, which yields to the subduing tones of music and of colour, were produced.

It may not be exactly within my province to notice, but there does appear something greatly to be admired in the idea, of a temple of worship exhibiting the perfect production of every ingenious art which the bounty of the Creator has pleased to bestow upon man. A religion thus exhibiting in its churches a co bination of studied magnificent effects as whole, and an endless application of t highest excellences in the details, must allowed to speak an intelligent langua plainly indicative to the general people of th perfection required in the worshipper. Let labour or expense be thought too great whi will contribute to the honour and embellis ment of the House of Prayer, was the prece of those men whose works we have t evening been considering."

On Wednesday next (the 12th), a paper the Interior Decorations of the Royal Exchan will be read.

INSTITUTION OF CIVIL ENGINEERS

FEB. 25.—The President, Sir John Renn in the chair.

The paper by Mr. P. W. Barlow "On t comparative advantages of the Atmosphe system of propulsion on Railways," was t result of an examination of the system, witl view of determining as to the propriety adopting it on the Tunbridge Wells branch the South-eastern Railway.

The author first examined the comparati advantages of the atmospheric system ov that of traction by a rope, and then he stat the reason for supposing it to be inferior to t locomotive system. He premised that lines similar to the Greenwich and Blackw where the traffic was nearly uniform, and short intervals, the power used admitted mathematical computation; but that on ra ways generally, the power required must irregular, both as to the amount required a the duration of its employment, and that the fore a power which was restricted to carryi between certain given points only and certa intervals, would lead to great inconvenience practice. It would be inconvenient also have a power which could not be employed f the ordinary repairs of the road, ballastin removing slips, conveying building materia working the coal and lime traffic at sidin moving goods, trucks, carriages, &c. at t stations, all of which was done at present the locomotives with a great saving of tim and of the expense of men and horses. locomotives were employed for these purpo only, it must be at a great expense, as t keeping up a small locomotive establishme was very costly, and, moreover, the gradien and curves of the line must be adapted f working locomotives, and thus do away wi one of the great arguments in favour of t atmospheric system.

It was contended that the subsidence embankments, which at present constant occurs without interrupting the usual traffic being perceived by the passengers, wou suffice to rupture the air-pipe, or strain it such a manner that the valve would not clo and thus cause a stoppage of the line. Ma other and similar practical objections were stat against the system, but the main point was the comparative cost of haulage when ex mined with stationary and with the locom tive engines. With the former it was co tended that on lines with unfrequent trains t small portion of time the power was actua employed and the number of hours for which t steam must be kept up in order to be alwa ready, would be so disproportionate as to ma the stationary engine system far more expe sive than locomotive power. The lines wi very steep gradients were of course exclud from this position. It was considered al that with the atmospheric system, steep gr dients increased the expense of power in t same ratio, as the power must always be exert in whatever way it was applied.

Several experiments were then given to she the great expense of fuel per ton of goods the Atmospheric Railway; the results we decidedly in favour of the locomotive. T cost of construction was then examined, and appeared, that referring to the calculation the cost of working the London and Birmin ham line, to lay down the atmospheric a paratus of a double line with a pipe of the r quired area would not be less than 10,000*l.* p mile or a total cost of 1,120,000*l.* the intere of which sum at 5 per cent. would be 56,000 or 500*l.* per mile, which sum nearly equall the average cost of working the line by loc motives, and was greater than on many line

fact, that a contract might be entered into working a line by locomotive power for interest of the sum which would be ended in the establishment of an atmospheric paratus.

The general results deduced were in accordance with these observations, and it was sumed that the atmospheric system could be st advantageously adopted on short lines, th frequent traffic near large towns, where absence of noise was important; and that lways on steep inclines in one direction, as Dalkey, was most favourable to the system. In the discussion which ensued it was conded that many of the objections urged by r. Barlow were not well founded, and that ny of the practical difficulties he had adnced had been overcome by the mechanical rangements now in progress of execution on more extensive lines which were destined be worked on the atmospheric system. at both sidings and level crossings were acticable; by a very simple contrivance, a f-acting platform could be so arranged as t only to guarantee the pipe from any injury the traversing of a cart across the line, but tt, by the action of the vacuum in the main, arrier could be raised on the passing of a in which would effectually prevent the trasing of any vehicle, and thus avoid the ssibility of accidents. That instead of the sumed liability to be thrown off the rails, it s shewn, that the leading carriage being tied wn to the piston, greater security was ained, and that on one occasion the leading riage on the Dalkey line had started before time, and had actually traversed the disce at a speed of nearly seventy miles per ur, going round curves 130 to 180 yards lius. That the power stated to have been pended in the conveyance of a given gross d was assumed at too high a ratio, and the l also, and that as to the question of cost by ilage, by the adoption of small steam power, rked only for pumping water, to be used ly at the time of forming the vacuum for frequent or for light trains, a system of prosion might be established which would be re economical than that by locomotives under best management.

E ARCHIMEDIAN SCREW APPLIED TO RAILWAYS.

A PATENT for this purpose has been granted Mr. Isaac Farrell, of Dublin, which, if sfactorily established, will lead to the most portant results. The following description extracted from a letter addressed by the entee to Mr. Purcell, chairman of the eat Southern and Western Railway:—

'The invention consists simply in a screw, led the screw propeller, laid down conuously in the middle of the track, fixed the direction of its length and turned under axis, by steam or other power, communicated it at proper intervals, say every three miles ng the line. This screw may be of any ren diameter, say from 18 to 24 inches, med in lengths of from 12 to 15 feet each, l consists of a shaft of cast or rolled ironing 4 inches in diameter, supporting, by ans of wrought-iron arms keyed on the ft, a rolled-iron spiral, which is bolted to e ends of the arms.

'The power is communicated to the screw means of spur-wheels, turning a pinion ed on one end of each line of shafting, of e and a half mile in length; it is situated as to drive two such lines, that is, one each direction from it, and the gearing is so ntrived as gradually to bring the screw opeller into motion, and also to transfer the wer from one line to the other without pping the train. The motion of the screwopeller is communicated to the trains by ans of a pair of wheels or rollers, so ached to the framework of the leading rriage of the train, as to bear upon the rim spiral rail that forms the thread of the rew, and thus carries on the train forward; e other acts as a check-wheel, and prevents e train from moving with an unequal motion, running forward by acquiring acceleration.

"The screw propeller is capable of acting in th directions; and, on the motion being reersed, that which before acted as a checkheel becomes the propelling wheel, and *vice rsâ*. These wheels, which form the only nnection between the trains and the propeller, are perfectly under the control of the conductor, who, by turning the handle of the vertical screw, can press the wheels when he sees it necessary with more power upon the screw propeller, or in a moment disengage them from it; and, having done so, can instantly apply the break to the bearing wheels, by continuing the movement of the vertical screw and thus stop the train at any point without interfering with the motion of the propeller.

"The advantages proposed to be derived from this invention are—economy in the construction of railways, from the facility it affords for ascending inclined planes of almost any angle, and the consequent reduction in cuttings, embankments, bridges, &c.; also in the use of light rails instead of the heavy rails required for the locomotive system; also, in the use of lighter carriages than those at present in use, and hence less useless load; economy of power for locomotion by the use of fixed engines, or water power in the place of locomotive-engines, and the consequent avoidance of the expense of erection and support of those costly establishments required for the latter. Injury to passengers, by collision or the running of the trains off the rails, being rendered impossible.

"One of the greatest advantages this system possesses over any other is the facility it affords for transmitting a succession of trains at very short intervals. Provision may thus be made for the most extensive traffic without increasing the engine-power: for instance,—a train, capable of carrying 50 tons on the present system, could be divided into four trains of five or six carriages each, at ten minute intervals, an arrangement by which 12,960 passengers might be conveyed in a day of twelve hours, and the expense of locomotion not exceed six shillings per day."

WORKS IN THE PROVINCES.

AT Cromer, in Norfolk, it is in contemplation to erect a new jetty, or breakwater, and sea walls for the purpose of protecting the town from the further encroachments of the sea. It is also proposed to erect other works and defences on the beach and cliff, with convenient promenades. Application has already been made to Parliament for leave to bring in a bill to this effect.

The Secretary-at-War has decided upon the erection of five experimental military prisons, to which superintendents, selected from the half-pay list, are to be immediately appointed, at a salary, in the majority of cases, of 200*l.* per annum.

Lord Middleton purposes expending 15,000*l.* upon improving the town in the county Cork, from which he derives his title.

At Canterbury the labours of the workmen employed in the restoration of the ancient church of St. Martin are nearly concluded. The new pewing is completed, the whole of which is of foreign oak, and in character with the antiquity of the building itself, which is said to be the oldest ecclesiastical structure in this kingdom. Little of the ancient part however remains.

In Cumberland it has at length been determined that the memorial to the late Earl of Lonsdale shall consist of a statue in marble. Whether it is to be an in-door or out-door statue, and the site, are left for further consideration, to be determined upon by a committee specially appointed for those purposes.

At Camarthen a preliminary meeting was held last week, having for its object the erection of a monument to General Nott, the hero of Ghuznee and Candahar. A committee was formed, and a subscription opened, to which Lord Ellenborough has contributed 100*l.*

At Rugby a monument has just been erected to the memory of the Rev. Dr. Arnold. It was executed by Mr. John Thomas, in Caen stone; the figure is recumbent, under a rich Gothic canopy, and has given so much satisfaction to the committee, that they have rewarded the artist with 100*l.* beyond the sum agreed upon.

In York Minster, a monument is about to be erected to the memory of the late Dr. Beckwith. It is to consist of a high tomb of the decorated period surrounded by pinnacled buttresses, between each of which are to be ogee arched panels with crockets and finials; in each panel will be inscribed the name of one of the charities which the doctor aided by his benevolence. The cover of the tomb will be of black marble, having on a splay the inscription in incised brass. On the tomb will repose a whole-length effigy of Dr. Beckwith, the size of life, in white marble. The head will be a faithful likeness, the sculptor, to whom the work has been committed, J. B. Leyland, having had the advantage of carving and modelling the bust previous to the doctor's death. The tomb is to be placed in the east end of the south aisle.

In the cemetery at Nottingham, a monument has just been erected to the memory of Robert Millhouse, the poet. It is about 6 feet high. Over the surbase is a tablet, containing the following inscription from the pen of Mr. Spencer Hall, who was the intimate friend of poor Millhouse. It is creditable both to the head and heart of the writer.

IN MEMORY OF
ROBERT MILLHOUSE,
AUTHOR OF THE DESTINIES OF MAN,
SHERWOOD FOREST, THE SONG OF THE PATRIOT,
BLOSSOMS, AND OTHER POEMS,
WHO DIED AT NOTTINGHAM,
APRIL 13TH, 1839,
AGED 50 YEARS.

"When Trent shall flow no more, and blossoms fail
On Sherwood plains, to scent the springtide gale;
When the lark's lay shall lack its thrilling charm,
And song forget the patriot's soul to warm;
When love o'er human hearts hath lost all sway,
His fame may pass—but not till then—away:
For nature taught, and freedom fired his rhyme,
And virtue dedicated it to time."

Emblematical of the subject, over the inscription, is a lyre entwined within a wreath; the whole is surmounted with an elegant cross fleury. The work was committed to the charge of Mr. Widdison, sculptor, of Edwinstowe.

Thorwaldsen's celebrated statue of Lord Byron, which was originally intended for Westminster Abbey, is about to be placed in the library of Trinity College, Cambridge. The poet was a member of this distinguished body, having graduated M.A. (hon.) 1808.

At Pembroke Dock, a new church is about to be erected. As Government own a good deal of house property in the town, they have considerately granted 500*l.* towards the building.

In the Potteries, a district church for Fosbrook and Blythe Marsh is being built. The Queen Dowager has recently presented a donation of 20*l.* towards the building fund.

JURISDICTION OF OFFICIAL REFEREES —PARTY-WALLS.

SIR,—Before addressing myself to the task of explaining the painful position in which I am placed with the official referees, I will state the case that has induced the discussion. The trustees of a chapel hold a vestry-room on the ground-floor, in the rear of, and over which, are rooms belonging to the owner of the adjoining property, consequently coming under the denomination of "intermixed buildings." This chapel was rebuilt in a most substantial manner in 1817, having an 18-inch wall against the adjoining premises, now perfectly sound, and in thorough repair. The owner of the adjoining property being desirous of pulling down his erections for the purpose of putting up other buildings, applied to the referees, who issued their authority to serve notices both by the "building owner" and the district surveyor, appointing a day for meeting on the premises.

Two distinct notices were served—one as to the party-arch between the intermixed rooms, the other as to the above-mentioned wall; in respect of which wall a tenable objection might be taken, that it is an external wall, inasmuch as it was built entirely on our ground, and not being within the operation of the former Act of Parliament, the common law of the land would preserve our right to it. But as, with the exception of the preservation of ancient lights, no objection would have been raised to the "adjoining owner" using the wall, we will assume, for the purpose of raising the argument, that it was a "sound party wall" (presently, also, contending that it is a "sufficient one"). I attended the meeting on the part of the trustees of the chapel, protesting against the survey; the building-owner was attended by his surveyor, who, I presume from the statements I made, declined to take any part in the matter; and whatever the opinion of the district surveyor may have been from

our discussion, he stated he had no alternative but to proceed in obedience to the directions of the official referees, and consequently proceeded alone in his survey.

I then took the liberty of addressing the referees, assuming they were an appellant court for the public as for the district surveyors. Setting out the particulars of the case, and the points of objection, I thus reasoned—"If the public are entitled to hope for a declaration of your opinion upon such points as controlling future practice, this point, it appears to me, is one of considerable importance. My reading of the intention of the legislature would be, that in all cases of intermixed property, questions relating to taking down and rebuilding party-walls, or any matter where two adjoining owners were mutually interested, that it is competent to them to assent to the principle involved as applicable to their case; and that it would then become the duty of the district surveyor, in respect of the fee prescribed to be paid for his superintending the work, to advise the parties (if doubt arose) as to what was required, in conformity with the provisions of the Act, and not to drive parties to an expensive mode of proceeding, frequently to result in irritation. The portion of sect. 34 to which I refer is, "That if a party-wall or party-arch cannot be built without pulling down such buildings, and so laying parts thereof to each other; and if in *default* of the *consent* of all proper parties, the official referees, &c."

After having made this communication without having sufficiently looked into the matter, and finding that I had confined my objections to their authority more exclusively as to intermixed property, I took occasion on the following day again to address them, extracts from which, and copies of the letters to the "building owner" and district surveyor, will perhaps best tend to explain my views. I would here remark that the wall is a sufficient and sound one. Even in such cases the "building owner" may take down such a wall, under form of notice, No. 14, which is headed "Notice to be given (three months before commencing operations) by an owner to an adjoining owner, where no survey is required," which survey is dispensed with in consequence of the liability of the "building owner" by sec. 26 "to reinstate and make good all the internal finishings and decorations of the adjoining premises;" my ground of complaint, therefore, is that in each case the proceedings are *ab initio* wrong, as a costly mode of proceeding.:—

(*Extracts from Second Letter to Official Referees.*)

"Since taking the liberty of addressing you yesterday, I have met Mr. ——, who proceeded with his survey, the surveyors on either side taking no part. My grounds of objection have been further strengthened by closer attention to the subject; and as I am satisfied it is not your desire to overstep the powers intrusted to you, I would draw attention to my further reasons for the opinion yesterday expressed, that parties might assent by private arrangement. I now hold that any proceedings taken in moving your office or calling in the district surveyors is, as a primary step, illegal (I use not the term offensively, but merely as being repugnant to the express provisions of the Act).

"My ground of complaint, as expressed in a letter to Mr. ——, is, that as in the case of party-walls, each section is read as complete and conferring authority *per se*, whereas I read them as contexts to sec. 20, which first declares the various points treated of in the subsequent sections, and after setting them all out, and describing the characters or denominations of the respective parties, says, 'that if the adjoining owner shall have consented thereto, or if without such consent,' which is a looser term, fully, however, strengthened a few lines further by these words—'and subject to the provision for supplying the want of consent of the owners.' It is perfectly unnecessary to repeat these words in the subsequent sections, as such sections can only come into operation in default of such consent; and sec. 24 provides for 'supplying want of consent of adjoining owners,' necessarily implying the necessity of first seeking this consent.

"I am aware that you may in rejoinder say, every person is bound to know an Act of Parliament, and to read for himself; but I feel equally satisfied that you would desire to render a complicated Act as intelligible as possible, through the medium of the large and novel powers intrusted to you."

(*Copy of Letter to District Surveyor.*)

"Dear Sir,—Since meeting you this morning, I have given the subject somewhat more consideration, and understanding that you have paid much attention to the subject, I can only express my surprise how plain language can possibly be so misinterpreted. I have again written to the official referees, stating, in my opinion, that they, or the district surveyor moving in the matter, is thoroughly illegal with respect to any matter until difference shall have arisen.

"The mistake you have all fallen into, is reading a section *per se*, and imagining what was there directed primarily clothed you with authority. In the case of party-walls, all the sections subsequent are merely contexts of the declaratory section 20, and it would be a monstrous proposition that every party should be called upon to move the office of the referees, and through them the district surveyors. I hold that neither the one nor the other have any jurisdiction until differences arise, and further that it is the duty of the 'building owner' to endeavour to obtain the 'consent' of the 'adjoining owner,' and this obtained, it is the duty of the district surveyor in respect of his prescribed fee, to direct the operation in accordance with the Act.

"I trust I shall, as has always been my habit, treat my professional brethren with courtesy, and pay obedience to a recognized law; but I shall oppose every attempt at undue coercion under this obnoxious Act; and you must perceive that in any, the most trifling matter, the course prescribed would imply large costs."

(*Copy of Letter to the Building Owner.*)

"Sir,—A notice from you, accompanied by one from Mr. ——, the district surveyor, having been put into my hands, respecting property of yours intermixed with that belonging to the trustees of —— Chapel, I have sent a statement of the facts to the official referees, as it appears to me the notices have been served prematurely; inasmuch as sec. 34 states that such proceedings are to be taken only 'in default of the consent of all proper parties.' We have received no communication upon the subject; had we so received it, we should have been, and are prepared to consent to carry out the operation in conformity with the Act.

"Understanding you are about to erect some houses on the ground, it appears to me desirable for both parties to come to some arrangement that would obviate the present inconvenience of the admixture of property; and I am prepared to make a proposition that appears to me to be mutually beneficial, if you will favour me by making an appointment, or refer me to your surveyor."

I afterwards received a communication from the registrar, appointing a day for hearing the matter.

This conference I shall, of course, decline. It would be but an appeal from Cæsar to Cæsar, having yet to learn that the referees are clothed with powers that will close a court of law against an appeal, that the proceedings are *ab initio* repugnant to the express provisions of the Act. Were such a principle admitted, the triumvirate of Somerset-house or that of the official referees and registrar of Trafalgar-square, would hold a power beyond the jurisdiction of our judges in equity; no party being entitled to issue process from their courts, unless he has conformed to principles prescribed by enactment or precedent.

I am quite aware that it may be said the "building owner" moves the office of the referees at his own peril; but it would appear the more convenient course, that he should be required in his application to state what steps he had taken, and that in addition to the questions already put by the official referees, the one I have suggested to them should be added viz.: if the consent of the adjoining owner had been sought? and that in default of that, no such proceedings should be taken.

I regret to say there are many other points of difficulty, some of which the district surveyors declare themselves unable to solve, would suggest the importance of the subje appears to demand, that a public meeting held, to address the House by petition at th early period of its sitting.

GREENWAY ROBINS.

New Books.

Lectures on Natural Philosophy and the M chanical Arts. By THOMAS YOUNG, M. *A new Edition with references*, by t REV. P. KELLAND, M.A. Taylor and Wa ton. London. 1845. Parts I. and II.

DR. YOUNG'S lectures, delivered in t theatre of the Royal Institution, are too w known to need commendation. The editio of which part is now before us, will be pu lished in eight or nine monthly parts; all t plates belonging to the original work will given, and the text reprinted entire, with c pious references to recent treatises on t subjects, and notes on such discoveries as m have been made since the lectures were fi published. We shall recur to the work wh further advanced.

Correspondence.

MISTAKES IN ESTIMATES—HERNE-HILL CHURCH.

SIR,—In your publication for January 25t you did me the favour to insert a letter of mi relating to the contract I entered into for t mason's works of the new church at Hern hill. In that letter I complained that t quantities I had to work by were considerab more than those which were supplied for t purpose of enabling me to make my calcul tions by, so much so indeed, that the differen in one item amounted to upwards of 1,000 fe of stone, to which may be added the labo bestowed upon it. In a note which y appended to my letter, you state that n remedy is against the party who took out t quantities; and in your number, February 1 page 59, is a letter from Mr. Bloomfield, wh states that Mr. Alexander, the architect himse took out the quantities, and that he, Mr. B only made copies of them for the several parti desirous of sending in tenders. Since the appea ance of this letter, I have been weekly expecti to see in your pages some explanation fro Mr. Alexander, but in this expectation I a many others, who feel deeply interested in t question on public grounds, have been di appointed. The omission cannot have aris from his ignorance of the correspondence, f I by chance know that his attention was late at Herne-hill specially directed to it; nor c I suppose that you would refuse insertion any explanation he might send you. Th points I am anxious to elicit are these: wheth there were two sets of plans and specification namely, one to work by, the other to contra by, or whether alterations were subsequent introduced into the plans, from which th quantities which governed my estimates we taken. The difference I complain of, an which has created so much interest amon the great body of master masons in the me tropolis, must have resulted either from desig or from accident. If from the latter, you wi be conferring a boon upon a large class o your readers by assisting to unravel th mystery, for in so doing you will draw atte tion to the rock on which I split, and thereb warn others; but should it be found to resu from design, I trust that you will not be wantin in that bold and unflinching spirit which h hitherto characterized your journal, to expos and denounce such disreputable practices.

I am, Sir, &c.,

Gravel-lane, Southwark, W. SUGDEN.
March 3rd, 1845.

NEW CORN MARKET, ROMFORD.

SIR,—In your last week's publication, ther was a notice to a correspondent respecting th new corn market at Romford. I beg t forward you the particulars of my visit to th spot, presuming that you will favour th members of the profession by the insertion leaving it to their option to avail themselve or not of the advantages presented by th advertisement.

The advertiser is Mr. Harvey George, wh

quires a design for a corn market, subscrip-
n room, lecture room, and sundry other
nveniences, appropriating the present build-
gs for the purpose, which, by the bye, I find
ver a space of 51 feet frontage, by a depth
168 feet.

To effect this, your readers are aware
t it will be essential to take a plan of the
emises as they at present exist.

The time required to take this plan, to lay it
wn on paper from the rough dimensions and
etch, and make a design for the purposes
quired, would, at least, occupy any one, with
assistance of a clerk, four days, besides
expenses of travelling by railway there
d back, twenty-four miles. Thus I calcu-
e that the "fortunate competitor" (rather a
gative term, by the bye, under the circum-
nces) would be a decided loser.

But the chances against this enviable posi-
n are more dreadful than at once presents
elf, for Mr. George asserts that he has
eady received 150 designs, and I have no
ason, from the authority that I quote, to doubt
truth of his having so stated; except that
re must be 149 weaker men in the pro-
sion than falls to its average lot, and
m the circumstance of his having in a
ond advertisement postponed the period
receiving the designs for fifteen days,
sted to that weakness, in expecting a few
re. When I incurred the first expense of
ng to Romford, I inferred, although not so
ted in the advertisement, that the successful
npetitor would be chosen as architect, to
ry out the work; but there I reckoned
hout my "advertiser," for I find that
. George makes no secret in stating that he
already a design of his own, which he in-
ds to adopt, modified and doubtlessly im-
ved by the kind suggestions of these
nerous professional friends. This much in-
mation did I glean at the expense of some
. ("5 per cent. on the *probable amount*, as
say"); but who formed the committee
body knew. In vain I asked, as the adver-
ement suggested, "for full particulars" of
. Harvey George, and, as my own instinct
mpted, of the builders in the town. The
y certain knowledge I could acquire was,
t Mr. Harvey George had taken the pre-
ses on lease, with the option of purchasing;
t he projected the scheme, and advertised
that he intended himself to build it; and
t there appeared to be but one opinion,
ich was, that he would be his own architect,
l, like one who would be his own lawyer,
t he was well worthy of being his own
ent.

think that the profession deserve this cau-
n, and to vouch for its authenticity I enclose
my name. AN ARCHITECT.

ASUREMENT OF BRICKWORK IN BARREL DRAINS.

SIR,—Will you be kind enough to inform
through the medium of your journal, how
m accurately to measure the contents of a
inch barrel drain,—a friend disputing my
thod.

n my opinion the outer circumference
uld be measured thus:—12 inches diameter
drain, half brick on each side = 8 inches;
al 20 inches, by three times for circum-
ence, gives 60 inches, or 5 feet of 4 inch
ckwork, which say in 100 feet, will give
6 feet 8 inches reduced brickwork.

The other method is, to measure the dia-
ter and one rim, making 16 inches instead
20, which in 100 feet will give only 133 feet
nches, a material difference.—Your kind
ormation will oblige

AN ENQUIRER.

[Our correspondent is wrong; the exterior
l interior circumference should be added
ether, and the half of it taken as the mean.
is multiplied by the length and divided by 3
the sides are half brick thick), will give the
ntity of reduced brickwork. The mean
cumference is obtained for practical pur-
es, by adding the internal diameter to the
ckness of *one* rim, and multiplying the re-
t by 3½. Thus 12 inches, the diameter of
drain in question, × 4½ inches (the rim) =
inches, which being multiplied by 3½ gives
eet 4 inches the circumference. This being
ltiplied by the length, 100 feet, we have 433
t 4 inches or 144 feet 5 inches reduced. In
icise terms, the diameter of a circle is to
circumference as 7 is to 22.—ED.]

MATHEMATICS AS APPLIED TO CARPENTRY.

SIR,—I very much wish an answer to the following:—By what means can I learn to apply Log. cos. cosec., &c., &c., to constructive carpentry, in calculating the several weights required and thrusts produced, to calculate weakness, &c.? If in a work on the same, I shall be glad of the name of it.—I am, Sir, &c.,

A READER.

SHOP-FRONTS UNDER NEW BUILDINGS ACT.

SIR,—Your "Subscriber" is not bound to carry up an "unsightly mass of brickwork" of the same projection as the cornice of his shop-front, or an inch beyond it. The schedule requires merely a pier or corbel of "*incombustible material*." He can, therefore, form in the line of the party-wall a *cement* pilaster, 9 inches wide, with face and cap-mouldings, and cornice, similar to those of the wooden shop-front and story-posts, but *breaking one inch* before them. The pilaster and cornice would be both "pier" and "corbel;" and, especially in a continued range of shops, would be far from "unsightly."

I am, Sir, &c., M. B. A.

Miscellanea.

BRICKS.—A correspondent of the *Mining Journal* remarks, that "should the clay of which bricks are made be contaminated with fragments, however minute, of chalk or limestone, the consequences may be very serious. On transference to the furnace, the carbonate is converted into quicklime, and when the bricks are moistened, they necessarily burst, and crumble to pieces. In the case of bricks used in tunnels, this is of paramount moment, and will explain the destruction of the tunnel of Comptiel, between Belgium and Rhenish Prussia. The fault lay with the brickmaker, not the engineer. I have seen the destruction of an earthenware vessel from this cause, as soon as water was poured into it."

THE DORSET COUNTY HOSPITAL is now drawing towards completion, and, when finished, will be capable of accommodating 300 in-patients. It stands in an open part of the city of Dorchester, near the West-walks, upon ground presented by Robert Williams, Esq., of Bridehead. The north wing of the building has been opened for the reception of patients for some time. This institution is supported by voluntary contribution. When we see the number of patients within its walls, it seems surprising that Dorset should so long have remained deficient of a county hospital. Mr. Benjamin Ferrey is the architect employed.

FALL OF PART OF THE IRON ROOF OF A WAREHOUSE.—Considerable alarm was excited in Salford a short time ago, by the fall of the greatest portion of the roof of one of the buildings of the Manchester Bonding Warehousing Company, Chapel-street, which for many years was used as the cotton warehouse in connection with the mill of Messrs. Philips, Lee, and Co. The gable end of this building fronts Chapel-street. The building is about 120 feet in length and 40 feet wide. The roof was an old cast-iron one, much decayed, and was supported by two ranges of iron columns (the building being fire-proof) dividing the building longitudinally into three bays. These columns were very slight, and from iron cups let into the top of these pillars very light principals of cast-iron were carried at a shallow spring to support the roof, or rather roofs, for it was in three divisions. Several workmen and others were upon the roofing, which was undergoing repairs, when, about twenty minutes before eleven o'clock, the whole of the division next the yard of the premises fell at once with a loud crash, and this, dragging the tie-rods down, dislodged the pillars on one side of the centre bay; about the third of the roof of which next fell, followed by a rather larger proportion of the roof of the other outer bay, so that in all about two-thirds of the roofing fell. Amongst the individuals on the roof was a clerk of Mr. A. Mills, architect, who escaped without injury. Upon further inspection, it has been found that nearly all the cast-iron cups in one range of pillars had been cracked or torn, apparently for a long time, by some severe shock or strain, and one of the principals was also broken.—*Manchester Guardian.*

RAILWAY IN SPAIN.—A railway from Barcelona to Mataro has been decided on, the first Spanish line, and many of the shares are subscribed for. We cordially wish it success, believing that an improvement in the means of communication will greatly aid in consolidating this unfortunate country.

ST. MARY-LE-BONE BANK FOR SAVINGS.—The fifteenth annual general meeting of this institution was held on Thursday, the 27th ult., at the office, in Welbeck-street, Cavendish-square. It appeared from the several reports read to the meeting, that the progress of this bank continues to be of a very favourable description, no less than 2,684 new deposits having been made in the last year. 15,124 deposit accounts remained open on the 20th November last, of which 9,503 held balances averaging less than 4*l.* 5s. 10d. each. Upwards of 350,089*l.* was then invested with the commissioners for the reduction of the National Debt; this amount has since risen to 353,089*l.* 4s. 7d., and is rapidly on the advance. The continued evidence thus afforded of the strong and growing disposition of the working classes to provide against the casualties of life, will prove a source of gratification to all reflecting minds.

THE FOUNTAINS IN TRAFALGAR-SQUARE.—The labour of the mountain has produced a mouse. After the long-heard note of preparation, we looked for something, more than ordinarily beautiful and original, and are therefore annoyed to find that the new fountains are nothing more nor less in design than might have been purchased, dolphins and all, ready-made, at any of the artificial stone shops in the Paddington-road. The beauty of the material, polished red granite, is the saving clause.

FIRES.—The late fire at Captain Duncombe's in Grosvenor-square was another result of the incautious fixing of stoves. It was caused by the overheating of a hot-air stove, which communicated with the flooring of the hall.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For completing the Works connected with the enclosing and annexing certain Land lately purchased for the improvement of Newport Bridewell, in the Isle of Wight. March 8.

For repairing the footway pavements, and providing and laying new curb and other stone; for repairing the carriage-way, pavements, and providing and laying new granite and other stone, during one year from Lady-day next, for the united parishes of St. Andrew, Holborn, and St. George-the-Martyr, Middlesex. March 8.

For a supply of from 200 to 300 tons of Rails, and from 100 to 200 tons of Chairs, for the Eastern Counties Railway. March 10.

For building a Sewer in Addle-hill, Doctors-commons. March 11.

For paving and repairing the Carriage-ways and Foot-ways within the parish of St. Paul, Covent-garden. March 11.

For supplying and laying down about 400 yards of cast-iron Pipe, of 10 inches diameter, for the Commissioners of the Southampton Water-works. March 13.

For building a Sewer in the City-road, St. Luke's, near Charles-street, in length about 401 feet; and lowering an existing Sewer, in length about 130 feet. March 14.

For the repairs and restoration of the Tower and Nave of St. Mary's Church, Nottingham. March 17.

For supplying her Majesty's several Dock-yards with Riga Hand Masts and Fir Timber, Dantzic Deck Deals and Fir Timber, and Norway Spars. March 28.

For new-paving such parts of the parish of St. Mary, Islington, and repairing the paved Foot-ways, as may from time to time be required, during one whole year from Lady-day next. March 19.

For the supply of 11,000 feet of nine-inch cast-iron Pipes for a new line of Aqueduct to be laid in the Island of Malta. March 31.

For the supply of 11,000 feet of 9-inch cast-iron Pipes for a new line of Aqueduct in the Island of Malta. April 30.

For new-paving parts of the parish of St. Mary, Islington, Middlesex; and for repairing and keeping in repair the paved Footways belonging thereto, for one year from Lady-day next. Also for supplying unbroken Guernsey Granite, Core, Ballast, Gravel, and clean Flints.

COMPETITIONS.

Plans and Specifications for Covered Ways at the Lunatic Asylum, Melton. March 18.

Plans and Elevations for a new Workhouse with the requisite offices, capable of accommodating 400 inmates, for the Canterbury Incorporation. The architect is requested to state the amount of premium he will require for the use of his plan and specifications in the event of the Court of Guardians adopting the same, and appointing their own surveyor to superintend the works. March 8.

Plans for the most convenient mode of landing or embarking passengers, carriages, &c., &c., at George's Pier-head, Liverpool. A Premium of 200*l.* will be given for the Plan selected and acted upon, and a Premium of 100*l.* will be given for that Plan which may be deemed to be the next in utility. March 19.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

March 11.—At Enfield: 200 Oak Timber Trees of large dimensions and excellent quality; 34 Elm and 24 Ash Trees; also 45 Oak Trees of large metings.

March 10.—Upon the Benacre Hall Estate: 1,000 Oak Stands, from 5 to 8 inches girth; 140 Ash and Elm Stands; 40 Fir Stands; 10 Ash Timber Trees; also 60 Fir Trees and 12 Poplar Trees.

March 11.—At New Barns Farm, Ely: 330 Ash, Elm, Beech, and Sycamore Timber Trees. They are of fine growth and quality, very straight, of great length and good girth.

March 14.—At Ellingham Hall, near Bungay: 600 Spruce, Larch, and Scotch Firs of capital quality, and a quantity of Ash, Elm, and Willow Timbers.

March 11.—At Clay and Sand Woods, Tetworth: A fall of prime Oak Timber Trees, very long and straight and unequalled in quality.

March 18.—At West Buckland, Somerset: 833 Oak, Elm, and Ash, Maiden, and Pollard Timber Trees.

March 13.—At Corfe, near Taunton, Somerset: 210 Maiden Oak, 60 Maiden Ash, and 80 Pollard Oak Timber Trees.

March 17.—At the Abbey Farm, Eye, Suffolk: A large quantity of Poplar, Fir, Elm, Willow, and Ash Timbers; also Poplar, Fir, Ash, Spruce, and Larch Poles.

March 13.—At Dullingham, Cambridge: 2,000 Larch and Scotch Spiers.

March 18.—At Waresley, Huntingdonshire: A large fall of Ash and Elm Timber Trees; also Larch, Spruce, Birch, Beech, Chesnut, Alder, and Hornbeam Spires, very straight, large, and long.

March 10.—At Bottisham Hall, Cambridge: A quantity of very useful Ash, Elm, Lime, Chesnut, and Beech Trees.

March 12.—At the King's Head, Nazing, Essex: 2,188 Oak Timber Trees of good, and a great portion of large dimensions, and very straight and clear.

March 10.—At Fordham Abbey, Cambridge: 100 capital Timber Trees, and upwards of 300 Stands.

March 11.—At the King's Head Inn, Enfield, Middlesex; 200 Oak Timber Trees of large dimensions and excellent quality, 34 Elm and 24 Ash Trees.

March 12.—At Uffculm, Devon; 130 Maiden Oak and 60 Maiden Ash Trees.

By Private Contract, before the 1st of April next.—287 Oak Trees, of full growth and large dimensions, suitable for all purposes, now standing at Woodside, near Morland, Westmoreland.

March 17.—At Herringswell, Suffolk: 400 Larch Trees, many of them measuring 50 feet in length, and containing upwards of a load of sound timber; 400 Scotch and Spruce Trees, upwards of 45 years' growth; 19 large Willow Trees, and a very large Poplar.

March 13.—At Exning, near Newmarket: 5,000 Larch, Ash, Spruce, Birch, Poplar, and Oak Poles. The Larch are fitted for building purposes.

Shortly.—At Portsea: a valuable cargo of Mahogany and Cedar in Logs and Planks.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, March 10.—*Geographical*, 3, Waterloo-place, 8½ P.M.; *British Architects*, 16, Grosvenor-street, 8 P.M.; *Medical*, Bolt-court, Fleet-street, 8 P.M.

TUESDAY, 11.—*Medical and Chirurgical*, 53, Berners-street, 8½ P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.; *Zoological*, Hanover-square, 8½ P.M.

WEDNESDAY, 12.—*Society of Arts*, Adelphi, 8 P.M.; *Geological*, Somerset House, 8½ P.M.; *London Institution*, Finsbury-circus, 7 P.M.; *Graphic*, Thatched House Tavern, 8 P.M.; *Pharmaceutical*, 17, Bloomsbury-square, 9 P.M.

THURSDAY, 13.—*Royal*, Somerset House, 8½ P.M.; *Antiquaries*, Somerset House, 8 P.M.; *Royal Society of Literature*, 4, St. Martin's-place, 4 P.M.; *Medico Botanical*, 32, Sackville-street, 8 P.M.

FRIDAY, 14.—*Astronomical*, Somerset House, 8 P.M.; *Royal Institution*, Albemarle-street, 8½ P.M.; *Philological*, 49, Pall Mall, 8 P.M.

SATURDAY, 15.—*Asiatic*, 14, Grafton-street, 2 P.M.; *Westminster Medical*, 32, Sackville-street, 8 P.M.; *Statistical*, 11, Regent-street, 8 P.M. (anniversary).

TO CORRESPONDENTS.

"Inquirer (Limehouse)."—*Each pane of glass should be measured separately within the rebates of the sash-bars. Of irregular panes, the widest part should be taken, and circular panes should be measured as if square.*

"J. W. S."—*We believe the "Hand in Hand" is the oldest fire-office in London; it was established in* 1696. *We cannot refer to the names of the bridges at this moment: only one of them was across the Thames, the others were of less importance.*

"A Constant Reader" *wishes the address of Mr. Galloway, the engineer of the Cairo and Suez Railway.*

"A Subscriber (Reepham)."—*We don't understand the inquiry.*

"Philoclarus," J. J. Blandy," "R. Callow," "Virgil," "W. Rowland," "A Land-owner," "S. M. O.," "Fairplay," *next week.*

Received.—*The Pictorial Gallery of Arts, Part II. (C. Knight)*—*A Report of the Proceedings at the first session of the British Archæological Association, edited by Alfred John Dunkin (J. Russell Smith)*—*Old England, a Pictorial Museum of Popular Antiquities, Part XV. (C. Knight)*—*The Geologist's Text Book, by David T. Ansted, M.A. (J. Van Voorst)*—*Geology as a Branch of Education, by D. T. Ansted, M.A. (Van Voorst)*—*Bloomfield's Poems, illustrated by Sydney Cooper, &c. (Van Voorst).*

ADVERTISEMENTS.

HEAL & SON'S LIST OF BEDDING.—Containing a full description of weights, sizes, and prices, by which purchasers are enabled to judge the articles that are best suited to make a good set of Bedding, sent free by post, on application to their establishment, the largest in London, exclusively for the manufacture and sale of Bedding (no Bedsteads or other furniture being kept). Heal and Son, Feather Dressers and Bedding Manufacturers, 196, opposite the Chapel, Tottenham-court-road.

100 MARBLE CHIMNEY-PIECES.

THE WESTMINSTER MARBLE COMPANY embrace this opportunity of announcing to Builders and the Public generally, that in the first week in March they will offer their very large assortment of Vein, Statuary, Black and Gold, Bardilla, and Black MARBLE CHIMNEY-PIECES, manufactured in a superior manner by machinery, at prices considerably below prime cost, which are far superior in quality and workmanship to those manufactured for public auctions. By purchases made from this stock a great saving will be effected, in addition to the auction expenses.

The Company's reason for making this sacrifice is their intention to make new extensive alterations in their Show-rooms, previous to setting up their new stock for the ensuing season, of which further notice will be given.

Direct, WESTMINSTER MARBLE COMPANY, EARL STREET, HOLYWELL-STREET, MILLBANK.

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THE BRITISH MUTUAL LIFE ASSURANCE SOCIETY entertains proposals of any description from 20*l.* upwards, involving the contingency of human life, and offers the following advantages to its members.

A BONUS ANNUALLY (in shape of low Premiums), equal to those of other offices, granted every three, five, or seven years, and

THE PROSPECT OF A LARGER BONUS than can possibly be obtained at those offices, in the peculiarly beneficial mode adopted in the distribution of the surplus.

Prospectuses and every information may be had on application at the office, 17, New Bridge-street, Blackfriars.

SPECIMEN OF TABLES.

Age.	Annual Premium for £100.	Age.	Annual Premium for £100.	Age.	Annual Premium for £100.
20	£1. 15s. 8d.	40	£2. 14s. 9d.	60	£6. 6s. 7d.

CHARLES JAMES THICKE, Resident Secretary. 17, New Bridge-street, Blackfriars.

E. G.'s TRACING-PAPER.—It is warranted to take Ink, Oil, or Water colour, and is sold by MESSRS. ROBERSON AND CO., SOLE AGENTS, 51, LONG-ACRE, at the following cash prices:—

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This beautiful and unequalled article is allowed to be the cheapest and most useful Paper hitherto introduced to the public, as will be best proved by a trial.

EMBARRASSED CIRCUMSTANCES—PERSONS IN DIFFICULTIES being desirous availing themselves of the Benefit of LORD BROUGHAM'S HUMANE ACT, are requested to apply to MESSRS. GRAND AND CO., of 54, Coleman-street, City, who every information may be obtained, FREE OF EXPENSE, or arrangements can be made with Creditors by which means the painful necessity of resorting to BANKRUPTCY or INSOLVENCY may in many cases be avoided.—N.B. Partnership accounts adjusted.

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TO ARCHITECTS, BUILDERS, CONTRACTORS AND OTHERS.

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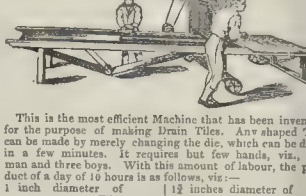
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1 inch diameter of	Tile, 11,000	1½ inches diameter of	Tile, 5,500
1½ „ „ „	„ 8,000	2½ „ „ „	„ 3,500

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are sheds required in drying. It has been in full operation upwards of four months at Hempstead Park, near Chatham, Kent. No charge made for Patent dues or licence. The purchase of the machine includes free use of it.

The Builder.

No. CX.

SATURDAY, MARCH 15, 1845.

ONE of the great objects of the "Metropolitan Improvement Society," when it was established in January, 1842, was to point out the evils which have arisen from considering the improvement of different parts of London only in detail, with a view exclusively to the wants of a local district,—and to urge upon the legislature the importance of looking forward ten or fifteen years, and of employing fit and qualified persons to prepare a plan, founded upon an accurate survey, of all the improvements required in the metropolis which might be carried into effect within the period named. It was believed justly, that this would tend to the realization of various plans, which, however excellent in themselves, had failed because brought forward as private questions, and not as part of a general measure which could alone receive public support, and would prevent the adoption of inferior or inefficient schemes, which private views and influence might otherwise thrust upon the public.

When a deputation from the society waited on Sir Robert Peel, he said that his own opinions coincided with the views of the deputation; that he considered it desirable that an efficient board should be appointed to institute proper inquiries, and take a broad and comprehensive view of the whole subject; and promised that a general plan of the metropolis, on a large scale, should at once be prepared from actual survey as an indispensable first step.

The Metropolitan Improvement Commission was issued soon afterwards, but though three years have nearly passed away, the survey is not commenced, and the commissioners have effected nothing.

We are induced to recal these circumstances to the memory of our readers, and to urge on the premier the performance of his promise, by recent proceedings in Westminster. The necessity for alterations there has long been felt, and numerous plans have from time to time been proposed; but each and all have been set aside, and the much needed improvement, including the drainage, the ventilation, the health, and the morals, of the district, prevented by private interests and the squabbles of rival claimants for public approval. How much longer this is to be carried on is uncertain, but it seems clear that the question is now as open as ever, and that unless the public or the Government come forward to obtain a settlement of it, will either remain so, or be closed in such a manner as to effect much less good than ought to be the case. Parts of Westminster are at this time the very sinks of iniquity, hot-beds of crime, and the birth-place of disease; whence vice and death are brought to all the quarters of the metropolis;—none of it is well-drained, little of it well-ventilated, and it is of course that ameliorations in these respects, and to obtain wide leading thoroughfares for the advantage of the whole community, that public money should be applied. It is not to be wondered at that individuals who may know that *their* property will be more benefited if the new street be formed in this way than in that, should exert themselves so to regulate its arrangement, and every consideration should of course be shewn to private rights and interests, but certainly these ought never to be allowed to outweigh the general good, and prevent important public improvements.

Mr. Wason's plan, as it is called, which has been introduced in the House of Commons with the sanction of Government, was opposed, our readers will remember, by some of the inhabitants of Westminster, and a public meeting was held, whereat a committee was appointed to obtain and examine other plans, and to draw the attention of the legislature to that which they considered the best. Wednesday last was the day named by advertisement for receiving plans from any parties who might be disposed to submit them, and several are now before the committee; it remains to be seen what other steps will be taken. The majority of those who oppose the present plan do so, it cannot be denied, on personal and interested grounds; Mr. Hindley, M.P., and others, assist them because they think that many of the existing inconveniences will not be removed, and that drainage, ventilation, cleanliness, and health may be better advanced by some other plan. If so, and we will not now go into this part of the question, it is of course desirable that the plan should be altered; but we beg these latter gentlemen not to be made the means of opposing *all* plans, and so of still further driving off the long-required improvements. The matter should be looked at in a broad and comprehensive manner, individual interests weighed, but the public good chiefly considered. If no plan is to be carried out that does not meet the views of all the inhabitants, as was urged at the meeting, Westminster will long remain in its present dreadful state—a disgrace to the metropolis.

The chief defect of the intended line, as it seems to us, is the bend made to avoid the workhouse of St. Margarets. The consequence of this will be, partially to build out of sight the western front of the Abbey, of which, otherwise, an uninterrupted view would be obtained from a considerable distance.

At the last meeting of the Metropolitan Improvement Society, it was resolved to make a second application to the commissioners to induce them, if possible, to embrace the present opportunity for effecting a complete isolation of the Abbey. Plans were produced shewing that, by a slight deviation from the intended line, the road-way might be brought on the south side of the Abbey, leaving the cloisters untouched, and terminating with the Victoria Tower of the new Houses of Parliament. The south front of the Abbey is now wholly lost to the public, and yet it is from the south that all buildings should be viewed, from the superior play of light and shade produced by the direct rays of the sun. If the Abbey were thrown open on the south side, the effect to the public from its novelty would be almost equivalent to a new architectural creation in the metropolis. The cloisters would appear as an appropriate and picturesque foreground to the elevation; but a new façade would be required to the existing cloister bounding wall. The buildings to be removed to effect this object (belonging to the Dean and Chapter) are of an inferior class, and more eligible sites could be found for them on ground at present unoccupied, but which in the case supposed, would enjoy a valuable frontage.

In a neighbouring district, Chelsea, considerable improvements are contemplated, and the necessary steps have been taken to enable the parish to get an Act of Parliament during the present session. It is proposed to open a variety of new roads, and to widen old ones: including two new communications between the King's-road and the Fulham-road (one in the line of Battersea-bridge, to lead direct to Kensington, and the other opposite the World's End public-house), and straightening the King's-road between Park-place, where it now turns awkwardly to the south, and Stanley-bridge. To effect these improvements, they ask power to raise 30,000*l.* by a local rate. The greater part of Chelsea has been ruined by being injudiciously laid out; and the fact that the inhabitants now feel it necessary to tax themselves to amend their past errors, should serve as a warning to other districts not yet covered.

In connection with this movement the parishioners have forwarded, or are about to forward, two memorials; one to her Majesty the Queen, and the other to the Commissioners for Metropolitan Improvements. The first sets forth that with a population of 40,000, in consequence of the rapid increase of buildings, they have no open space for recreation, and prays that the grounds in front and rear of the Royal Hospital may be planted and thrown open to the public. "In soliciting this boon," say the memorialists, "they are not aware that they are asking any thing inconsistent with the interests of the institution. Viewing it as a national asylum for the invalid veterans in the royal service, it seems more consistent with those interests that the whole of the grounds (with such exceptions as might be necessary to secure the privacy of the officers) should be thrown open to the inmates for healthful recreation, and that the public should be admitted to participate in their enjoyment, and to witness how they are cared for, than that the inmates and public should be restricted to the limited portions of the grounds now accessible to them." The second memorial is to urge the Commissioners to use their exertions so that the embankment of the Thames may be carried out without delay, and will be found at length in another part of the journal.

Among other suggested improvements in London is an arcade, to be called the Gresham Avenue, commencing in Lothbury, at the end of Bartholomew-lane, opposite the northern entrance of the Royal Exchange, and terminating at the corner of Moorgate-street, with a branch to Finsbury-circus. We have seen a prospectus, too, for the formation of an *under-ground* avenue through London and Westminster, to connect the various railways, but are not in a position to do more than allude to them. A very circumstantial statement appeared in the daily papers a short time since, to the effect that a new line of street, extending in continuation of St. James's-street and Albemarle-street, direct from St. James's Palace to the Regent's Park, was to be proceeded with without delay, at the express desire of her Majesty. Although this has been since pronounced a hoax, we should not be very much surprised to find some truth in it, for we happen to know that surveyors have been employed in that direction for some time past.

COMPETITION PLANS FOR BATHS AND WASH-HOUSES.

It gives us much pleasure to relate that the various plans submitted in competition to the committee for obtaining baths and wash-houses for the labouring poor, were exhibited to parties more especially interested in them on Wednesday and Thursday last, and that arrangements are in progress for the further exhibition of them to the public. The committee have acted most wisely in ultimately coming to this determination, notwithstanding they had previously resolved that the plans should not be seen, and deserve the best thanks of all who desire that architectural competitions should be well and honestly conducted. It is so seldom that committees will retrace a step once taken, however wrong the direction may be, that this praiseworthy exception should not pass unnoticed.

The designs exhibited are twenty-one in number, from eighteen competitors, and are developed in 137 drawings; twenty-two sets were submitted; but one competitor refused to allow his drawings to be seen, and withdrew them. Of course this gentleman will not think of examining the drawings that *are* exhibited.

The names of the competitors in the order in which the plans are hung are as follows, together with the estimated cost of carrying out their designs:—

1. George Truefitt	£10,000
2. Wigg and Pownall	13,207
3. J. H. Taylor and Son	14,000
4. P. Prichard Baly	11,700
5. Cope and Eales	20,000
6. Arthur Mee	
7. John Tarring	9,963
8. Charles Parker	16,500
9. Lee and Burnett	12,974
10. Savage and Foden	9,272
11. Scott and Moffatt	11,778
12. William Brooks and Son	10,125
13. Garland and Christopher	10,000
14. Owen Jones	16,000
15. John Barnett	9,915
16. Sylvester and Miles	8,487
17. F. J. Francis	6,800
18. James Harris	12,540

Thus ranging in amount from 6,800*l.* to 20,000*l.*

Nos. 9, 12, and 14 have each two sets.

Feeling, after a general examination of the plans, how difficult it was to estimate properly their relative merits without very long and careful examination, we took some pains to learn the course which had been pursued by the sub-committee to whom they were referred. We were informed that they met daily eighteen or nineteen times, and examined every plan in relation with a series of what they thought the most important points to be considered. The extent of agreement or otherwise, of each design with these various requisites was then registered in a very ingenious table, which, when the examination was completed, presented at one view the merits and demerits of the different plans, and enabled the committee to weigh one against the other.

The first and most important deduction said to have been made was, that *not one of the designs agreed in all respects with the published instructions.* No. 1, for example (which is nicely drawn, by the way), is on a smaller *scale* than was required, while one near it, although on the proper scale, occupies considerably more area than was prescribed, and so on, through the whole twenty-two. The selected design, No. 4, by Mr. Baly, is in several respects at variance with the instructions, so that to justify the choice, the first assertion must be admitted.

We are not disposed at this moment to doubt it, but reserve to ourselves the right of expressing an opinion when we have examined the drawings more fully. Mr. Baly has given much consideration to the subject, and has produced an elaborate set of drawings, sixteen in number, entitled to great commendation. Every part of the design is fully explained, and in none, so far as we could see, are the arrangements for ventilation, and for economically carrying on the business of the institution, more perfect. The plan is square, with a high tower in the centre, used chiefly for the supply of fresh air and the removal of that which is vitiated. The area occupied is 11,600 feet, for which the estimate, accidentally of course, is 1*l.* per foot. The elevation is plain, but appropriate; and here it may be remarked, that architectural effect has not been aimed at in the designs generally; nevertheless, some of them display considerable skill.

Next to the selected design, No. 8 (Mr. Parker's) is perhaps the most elaborately worked out (consisting of twelve drawings), and has many points of excellence. No. 3 and No. 9 are both clever designs; but we may not pretend to particularize without a fuller examination than we have yet given.

Our thanks are due to Mr. Stonhouse Griffith, the secretary, for the manner in which he answered inquiries.

THE THAMES AND ITS EMBANKMENTS;

WITH REMARKS ON THE MOTION AND ACTION OF RUNNING WATER.

BY JOHN PHILLIPS.

On entering the valley of the Thames from the sea, and tracing its winding course upwards, it appears that there is not a situation upon its banks that offers a more salubrious, extensive, and commodious position for a town, than the locality where the city of London is situated: therefore the selection of the spot whereon this great city is erected was eminently judicious. The proximity of its situation to the deep, wide, and magnificent river flowing before it, and from which its natural surface has an easy and convenient elevation; with the wide expanse and undulation of the country to the north of the city, renders this peculiarity of position the most favourable for a number of human beings to congregate together in community. Historians tell us that for a considerable period antecedent to the invasion of Britain by the Romans this site was covered with the rude huts of the ancient Britons; indeed, that such was the case there can be but little doubt, as its peculiar and favourable position, and also its natural facilities, made it a conspicuous and easy landing-place from the river, which, at the same time, presented an excellent and safe anchorage for the numerous craft frequenting its shores. After the subjugation of the Britons by the Romans, the wisdom and good taste of the latter were peculiarly exemplified in their retaining this spot for a station, and for the purpose of building their residences. The Roman domination in Britain lasted somewhere about 476 years, and during their occupancy of the city of London, they greatly improved its situation, the extent and limits of which were more clearly defined by the wall they built around it, the remains of which are in existence to the present day.

Antecedent to the occupation of London by the Romans, very many and vastly extended tracts of land contiguous to it were inundated by the flowing and rising of the tide up the Thames, thus forcing and ponding back the river waters. There is no doubt that considerable portions of the surface of the ground, on the south side of the river from Wandsworth to Woolwich, belted by the Surrey and Kent hills, and also a great portion of the lower part of Westminster, extending beyond Fulham, as well as the whole of the surface of the present broad meadows opposite Woolwich, stretching from the river Lea eastward up to the Essex hills, were entirely inundated during the times of the high-water of the spring-tides; and from the elevated position of London, the whole expanse, looking towards Wandsworth, and to beyond Woolwich, appeared as an extensive lake, and London a promontory jutting out from the main land. Maitland, in his "History of London," says that "the greatest marshes on the south side of the river Thames, before the embanking of the said river, reached from Wandsworth in the west to Woolwich in the east." Pennant also says that "all the land round Westminster Abbey was a flat fen, which continued beyond Fulham;" and "the Surrey side was, in all probability, a great expanse of water or lake;" and that "the expanse of water might have filled the space between the rising grounds at Deptford and those at Clapham, and been bounded to the south by the beautiful Surrey hills." These appearances would most certainly indicate that the valley of the Thames was anciently an arm of the sea, and thus presented more the appearance of an extensive estuary than that of a river. The surface-soil of the lower part of Westminster, the Isle of Dogs, and the Essex marshes, on the north bank of the river, and the whole of the extensive marsh-land, upon which Battersea, Lambeth, Southwark, Bermondsey, Rotherhithe, and Deptford are standing, on the south bank of the river, is composed of alluvial matter, brought down by the river Thames, and the many collateral and subsidiary streams and water-courses flowing into it; and the alluvium, held in suspension and driven along by these waters, was deposited, in consequence of being spread over these spaces by the flowing of the tides.

By what race of inhabitants, or at what period of time these extensive tracts of prolific marsh-land were acquired history does not inform us. That they were gained during an age of very remote antiquity is evident, from the fact of no mention having been made by any one in reference to it; neither do our authentic records reach back so far, or throw any light whatever upon the subject. It is not probable that the construction of the embankments which were thrown up at the edges of these marshes were the works of either the ancient Britons, or of the Saxons who succeeded them. The former could not, by any possibility, have produced a work of this magnitude, bearing evidence of advancement to so high a state of civilization, as they were a people at once ignorant, barbarous, and not in any way conversant with the mechanical arts of a civil state; and although the latter were somewhat farther advanced in the scale of civilization, yet they had not the talents and skill to invent, much more the tact to direct and carry out, these stupendous constructions. It would appear, therefore, but just to attribute the embankment of the Thames to the east and west of London, to the Romans.* The well-known enterprising character of that people, their great discipline, industry, and thorough knowledge of the arts and sciences, as evidenced by the remains of all their works, point to them as the authors of these great and noble constructions. In fact, there is no doubt that the reclaiming of these extensive marshes on both sides of the Thames, by embankments, pretty nearly in the state we now see them, and by these means as well, producing something like an uniformity and regimen to the river, were effected by the superior knowledge and talent of the Roman legions, to whose perseverance and proficiency in the science of civil engineering at that time we are indebted for these great and admirable works. The historian Tacitus, who very probably was in England at the time, affirms that the Britons were employed by them "*in sylvis et paludibus emuniendis, i. e.* in clearing the woods and banking the fens;"† and that while thus engaged they frequently complained of the great toil and extreme severity of the labour of such works.

From time immemorial the preservation and reparation of the Thames embankmen as well as of all others throughout the realm of England, was considered of the utmost importance, and in consequence their defence was strictly enjoined. Nevertheless, the extensive marsh, pasturable, and arable lands, and other low grounds adjacent to these embankments and rivers, "heretofore through politic wisdom won and made profitable for the great commonwealth of the realm," from the flowing, reflowing, and violence of the tides, and from the neglect of those whose duty it was to have maintained and repaired them, were occasionally very disrupt, and allowed to fall to decay. The first mention of any thing by reference to this subject occurs in Magna Charta, The Great Charter, A.D., 12 9th Henry III., wherein, amongst other things it is ordained that no person should be called upon "to make bridges nor banks, but such as of old time and of right have been accustomed to make them in the time of King *Henry*, our grandfather;" and that from henceforth "no banks shall be defended but such as were in defence in the time of King *Henry* our grandfather, by the same places and

* "That it was therefore a work of the Romans, when they were masters here, as it is the opinion of some learned men, so do I make thereof no doubt, considering to what height, not in learning, but in divers arts and sciences the people were arrived, as by sundry testimonies we plainly find. Besides, it is not only evident, from the credit of the best historians, that their several colonies, dispersed throughout this nation, were so excellently disciplined, that avoiding the mischiefs which idleness produces, they were always exercised in some fit and necessary employment; those great and public ways, and other stupendous works made and raised by their skill and industry, do sufficiently shew."—DUGDALE, *History of Imbanking and Drainage*, 2nd edit. 1772, chap. xi. page 16.

† Ibid.

ame bounds, as they were wont to be in his ime." As was previously observed, the reclaiming of the immense marshes to the north nd south of the Thames was anterior to all ur authentic records. But it appears that he first commission of sewers issued in Engand for the express purpose of viewing and epairing these embankments, of which our ublic records take notice, was in the year 295, 22nd Edward I. This commission was irected to his beloved and faithful, John de Metingham, and William de Carleton, who were authorized to view the banks, ditches, utters, sewers, &c., and repair the same beween Lambeth and Greenwich: and about three ears afterwards, through the neglect of mainaining the banks at Rotherhithe, considerable reaches were made in them by the violence of he tides, such that a great part of the adjaent marshes was inundated. From time to ime other commissions were issued for the epair of the embankments betwixt Lambeth nd Greenwich. In the year 1329, 13th Edward II., John Abell, and John de Evredon, were appointed to view the said banks, and to upply speedy remedy for their repair; and ix years afterwards another breach took place in hose banks, which occasioned great damage n the neighbourhood.

Commissioners were also appointed to view nd take order for the reparation of the anks, ditches, &c., for the protection of the arshes lying between Dartford, Woolwich, nd Greenwich, the first mention of which ccurs A.D. 1324, 8th Edward II., John Abell nd John de Hortone being appointed comissioners to view and repair these banks; nd early in the following year another comission was issued for the protection of the ame banks and marshes. Six years after, from he violence of the tides, a considerable breach as made in the bank between Greenwich and Woolwich. Commissioners continued to be ppointed from time to time for the purpose of aintaining and repairing these banks. In the ear 1341, 15th Edward III., Robert de Sadyngon, Thomas de Blaston, and Gervase de Wilord, were the first appointed commissioners to iew and order the repair of the banks on the orth side of the river between a place called he Neyt and Temple Bar, within the precincts f Westminster and the parts adjacent, the said anks having become broken and decayed by he force and violence of the tides. Concerning the extensive marshes of Essex, the first ention of them is in King John's time, Roger e Crammavill being then attached to shew ause why he did not stand to the determinaon made in the said King's Court, by a fine ith the prior of St. John of Jerusalem, uching the banks, gutters, and ditches to be paired in those marshes.

In ancient times the conservancy of the ver Thames was most strictly attended to, nd our forefathers were very jealous of mainining and preserving the purity of the Thames ater; and so intent were the authorities of d times on preventing the river from beoming contaminated by any foreign or noxious atters, that in order to preserve its purity, any enactments were made by Parliament, well as orders by the Common Council of e City of London, in pursuance of those actments. In the sixteenth year of the reign f Richard II., A.D. 1392, it was enacted, "that person do throw, or cause to be thrown, laid, any filth, or ordure, muck, rubbish, or ystage, in the said water of Thames, of the ie side or the other, between the Palace of estminster and the Tower of London, on ain of the forfeiture of 10*l.*; and butchers or thers are prohibited from casting entrails, c. into the river, on penalty of 40*l.*" An ct of Parliament was also passed in the enty-seventh year of the reign of Henry III., A.D. 1535, in which it was enacted, that if any person or persons do, or procure ny thing to be done, in the annoying of the ream of the river of Thames, by casting of ing, or rubbish, or other thing into the said ver, he shall forfeit for so offending the sum f 100 shillings."

During the period of nearly two centuries, e bed of the river has always afforded an undant supply of most excellent sand and ravel. The sand from this source has ways been preferred by builders, and has been ld is now being procured with much avidity, consequence of its sharpness and cleanness, hich are the most essential properties in the composition of mortar. From the bed of the river considerable quantities of gravel have also been and are now being procured for the purpose of forming the modern composition of concrete, and for ballasting very many of the numerous outward-bound shipping. In order to supply the demands for these materials, and for the purpose of removing shelves or accumulations which obstructed the channel, a system of constant dredging has been going on during this period, and this has had great influence in making and maintaining a more uniform and much deeper channel. In pursuance of the last-mentioned enactment of Parliament, the Common Council of the city of London, during the year 1667, first issued an order allowing and authorizing any "person or persons to dig, carry away, and take away sand, gravel, or any rubbish, earth, or any thing lying and being in any shelf or shelves within the said river of Thames, without lett or interruption of any person or persons, and without any thing paying for the same, and after that to sell the same away, or otherwise occupy or dispose of the said gravel, sand, or other thing, at their free liberty and pleasure." And moreover, with reference to the jurisdiction which the city authorities exercised over the city and the grounds adjacent, they also ordered "that all paviours, bricklayers, tilers, masons, and all others that occupy sand or gravel, shall endeavour themselves with all diligence to occupy the said sand or gravel, and none other, paying for the same reasonably, as they should or ought to pay for other sand or gravel digged out of other men's grounds about the said city, which after is filled again with much filthy things, to the great infection of the inhabitants of the said city, and all others repairing to the same." The noble and majestic river Thames, running east and west through what may now be called the middle of London, and whose waters were formerly of a pure and pellucid character, is now the *Cloaca Maxima* or main drain of London, as the stream after passing Putney-bridge becomes loaded and contaminated with the outpouring filth discharged from the various sewers.

It appears that through the apathy of the constituted bodies under whose care the conservancy of the river Thames was subsequently placed, very many encroachments upon the channel, on both banks by the advancement of the wharf lines, were permitted from time to time by those bodies. The encroachments were, with few exceptions, never formed with a view to the improvement of the navigation of the river, and in consequence many of the projections that were thrown out into the stream formed direct obstructions to the passing currents, which reflected their motions, produced eddies, deposits, and accumulations of mud and silt at the sides, as well as shoals of sand and gravel upon the bed.

While the flowing of the tides up the river Thames was left to their own undeviating course, and before any obstructions were formed, either by embankments or otherwise, the channel of the river must have been considerably shallower than it is at present, for the various embankments must have had considerable influence in deepening the channel to which the flowing of the river was confined, the contraction of the stream producing a greater velocity, and consequently an increased scour upon its bed. That the river was anciently much shallower than at present is evident from the numerous fords which existed, where persons could cross from one side to the opposite on foot as well as on horseback at the time of low-water, whence the Horseferry, by Lambeth Palace, takes its name; and Maitland says that he discovered an ancient ford "about 90 feet west of the south-west angle of Chelsea College Garden, and at low-water it was only 4 feet 7 inches deep;" and in consequence of the strong winds downwards the previous day the water was not so deep by a foot; and he also says that, "it is probable that at such tides, before the course of the river was obstructed, either by banks or bridges, it must have been considerably shallower."

The learned and indefatigable Camden in his "Brittania" says, "that the *Thames* receives the tide about 60 Italian miles from the mouth. And there's no other river in Europe that I know of, where the tide comes up so many miles, to the great advantage of those that live by it. Whether it be, that from this place (Shene) there are hardly any crookings, but 'tis carryed eastward in a more direct channel, generally fenced with higher banks, and opens a wider mouth than other rivers to let in the sea." But since the removal of old London-bridge the tide has risen much higher and runs upwards to a farther distance, in consequence of the increased velocity imparted to the flood, which causes a greater quantity of water to flow in the same time.

Although the surfaces of the streets and roads of the whole of London have been artificially raised and will of necessity be getting higher, still a considerable portion of the lower part of Westminster, Wapping, and the whole of Lambeth, Southwark, Bermondsey, and Rotherhithe, are now under high-tide level. These places are protected from inundation by the embankments, and by the flaps to the mouths of the sewers; hence the great importance of maintaining such defences, and of keeping them in good repair. But there are times, especially at spring tides assisted by strong north-east winds, when the embankments are overflowed, inundating the streets, premises, and cellars, to the great detriment and annoyance of the inhabitants.

Hence a question arises as to what effect the contemplated embankment of the river Thames may have by the abstraction of water-space in raising the high-tide level above its present height. The momentum of the tidal wave flowing up the channel of any river receives a considerable check, which is proportional to the acclivity of the channel. Immediately that the tidal wave arrives at and enters the river, the issue of the ebb is in consequence restrained and forced backwards. The check it receives continues to operate upon the discharge from the mouth of the river upwards to the highest point of the reach of the tide; for the tidal wave in meeting and striking the downward current of the river water causes a retardation of both streams, and, in consequence, a rising of the waters is produced. A contracted channel accelerates the velocity of both the flood and ebb-tides, and in proportion as the momentum of the one strikes that of the other, the height of the water will increase and will be dependant; for whatever produces a retardation of the natural velocity of a running stream, either from the cause already suggested, or the irregularities and resistance of the channel, has a considerable tendency to augment the height of the stream. The force of the efflux of the river water running through a contracted channel is sometimes such, that its momentum is much greater than that of the flowing tide; therefore, during freshes the former may be running along the channel in the direction of the discharge, while the latter, being reflected and checked by the superior power, flows in imperceptibly on the top; and the narrowed section may be the means of causing the rise to be somewhat higher than the natural elevation of high-water from the tide alone. The surface of high-water in a river is always much higher upwards than the natural elevation in the open sea, the increased rise being assisted by the shelving shores, the acclivity of the channel, and the pent-up river water.

The velocity and motive power of the water of both the flood and ebb, all along their course, should be as equable and regular as possible; but in order to produce a scouring action on the bed, the longer the duration of ebb-tide lasts beyond that of the flood, the greater will be the prevention of accumulation of silt and mud. The extension of the ebb beyond the duration of the flood in the Thames is produced by the flood-tide ponding back the river waters. The matter held in suspension by the water of tides is nearly in a constant state of oscillation, and the scour of many ebbs is necessary before the *debris* discharged into the river can find its way to the sea. Nearly the same quantity of matter carried downwards is forced up again with the return of flood, but not to the same distance, so that it gradually works downwards, and thus the discharge of ebb ultimately carries it out to sea. The conjoint force and action of the back-water in combination with the river water, more especially during freshes, have a greater mechanical effect as a means of scour when the channel is fixed and limited in its transverse section. But the limit to compression should not interfere with the admittance of a sufficient body of tidal water upwards, for the purpose of

acting as an efficient scour in its descent. Every change in a river whose channel is in a state of regimen, produces a change in the relative velocity, which, again, is attended with a loss of power. It is well known that a series of alternate expansions and contractions of the channel of any running stream of water materially retards the velocity and quantity of discharge. If a uniform channel be in any way expanded in parts, the expense of water will be diminished; those parts where the channel is expanded imparting a much greater degree of friction, eddies are produced, and the hydraulic mean depth is also lowered, which together diminishes the velocity, and consequently the discharge. And a negative quantity of discharge will also be the result when a uniform channel is contracted at parts. For whatever may be the form of the section of any contraction or obstruction which is presented to the run of the tide, it more or less checks the velocity and free flow of the currents, raises the height, and causes reflected motions and eddies, which produce deposits and accumulations. The quantity of water discharged through any section of a stream running in train along a regular and uniform channel would be equal in the same time, because the velocity of the stream, from the equality of friction and hydraulic mean depth would be uniform, and the declivity of surface would be equal throughout its length. But immediately that the section is narrowed at any part and continued for some distance, the previous uniform velocity is destroyed, the height of the stream will be somewhat augmented behind the point of contraction, and the check thus produced will diminish the velocity backwards. The increased velocity at the contracted part does not make up for the diminution of velocity behind, as might be supposed, for under the circumstances, the same quantity of water passes through the compressed section, as through the larger. It would appear, therefore, that a retardation of both the velocity and quantity of water would be the result of a contraction, independent of the abstraction beyond, for as the velocity backwards is diminished, the velocity, multiplied by the section, gives the discharge through that section.

When a dam or sluice is placed across a stream running in train upon a channel which the action of the water has adapted to it, it is very remarkable to witness the diminished effect that is produced in the velocity of the upstream. The declivity and form of the channel which accelerates the motion of the water is destroyed, and the height of the stream is immediately augmented until it adapts itself under the circumstances to the discharge. When the channel of a stream or river is contracted, an immediate augmentation of the height is produced, which is quickly followed by an increased velocity. Both the flux and reflux of the tides between the parts to be embanked, will receive a permanent augmentation of velocity, in consequence of the contraction of the channel and the uniformity of its width; and the velocities of the stream will vary in inverse proportion to the areas of the transverse sections, increasing where the channel is contracted, and diminishing where it expands. For the quantity of water discharged through a given area, A, with a given mean velocity, V, is evidently proportional to the area and velocity conjointly, or to $A \times V$; and as the area remains constant, the velocity also remains the same; therefore, when the area, A, varies, the quantity of water being the same, the mean velocity, V, also varies inversely as the area; and if a given quantity of water pass through any other area, a, with a given mean velocity, v, $a \times v$ must also vary in the same time; consequently, $A \times V = a \times v$; and $A : a :: v : V$. *Ex*, let A = 17,000 sup. ft.; a = 21,000 sup. ft.; v = 4·583 ft. per sec.; then V = 5·6014 ft. per sec. For as 17,000 : 21,000 :: 4·583 : 5·6614; and ∴ (17,000 × 5·6614) = (21,000 × 4·583) = 96,243 cubic ft. per sec. = the discharge. So that the same quantity of water passes through each section in the same time; in fact, this must always take place, in order to keep up a regular discharge. Now the depth of a running stream is dependant upon the declivity of the channel and the form and width of the transverse section. The consequence of allowing the tidal waters of a river to expand over extensive lateral tracts of land adjacent to the main channel, is to produce in some degree a depression of its depth, and both the flux and reflux will, from this cause, be of a diminished velocity. But immediately that the spaces of those lateral tracts of land are abstracted, and by embankments the transverse section of a river is narrowed, the waters will flow and reflow with an augmented velocity throughout the whole of the confined channel, but more especially at the surface in the middle of the greatest run of the stream; and at the same time the stream will increase in height. An enlargement of the transverse section, therefore, as at present, produces a diminution of depth and velocity, and as the section increases, the amount of water is augmented in much greater proportion; and conversely by contracting the width of the channel at that part an increased depth and velocity will be imparted to the stream, and a somewhat less quantity of water will be forced up by the tide. This must have the effect of placing those situations on the banks of the Thames in jeopardy which have hitherto been barely out of its influence, and a solid embankment of the river Thames would have a considerable tendency towards producing this effect. But the excellent plan proposed by Mr. Page can only cause an increased height in a very slight degree, providing the tide be allowed to flow regularly in and out of the docks; as the cubical contents of the wall itself, and the spaces proposed to be filled up in front of Whitehall and the Temple-gardens, would be the only abstraction of water-space, and this abstraction is to be compensated for by dredging above low water mark, bringing the low water line to the base of the terrace.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

An ordinary meeting was held on Monday evening last (the 10th), Mr. H. E. Kendall in the chair, when Mr. Charles Freeman was elected a fellow, and Mr. William Beck, Mr. Thomas Hayter Lewis, and Mr. Edwin Nash, were elected associates. Amongst the donations was a curious edition (from Mr. Webb), of Cæsar's Commentaries, translated by Palladio, and published at Venice in 1518.

Mr. R. W. Billings then read a paper on the carving machine patented by Mr. Samuel Pratt, and exhibited a number of specimens executed by it. We shall notice this very valuable invention in the ensuing week.

The honorary secretary announced that the medals of the Institute would be awarded next year to the authors of the best essays on the following subjects:—

1. On the adaptation and modification of the orders of the Greeks by the Romans and moderns.

2. On the history and manufacture of bricks.

And that the Soane medallion would be awarded to the best design for a royal chapel, with seats for five hundred persons, inclusive of the suite, attendants, and choir; the building to be detached, and in a classic Roman, or Italian style. The drawings of the elevations and two sections to be to a scale of one-quarter of an inch to the foot; the plans and perspective view to one-eighth of an inch to the foot, and tinted with India ink or sepia only.

We are anxious to draw attention to these premiums, and express a hope that some of our readers may be induced to enter the lists and carry off the prize. The competition is not confined to members of the Institute.

Das Mauriche Bad.—A very extensive structure in the Moorish style has recently been erected at Kaunstadt, in Wirtemburg. It consists of baths, picture-galleries, rooms for balls and assemblies, and spacious conservatories furnished with the choicest plants, and disposed in the most tasteful manner. It is constructed of stone of two different tints laid in alternate courses, and all the architectural members and ornamental details are said to be faithfully rendered from the finest specimens of Arabian architecture in Spain. One conspicuous feature in the design is a copper dome richly gilt; and the octagon conservatories, whose sides are composed of lattice-work filled in with glass, have also gilded domes. Its name is not yet determined upon, so at present it is known only by that which it has obtained from the public of "Das Mauriche Bad," or the Moorish bath. Zanth is the architect.

INSTITUTION OF CIVIL ENGINEERS.

March 4.—Sir John Rennie, President in the chair.

The paper read was "A description of the Great Britain steam-ship, with an account of the trial voyages," by Mr. T. R. Guppy, Assoc. under whose superintendence the vessel and engines were constructed. The paper first gave an account of the origin of the Great Western Steam-ship Company, by a few of the proprietors of the Great Western Railway, who thought that when their railway was completed, Bristol would become the natural port for a direct line of communication with New York; hence the building of the Great Western steamer, which succeeded beyond the expectation of the proprietors, with the single exception, that, like many other steamers, the machinery and fuel occupied so great a space, comparatively with that devoted to passengers and goods, as to operate prejudicially in a pecuniary point of view. The company then projected a second ship, and after much consideration, decided upon building it of iron, with peculiar direct acting engines, and in consequence of the apparent success of the experimental "Archimedes," they determined upon using the screw propeller. The details of the construction with the dimensions were then given; of the latter, as they have so repeatedly been published, it will suffice to mention only a few;—the length of keel, 289 feet; length aloft, 322 feet; main breadth, 50 feet 6 inches; depth of hold, 32 feet 6 inches, tonnage, 3,444 tons. The weight of iron used in the hull is 1,040 tons; the weight of woodwork in decks, &c., is 370 tons; weight of the engines and boilers without water is 520 tons; the total weight is therefore 1930 tons. She will take 1,000 tons of coal, and 1,000 tons of measurement goods, at a draft of 17 feet of water forward, and 17 feet 6 inches aft.

The engines employed to drive this screw consist of four cylinders, each 88 inches in diameter, with 6 feet stroke, working with steam at 4½ lbs. pressure, and cutting it off at ⅛th the length of the stroke. The connecting rods act directly in pairs upon crank pins at either end of the main shaft, 17 feet long by 28 inches in diameter. Upon the main shaft is a toothed drum 16 feet diameter, around which work four pitched chains, encircling also a lower drum 6 feet in diameter upon the propeller shaft. The chains work quietly and smoothly, and when the engines are making eighteen revolutions per minute, the speed being nearly 2·95 to 1, the screw makes about fifty-three revolutions per minute. A considerable portion of this shafting was 30 inches diameter, hollow, and formed of two courses of plates ⅞ inch thick rivetted together.

The account of the trial trips in the Bristol Channel, and the voyage from Bristol to London, abounded in curious facts. It appeared that with the engines making 18½ revolutions, the speed of the vessel would be 11¼ knots, and the slip of the screw 13 per cent.: even during the voyage round, with a heavy gale dead against her, she made upwards of 9½ knots. The ship behaved remarkably well, steered well, and although disadvantageously loaded, with no weight in her bottom, she rolled easily. In the heaviest weather the engines worked uniformly, and never made those variations in speed which are observed in steam-boats when the paddle-wheels are alternately plunged deeply, and then nearly out of the water.

Railway in India.—A company has been formed to construct a railway to connect Bombay with the mainland, and ultimately with the city of Poonah, and the Deccan. Government has expressed its willingness to allow a free passage through its lands, and has recommended an Act of incorporation. The leading native landholders have also come forward to declare their concurrence to grant a free passage through their lands. There are no remarkable difficulties for the engineering department between the fort of Bombay and Tamah, and the traffic in goods, produce, and passengers is very great. Of the advantages of the railway there is not the smallest doubt; the direct trade from Bombay into the interior has no other line for a road.

CAMBRIDGE CAMDEN SOCIETY.

At the last meeting of the society, held March 6th, five new members were admitted, and the following report was read by the secretary:—

"The committee have to announce the publication of the sixth part of the 'Instrumenta Ecclesiastica;' which contains working-drawings of a parclose, a bier, coffin-lids, a lich-gate, and a font-cover.

They have also put in hand the sixth number of the 'Illustrations of Monumental Brasses,' which will complete that series in a single volume. The subjects chosen for illustration are a priest, from S. Margaret's, Horsmonden, Kent; a judge, from S. Peter's, Gunby, Lincolnshire; a knight and a priest, from S. Mary's, Broadwater, Sussex.

Grants of money have been made towards the restoration of S. Mary's, Stogumber, Somersetshire; S. Mary's, Rampisham, Dorsetshire; Holy Trinity, Rudgwick, Sussex; S. Peter's, Frome, Somersetshire; and a small grant has been given in token of approbation of the design for a new church at Chapeltown, in the parish of S. John, Ecclesfield, Yorkshire.

A third part of the Transactions is in progress.

They would take this opportunity of making known that the Messrs. Powell, of the Whitefriars Glass-works, London, have applied themselves to the manufacture of flowered quarries from the designs put forth by the society in the 'Ecclesiologist,' Nos. 25, 26, and the 'Instrumenta Ecclesiastica,' Part III. The manufacturers have secured a patent for their process. The removal of the tax upon glass will now enable church-builders and restorers to bring flowered-quarries into general use.

The committee give notice, in pursuance of law 16, that at the next meeting, on April 24, they will propose that the 16th law of the society be suspended on the anniversary meeting of May 8th, in order to facilitate the general discussion of the recommendation from the committee which will then be submitted to the members.

They have further determined that non-resident members shall be allowed to vote on that occasion by proxy. Forms of proxy will be furnished to each member at an early opportunity."

To be, or not to be, is still the question; and the advocates of either side are actively canvassing for supporters on the day of trial. The admission of proxies is considered by some to have nearly settled the doubt, and they look upon the society as re-established.

We are not quite so certain of this ourselves, as we know that many of the non-resident members have regarded with sorrow the proceedings of the association. Fully impressed as we are, with a knowledge of the improvement in church architecture which this society has materially aided in effecting, we would rather see it completely dissolved than that it should be permitted to pursue the dangerous path into which, by insidious hands, it has been guided,—a path, the end of which is too plainly visible.

Marbles of North Derbyshire.—There still exists a considerable portion of ambiguity respecting the ancient trade and commerce of England. The district of North Derbyshire, from the difficulty of its approach, being nearly surrounded with mountainous ridges, and intersected by deep defiles and mountain passes—is equally difficult. These combined features give that part of North Derbyshire denominated the High Peak, a dull, heavy, isolated character. Nevertheless, a district like North Derbyshire, abounding as it does with the useful ores of lead and iron, with other natural productions, would necessarily have some intercourse of trade in early ages. There is sufficient evidence to prove that a very large and considerable quantity of Derbyshire marble, and fluor spar were objects at that time of exportation. At the different spar manufactories in Derby, Matlock, &c., this elegant material is worked into a variety of ornamental and useful articles; such as vases, cups, necklaces, ear-drops, &c. Thousands of these are exported to foreign markets.

FREEMASONS OF THE CHURCH.

March 11th, 1845.—The Rev. G. Pocock, LL.B., in the chair. The minutes of the last meeting were read and confirmed. Mr. W. P. Griffith, F.S.A., was elected secretary. The following additional vice-presidents were elected: Lord John Manners, M.P.; Sir Walter James, M.P.; C. Baring Wall, Esq., M.P.; Benjamin D'Israeli, Esq., M.P.; and C. Newdigate Newdegate, Esq., M.P.

Mr. W. G. Rogers exhibited a specimen of ironwork from Hampton-court Palace, consisting of a portcullis and a porter's guard: also a portrait of George IV. in mosaic, from the picture presented to Pope Pius VII., the only Protestant portrait in the Papal palace. Mr. J. W. Archer exhibited a cast from a seal of Bramber Castle, Sussex, found lately underground.

On the motion of Mr. W. P. Griffith, it was resolved that a deputation, consisting of the Rev. Hugh Hughes, B.D., Rector of St. John's, Clerkenwell; the Rev. G. Pocock, LL.B.; Messrs. C. H. Smith, T. Dighton, W. G. Rogers, and Mr. J. Finn, should wait upon Messrs. Reid and Co., to endeavour to dissuade them from disfiguring St. John's Gate, Clerkenwell, with compo, now commenced, and if successful, that the secretary should call a public meeting to adopt immediate measures for its careful restoration.

Mr. J. W. Archer then read a discourse upon the existing monumental brasses of England.

The lecturer explained, that monuments described by the conventional term brasses, were composed of various alloys; some of which he described. He then spoke of the knowledge of the principles of architecture and of the arts, generally cultivated by churchmen of the middle ages, and ascribed to them the design of some of the monumental brasses. This was followed by some description of the process by which a brass was executed, and the workmanship was ascribed to the goldsmiths of the time; the tombs of Richard II. and Queen Eleanor were as evidence of the combined operation of the goldsmiths, and engravers' work. After this, the lecturer touched upon the arts of the thirteenth century, and produced arguments in support of the existence of an original school of art in England previous to the revival in Italy. Some circumstances indicating the introduction of certain features of Greek art during the thirteenth century were mentioned, and several brasses of the fourteenth, fifteenth, and sixteenth centuries described. In the examination of certain tombs a resemblance was discovered between the appearance of the body and the effigy on the tomb. A monumental brass, recently found in the city, was mentioned, as affording evidence of the use of colour, and the nature of the material. The destruction of brasses, both before and after the Reformation, was commented upon, and some suggestions were thrown out with regard to the possibility of brasses, which had been concealed in troubled times, being discovered.

The lecturer, in conclusion, spoke of the utility of the monumental brasses, as guides to historical painters for costume, &c.; described the decline of the art, and its ultimate disuse, and delivered some reasons for its revival, which he had undertaken and made some progress in. He expressed a hope that, in the awakened inquiry now going on relative to church architecture and decoration, the beauty and religious character of the old monumental brass might entitle it to due attention and an appropriate place among the accessories of pointed architecture.

Orphan Working School, City-road.—The great increase of claimants upon the benefits of this charity have induced the committee to erect a larger and more commodious building, which is now being carried into execution at Haverstock-hill, Hampstead-road, under the superintendence of Mr. Ainger, who has furnished the design. In a circular issued by the committee, it is stated that 6,200*l.*, out of the benefactions of deceased governors and friends, have already been expended, by order of the general court, in the purchase of the ground. About 14,000*l.* are required for the completion of the plan.

MUSEUMS OF ART.

Mr. Ewart a few evenings since obtained leave to bring in a bill to enable town-councils to establish museums of art in corporate towns. The advantages that must arise from encouraging a taste for the arts by the means proposed, are so great, so various, and so evident, that no diversity of opinion was expressed in the House.

In introducing the subject, the hon. member took occasion to say that there existed peculiar circumstances at the present time for affording facility in the diffusion of works of art throughout the country. By the railways, specimens might be sent down to the different large towns, and it would be the fault of the Government if there should be one without a museum of such a character as would give a sound taste for the arts, and thus enable the people to apply the skill they thereby attained to manufactures. He trusted, therefore, that before long he should see the system of schools of design generally perfected throughout the country. But exhibitions of works of art were moreover necessary to educate the eye of the people. It was well known that until the Romans had an abundance of specimens, and, as it were, were educated by the eye, they never themselves made any great progress in the arts.

Mr. Wyse, in seconding the motion, pointed out the number of contingencies to which voluntary institutions were subject, and how difficult it was to guarantee the continuance of them if they depended solely on the disposition of the inhabitants of large towns.

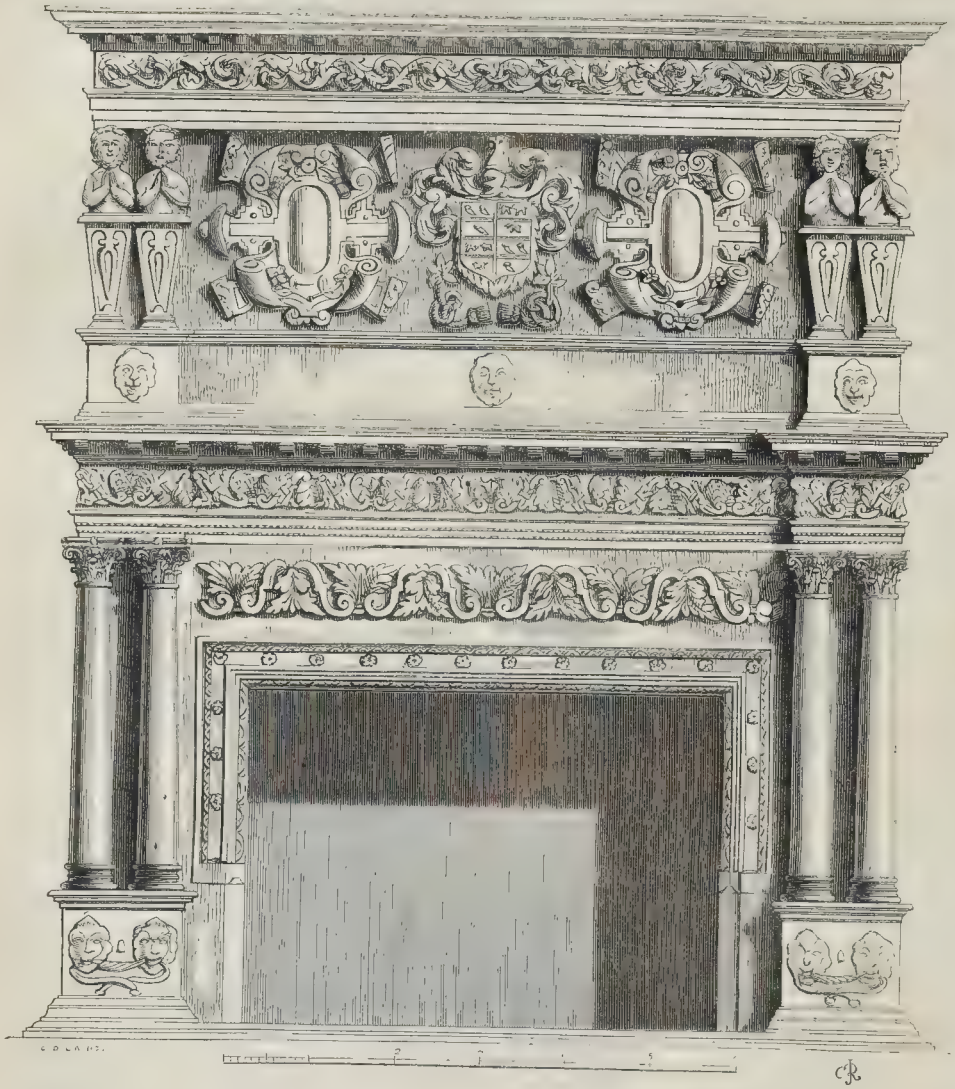
Sir Robert Peel suggested, that instead of giving the town-council too extensive powers to tax the people for the purposes contemplated, they should first endeavour to obtain by voluntary contributions, sufficient money to provide the museum; the edifice being erected by such means, on the clear understanding that it would be henceforth maintained by local taxation. Such a plan would insure the permanency of the museum, and afford a guarantee and an encouragement to the rich and liberal to come forward in order to establish the museum. The same experiment had been tried successfully in respect to the endowment of new churches. If the town-council should obtain the power proposed, he hoped they would thus make it subservient to local liberality and improvement. He had no doubt that the effect of such a plan would be to lead many of the resident gentlemen of each neighbourhood not merely to assist in rearing the edifice, but in supplying it with valuable presents.

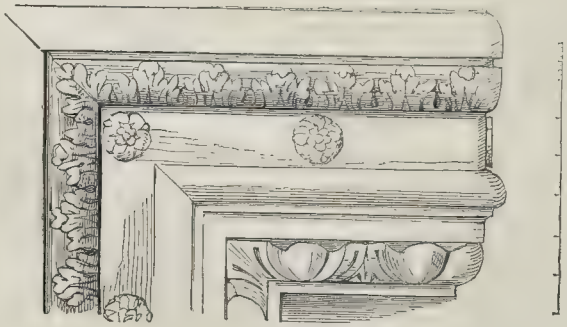
Mr. Brotherton submitted a calculation he had made with regard to a large town with which he was connected, by which it appeared that a tax of one halfpenny in the pound would be sufficient to raise a building which should cost 50,000*l.* He further stated, that it was much better to cultivate a taste for the arts at the public expense, than to raise a large amount of taxation for the prevention and punishment of crime.

Mr. M. Gore thought that the proposed step would tend not only to raise the arts and sciences to a loftier eminence, but at the same time, while improving the morals and purifying the spirit of the people, it would extend the basis on which rested the foundation of peace, security, and national prosperity.

Mr. Labouchere observed, that the proposed measure would afford a very important assistance in the promotion of the objects of the school of design, which was extending its operations throughout the country, and accomplishing the greatest good in many branches of manufacture. He thought it to be of great importance that the people should have opportunities of seeing models of works of art of the highest class; and without it all schools of design would labour in vain to diffuse a correct taste in art and drawing. The very best models happened to be those which could be supplied at an extremely cheap rate—casts of the best statues of antiquity and bas-reliefs. The late Sir F. Chantrey, who, to his honour, raised himself from humble circumstances, used to be a constant attendant in the School of Design, and often regretted that he had not had his mind trained and his eyes educated by being accustomed to such works of art from an earlier period of his life.

STONE FIRE-PLACE AT GASDEN OLD MANOR-HOUSE, NEAR MALMSBURY, WILTS.





MOULDINGS ROUND OPENING, AT LARGE.

STONE FIRE-PLACE AT GASDEN OLD MANOR-HOUSE, NEAR MALMSBURY, WILTS.

The fire-place represented on the adjoining page, is in my opinion, a much better example of the architecture of James I. than either of those from Hickes's Hall* or Boston House.† This is from the great chamber of the old manor-house at Gasden, in Wilts, situated near the picturesque village of Charlton, and is entirely of stone.

The building, which is now occupied as a farm-house, contains little else worth notice, excepting one or two good ceilings, and some very rich iron turn-buckles to the lead casements. I have not been able to meet with any history of the building, neither can I get much information respecting the shield of arms in the centre of the fire-place; it appears to contain the arms of Oldgrave or Owlgrave, and Colt (the latter was a Wilts family); the former bore azure, a fess engrailed between three owls argent; Colt bears argent, a fess azure, between three horses courant sable. These are apparently the arms, but the pedigree shews no connection between them. It must remain conjectural as to whom the shield belonged.

C. J. Richardson.

THE PARISH OF CHELSEA, AND THE METROPOLITAN IMPROVEMENT COMMISSIONERS.

The inhabitants of St. Luke's, Chelsea, have addressed a memorial to the Improvement Commissioners to the following effect; we hope the example will not be lost sight of by other parishes:—

"That, looking upon London as the centre of the monied world, and, as a necessary consequence, the place where the business of the United Kingdom, its colonies, and dependencies, and the business of the whole world, to a great extent, must be concentrated; viewing it also as the seat of Government, the focus of literature, art, and science, it is obvious that it must, with its present extraordinary and daily increasing facilities of communication, go on attracting larger and larger numbers to it from all parts of the world.

That successive governments, foreseeing this, and bearing in mind the increase of traffic which must necessarily spring from it, have, with a wise forethought, which is greatly to be admired, done all in their power to improve the leading thoroughfares of the metropolis by widening them where practicable, and making the direct communications, and opening up new ones, where required.

That by these means the city and the approaches to it from all parts, have been improved to an extent which would have been deemed impracticable half a century ago.

That, notwithstanding these great improvements, however, it is obvious greater facilities of communication will soon be required; and that a little more can be effected in the formation of *new lines of thoroughfare* than is now being effected, or about to be effected, the question naturally arises, what other arrangements can be made to meet the expected increase of traffic?

That, in the opinion of your memorialists, there is no other mode of making this provision but by rendering the river Thames, which runs through the very heart of the metropolis, more available for steam-boat traffic.

That, considering the wonderful increase of late by these boats of late years, and the advantages they hold out in point of cheapness, safety, and comfort to the passengers, there is little doubt they would become the common means of transit to all persons residing along the densely-crowded shores of our river, provided proper stations were made at convenient places along its banks, and proper accommodation were provided at them for passengers whilst waiting for embarkation.

That by this mode it appears to your memorialists, provision might easily be made for an increase of traffic to any conceivable extent, not only to the great relief of the main thoroughfares from the vehicles that would otherwise be crowded therein, but the great advantage of the public.

That, important as this provision for the growing traffic of the metropolis would be, commercially considered, there is another point of view in which it would be of equal, if not greater, importance; viz. as a means of cheap and ready conveyance to the large multitudes of the working population who reside in the densely-crowded neighbourhoods on both sides of the Thames, to open spots on the banks of the river beyond the metropolis, which might now be easily secured, for their exercise and healthful recreation.

That, considering the rapid rate at which the suburbs of the metropolis are extending in all directions, and the distance people must consequently travel from the centre of the metropolis, through crowded thoroughfares, before they can reach the open country for air and exercise,—the importance of providing larger open spaces on the banks of the Thames as places of resort to the working classes, cannot possibly be overrated.

That, under this impression, your memorialists have heard with great delight the intention of her Majesty's commissioners to recommend an embankment of the Thames, so as to form a handsome road from Vauxhall-bridge to Battersea-bridge, considering as they do, that such embankment, with a broad and handsome foot and carriage way attached to it, would not only be one of the greatest ornaments of the metropolis, but a great advantage to all classes therein, and in particular to the working classes before referred to.

That to make such embankment, however, of the greatest public utility, your memorialists humbly submit that the means of continuing it onward to Fulham ought at once to be secured, if not rendered immediately available. They would, therefore, strongly urge upon your honourable Board the necessity of purchasing a belt of land along the banks of the river, of a sufficient breadth for carrying out the three following purposes:—1st. The formation of ornamental walks next the river, for the use of the myriads of *working* people, who would avail themselves of the convenience and cheapness of steam-boat transit, to enjoy the pure air and delightful scenery that would be thus afforded them. 2nd. The construction of a handsome carriage-drive from Chelsea to Fulham, for the use of the upper classes. And 3rd. The erection of a series of villas along that line of road, the sites of which would, in the opinion of your memorialists, sell for more than would pay the whole expense of the purchase of the land in its present state, and the formation of the embankment.

That if this noble undertaking were carried out in the style in which the Government has hitherto been accustomed to carry out its plans, your memorialists confidently believe that it would excel in real utility and beauty of design, any thing which has yet been accomplished in any city in Europe.

That your memorialists, besides forming part of the community to be benefited by the admirable work, conceive they have an especial claim to urge its execution, inasmuch as they are inhabitants of a parish containing a population of upwards of 45,000 persons, who have been paying for many years the extra duty of 8d. per ton upon all coals brought into London, and have thereby contributed towards the carrying out the improvements in other parts of the metropolis, while they have as yet derived no advantage from any improvement effected in their own locality.

That your memorialists, contemplating the improvement which would be effected by the embankment upon a part of their parish, have been induced to seek the aid of the legislature, for the purpose of effecting improvements in other parts of the parish at their own expense, and a bill for that purpose is now before Parliament.

That as a parish in the vicinity of the royal palace, struggling to emancipate itself from the very degraded position in which it has been left for many years, your memorialists confidently look forwards to the embankment as a work that would have a greater effect in stimulating improvement in their neighbourhood, and raising it in the scale of metropolitan districts, than any thing else that could be devised.

For these reasons, therefore, your memorialists earnestly entreat your honourable Board that you would be pleased to use your best exertions to cause the embankment of the Thames, from Vauxhall-bridge to Battersea-bridge, on the Middlesex side, to be carried out with the least possible delay, and also to insure the continuation of the same onward to Fulham in the mode above referred to as soon as practicable.

And your memorialists will ever pray, &c."

* See page 562, vol. ii.
† See page 570, vol. ii.

LAYING OUT STREETS AND ALLEYS.

Sir,—I will further intrude on your columns upon the remaining question in the circular of the official referees concerning streets, quoted in your leading article of the 25th January. Upon this point the opinion of the referees is thus given:—"Streets formed after the *passing of the Act* must be *built* in conformity with the provisions of the Metropolitan Buildings Act, see section 52, and that the mere setting or laying out will not be sufficient to take them out of the Act." Feeling that in some cases this might press hardly, they say, "If parties are prejudiced by the enactment, they must seek relief under the 9th or 10th sections." Did this proposed relief exist, it would be but an appeal to them from their own previous decision, expressed by sanctioning the issuing of a summons; but by some oversight they have quoted sections that have literally nothing to do with the matter; these sections referring exclusively to parties who have entered into agreements by which they were permitted to form streets and alleys of a dimension and form proscribed by the Act, to assess the amount of damage they sustain as against their landlord; and consequently can have no effect in relation to parties having laid out such streets on their own land, or under an agreement or lease where no such operation formed part of the consideration.

To make the matter intelligible, it may be well to state, the date of the *passing of the Act* was 9th August, 1844, set up by the dictum of the referees *versus* 1st January, 1845. I am aware of the difficulty of proving a negative, but their assumption of a particular date (the passing of the Act) would tend affirmatively to prove that in their opinion streets formed previous to that period might be built upon; and for the term "built" I thank them very much.

I object to the substitution of the 9th August for the 1st January, for this reason: the public had permission given them to do certain acts before 1st of January, amongst others, by section 2, under the head "Hereafter to be built," we find "to apply to all streets or alleys not laid out before the said 1st day of January, or which, being laid out, shall not be rendered fit for use within twelve months thereafter." Here is a positive enactment, in my opinion, not at all controlled by section 52, which, being uncertain, would not be permitted to over-ride such positive permission. It is stated in section 52, "Be it enacted with regard to such streets and other ways hereafter formed, so far as relates to securing a sufficient width thereof." I contend this precedent paragraph, by the word "hereafter," applies to section 2, "already built," as above quoted, and then comes "That from the passing of this Act all the conditions, regulations, and directions contained in the schedule (I) to this Act annexed shall be duly observed and performed;" here is at least contradiction against previous, positive, and intelligible permission.

This brings us to the discussion in what way such streets or alleys laid out before the 9th August, or 1st January (as the case may be decided), may be built upon. It is quite clear that parties may now, as heretofore, at any time lay out streets or alleys, of what form and size they please, provided no attempt is made to build upon those not in accordance with the Act. The referees have negatively admitted that such streets and alleys may be "built" without reference to the new Act, if formed (as they state) previous to the passing of the Act. As practical men, they saw, being under the head "already built," it implied erections to be put thereon, and not the mere forming the street; this will remove a world of doubt as to what a "commencement" is. It appears to me evident that any party having so laid out a street or alley before 1st January, and completing the same within twelve months, may cover it with buildings perfectly irrespective of the new Act.

In your leading article of 25th January,

you quote, as the opinion of the official referees, "as to the mode of erection which may be pursued with regard to buildings so commenced" (*i. e.* duly commenced before January 1), "we are of opinion that as to such buildings within the operation of the old Buildings Act (14 Geo. 3, c. 78), they must be built according to the provisions of that Act, since these proceedings, commenced or taken under that Act before the 1st January, are not repealed." In the case stated in my letter 22nd February, I feel that I owe the referees an apology for venturing to assume they had overlooked this exception; but with this knowledge included in the circular to the district surveyors, how came the district surveyor, having received admitted legal notice under the old Act, to issue the summons? And still more startling is it that the referees, in opposition to their own dictum, appointed a hearing of the case, attended on our part by three surveyors and witnesses. Who is to pay our costs for this?

Having now touched upon each point in the circular from the referees, I propose for the present to intrude on your columns with one further letter only, proposing concisely to set out the points at issue—to bring the whole matter by a kind of abstract before your readers, that such course may be taken as shall be deemed expedient. It must be evident the referees cannot notice such statements; and being but the opinions of an individual, they can lead to no practical result. In my last letter I stated my intention of declining the proposed conference with the referees; upon consideration, I felt I was not justified in so doing, inasmuch as the interview was not proposed to discuss the merits of the case (another day being named for the hearing thereof), but simply to discuss my allegations of irregularities in the proceedings. I am really glad that I attended the meeting; and have much pleasure in stating that in an extended conference, free discussion was permitted on the smallest point, and an evident desire evinced to elicit the truth.

Although I do not feel myself at liberty to give to the public the details of the discussion, it has enabled me to arrive at a conclusion in my own mind of what the duties were intended to be, and as my allegations and the reply of the district surveyor, whom I met, have become public records, I do not feel the same hesitation in bringing them forward in illustration of my arguments in my promised concluding letter. My present impression is, that the duties of the official referees are more defined than we have imagined, but that difficulty to some considerable extent, will arise from a want of controlling power to prevent parties unnecessarily calling in the district surveyors, and through them moving the office of the official referees. My present view is, that the machinery once put in motion, there is no alternative but to proceed; but it would be a disgrace to the intelligence and science of the present day to imagine that a well-constructed drag might not be adapted to check a body impelled by the most fearful impetus; and I have a glimmering of hope that a safety valve may be constructed through the medium of the Commissioners of Works and Buildings, by the power delegated to them by sec. 11, upon a fair and candid representation being made to them of difficulty having arisen in the construction to be put on certain clauses.

GREENWAY ROBINS.

THE CHURCH.—At a meeting, held two weeks ago, of the Incorporated Society for promoting the enlargement, building, and repairing of churches and chapels, grants were voted towards building two new churches—viz. at Seer Green, near Slough, and at Sandown, in the Isle of Wight; and towards rebuilding, with enlargement, the churches at Croxdale, near Durham; Illogan, near Redruth; Puttoxhill, near Silsoe; Runcorn, Cheshire; Goytrea, near Pontypool; Bradpoole, near Bridport; and Woolfardsworthy, near Crediton. And likewise towards the enlargement or otherwise increasing the accommodation in the following churches—viz. Whimpole, near Honiton, Devonshire; Market Bosworth, Leicestershire; Haverfordwest, South Wales; and Coombe Bisset, near Salisbury.

WORKS IN THE PROVINCES.

AT Bury St. Edmund's, a move has already been made towards establishing a museum of art in that town. The chamber over the abbey gate has been suggested as being well-adapted for the purpose, both as regards size and locality. A correspondent of the *Bury and Suffolk Herald* states, that from the well-known liberality of the Marquis of Bristol, but little doubt exists of his willingness to grant it for the object proposed.

At the great Highland gathering, in August next, in celebration of the "forty-five," and which is to take place in the centre of one of the most wild, beautiful, and picturesque scenes in the Highlands, a magnificent celtic cairn is to be erected to the memory of the author of "Waverley." Every individual present, of whatever country, will have the opportunity of "adding a stone to the cairn" of the mighty wizard.

At Liverpool, a new observatory has recently been erected by the corporation. It is near the south-west corner of the Waterloo Dock, and a few yards from the river wall. The building is of hewn red free-stone two stories in height. The principal front is to the south, with a central semi-circular projection. There is a smaller frontage to the west, affording a fine view of the river and the Cheshire shore. The chief apartments consist of the chronometer room, the transit room, and the equatorial room. The primary object of the observatory is not so much for general astronomical observations, as for the practical purposes of ascertaining *true time* for the accurate rating of ships' chronometers,—in other words, for the immediate use and benefit of the port, in this respect, a desideratum which has long been felt.

Application will shortly be made to Parliament for an Act to construct certain reservoirs at the head of the river Kent, in Westmoreland. It appears from a petition lately presented to the House of Commons from the inhabitants of Staveley, that the falls of water on the river have been the great source of trade, and, by the drainage of land and a lake called Kentmere Tarn, the river is more easily influenced by floods and drought, so that many have suffered severely from the want of water in dry seasons. That many falls are still unoccupied by mills whose value would be increased by a constant supply of water. That coal is very dear, and consequently water is the only power obtainable in the neighbourhood; and that unless reservoirs are constructed, the river Kent will become altogether unprofitable for manufacturing purposes.

At St. Ives, the new National Schools are progressing very fast towards completion; the style is Gothic, and the building will be ornamental to the town. The master is appointed, and the schools will be opened this spring.

At Coventry, a commodious and substantial new school-room, belonging to Bailey's charity, has recently been erected at the back of the old premises in Little Park-street. It was opened for the first time on Sunday morning last, in the presence of the school trustees and several clergymen.

A public meeting was held last week at Rotherham, Yorkshire, for the purpose of adopting measures for the establishment of public baths. A company has in consequence been formed, and the necessary funds are to be raised by the issue of shares of 5*l.* each. A provisional committee was appointed to canvass the town and neighbourhood for subscribers, to look out for an eligible site, obtain plans and estimates, and to report to a future meeting of subscribers at the earliest possible opportunity. A letter was read from Mr. Buller, one of the secretaries of the London committee for forming public baths and wash-houses, offering any aid which might be in his power to facilitate the object of the meeting.

A public company has been formed for the purpose of improving the outfall below Lynn, in Norfolk, and for reclaiming from the sea 30,000 acres of land, part of the estuary called "the Wash," between the counties of Norfolk and Lincoln. To carry out the object, it is proposed to raise a capital of 500,000*l.* The trustees consist of Earl Fitzwilliam, Sir Thomas Hare, Bart., Earl of Orford, Lord George Bentinck, M.P., William Bagge, Esq., M.P., and W. W. Chute, Esq., M.P. The Duke of Portland has subscribed 5,000*l.* towards the undertaking.

At Deal, the Commissioners of Pavement have determined upon purchasing the houses at the south of the Esplanade, and throwing the sites thereof into the street. The town will be considerably improved by this judicious step on the part of the trust.

At Northampton, a dispensary is about to be erected in commemoration of her Majesty and Prince Albert passing through that city on their late visit to the Marquis and Marchioness of Exeter, at Burleigh House. The noble marquis, as lord lieutenant of the county, has addressed a communication to the Mayor of Northampton, signifying her Majesty's consent at the intended new establishment bearing the name of "The Victoria Dispensary."

At Exeter, the members of "The Episcopal Free Church" have purchased a site on the east side of Southernhay, nearly opposite the entrance to the cathedral close, for the purpose of erecting a sacred building.

At Hull, the Victoria Promenade is progressing most favourably, although little has lately been heard of it. Lord Fitzwilliam, Lord Milton, and the Hon. Mr. Fitzwilliam, have recently become shareholders. The promoters have had their attention up to the present time almost entirely directed towards procuring the requisite land. The committee of the Church Building Fund have fixed upon the neighbourhood of Kingston College as an eligible site for the proposed new church at Hull. The church is to be dedicated to St. Paul.

The proposal to build a bridge over the Mersey has been revived, and Mr. William Stuart, a Scottish engineer, has submitted a very ingenious plan for carrying the project into effect.

The political friends and admirers of the late Lord Holland have subscribed 5,000*l.* for a monument to his memory, to be placed in Westminister Abbey. The committee of management have intrusted the execution of the work to Mr. Baily, the Royal Academician.

The Earl of Shrewsbury has just concluded a treaty with a building company in Cheshire by which his lordship receives 35,000*l.* for 85 acres of his extensive property in that county.

An important project is in contemplation which, if carried out, will prove of immense advantage to Maidstone and the surrounding country. The proposition is to deepen and widen the River Medway, so as to make it navigable up to Maidstone.

The Council of the United Service Institution, in Scotland-yard, have lately purchased the adjoining house of Lord Stuart de Rothsay, for 3,500*l.*, subject to a ground-rent of 250*l.* a year. The purchase has been made with the view of enlarging the museum, and constructing a capacious lecture-room. The Earl of Arundel, who is vice-president, has contributed the liberal donation of 100*l.* towards the contemplated improvements.

It appears that Prince Albert was so much delighted with the game of tennis whilst at Brighton, that it is his Royal Highness's intention to build a tennis court at Buckingham-palace.

ARLES.—Plans have been made (says the *Constitutionnel*) for the restoration of the Amphitheatre of Arles, and the Church of St. Ouen at Rouen. The estimated expense of the first is 400,000f. and of the second 1,400,000f.

WALLS BUILT OVER WELLS. — A short time ago, when a shepherd's wife at Aspendon, near Buntingford, was sitting with her children before the fire, the fire-place, hearth, stool, the children's seats, and every other article in the vicinity disappeared, sinking down, and through a trap-door. It turned out that the fire-place sunk into an old well that had been built upon for more than half a century. The aperture left is about six feet in diameter, and the depth, as far as can be ascertained, for the debris, sixty feet, and containing a great quantity of water. About seventy years since the premises were in the occupation of Mr. Penn, a brewer, and it is supposed that the well was not arched over when built upon. Very recently we observed a new party-wall built upon oak planking over a well, without an arch. It is to be hoped the above record of narrow escape may serve as a warning against such a practice.

New Books.

The Geologist's Text Book. By Professor Ansted. Van Voorst, London: 1845.

A knowledge of the principles of geology is almost essential to engineers and architects. In making roads and canals, tunnelling, the selection of sites, and the materials for buildings, digging for water, and draining lands, it will be found of the utmost value. It is not to be expected, neither is it necessary, that every architect should be a professed geologist; but he should have such a general knowledge of the science as shall shew him where to go for information when the special occasion arises, and how to avail himself of it efficiently.

The publication before us is not intended for those who have no previous acquaintance with the study, but as a companion in the field or closet to a student who has been taught the principles, but is not yet familiar with the practice, of the subject. In fact, it is an analysis, and a very able one, of a larger work on geology by the same author,—a summary of the actual condition of the science, and an intimation of how far conclusions in vogue may be admitted as sound, and acted on with confidence. It is an able work, and may be safely consulted.

A Report of the Proceedings of the British Archæological Association, at the first General Meeting held at Canterbury. By Alfred John Dunkin. J. Russell Smith, London: 1845.

This volume, of which only 150 copies have been printed, contains a full and very correct account of all that occurred at Canterbury in September last, and cannot fail to be acceptable as a record, to those who attended. Sir William Betham's paper, "On the origin of Idolatry;" the Rev. J. B. Deane's valuable essay "On the early sepulchral remains extant in Great Britain;" Mr. Lowe's paper "On the Pelham Buckle;" and the result of Mr. Stapleton's erudite researches illustrative of the succession to the barony of William of Arques; are given at considerable length. The most interesting part of its contents to us is the translation of Gervase's account of the burning of the ancient cathedral of Canterbury in the year 1174, and its re-erection in 1175-1184, by Mr. Edward Cresy, jun.; to which we may perhaps return on another occasion. The editor states in the preface, what is probably true, that "he had no pecuniary object in printing this report, else he might have realized a large sum by extending the impressions;" but was actuated solely by a desire to pay a tribute to those gentlemen who either actually attended at Canterbury, or by their papers or gifts contributed to its success.

The future fate of this association is somewhat doubtful; unfortunately at this moment there are two committees in existence carrying on its business, and we all know the insecurity of two stools. Those who wish well to the association will endeavour to remove existing difficulties, aid by persuading each party to yield something, and in effecting an harmonious coalition.

Continental Architecture.—Professor Gartner of Munich, is about to follow the examples set by Schinkel and Klenze, in publishing a series of all the principal buildings he has executed. The professor succeeded Klenze as the king's special architect, and has erected most of the recent monumental structures in the Bavarian capital. The work will doubtless be an interesting and valuable addition to the architect's library.

Prince Albert.—His Royal Highness continues to manifest considerable interest in matters of science and art. A few days since, after presiding at a meeting of the commission for promoting the fine arts in the rebuilding of the Palace of Westminster, the Prince went over the new structure with Mr. Barry and the contractor. Last Saturday evening, his Royal Highness visited Lord Northampton and the fellows of the Royal Society, and examined with much apparent pleasure, the various inventions and works of art which were exhibited. We should like to see the Prince occasionally call around him at the palace some of our poets, artists, and men of science. The names of such, strange to say, are never seen in the list of the "royal dinner party."

Correspondence.

THE OFFICIAL REFEREES.

Sir,—The letter of your correspondent "Censor" will, I think, justify me in troubling you with a few remarks upon the subject of the manner in which business is conducted by the Trafalgar-square "Board." "Censor," it would appear from his letter, expects that the referees and the registrar should be continually *on view* to any person who may wish to look at them. On this point, since reading his letter, I have thought much, and on looking to "the Act" I find that one of its primary objects is to prevent, for the future, the "*diversity of practice*" that has hitherto existed. Now, Sir, I should like to ask "Censor" whether if he were to be permitted at all times to see the referees, this object would not in all probability be defeated; it could not be expected that they should be always together, and if they were not so, it would be quite possible for a man to obtain orders diametrically opposing each other from the "*referees*," and even if it were possible for these gentlemen (they being in *the same profession*) always to see things in the same light, what is to be done about the registrar? he has the power of refusing to sanction their proceedings if, in his opinion, they are contrary to law. Assuming, therefore, that I am correct in my premises, what arrangement can be better than that all matters should be determined by the referees and the registrar sitting as a board? In this manner the chances are, that diversity of practice will not, at all events, find its way to head quarters. Again, the Act requires that all cases should be registered; how, I would ask, could this be done if the business were half transacted in the private rooms of the referees, without the knowledge of the registrar? It should also, I think, be borne in mind that the referees are *referees*, and that in consequence it would be *highly improper* for them to hold any conversation with one person, upon a matter whereon they may afterwards have to decide as *judges* between him and others. If I understand "Censor," he would have us believe, that so great is the desire to obtain *fees*, that even the clerk cannot be *seen* without a *fee*. This appears to me to be a particularly unfair part of his letter. The professional character of the gentlemen in question ought to have protected them from such a charge; but has "Censor" really been made to pay for his conversation with the clerk? If he has, he has been treated very differently from myself or any of my acquaintances: a scale of fees hangs up in the waiting-room, but no unnecessary allusion thereto has ever been made to me by the gentlemen that I have seen. Much more might be said upon the subject of "Censor's" communication, but I fear that my letter has already exceeded the limits that will enable you to give it a corner in your valuable journal.

I am, Sir, &c. Fairplay.

COMPETITION—CANTERBURY WORKHOUSE.

Sir,—The profession are, I think, more indebted to the articles in your valuable pages on the subject of competition, than to all the other sources they now have of obtaining or diffusing information. May I request you to have a vigilant eye on the Canterbury Incorporation.

I first saw the notice in your number of February 22nd. A fortnight only was given to prepare the plans. Not too much, if an architect has any thing else to do. I accordingly wrote by the same night's post for information, and waited day by day for an answer, till, in fact, I gave the matter up. However, on Saturday last, I received (too late to be answered by that night's post), a letter from Canterbury, wherein I was informed that the writer had enclosed me a sketch of the ground and all other particulars. Well, I thought this civility came rather too late, for it only left me four days to make my designs, as on Friday they must have gone down to be opened on Saturday; but fancy my dismay, Sir, when I went to look further, there was neither sketch, nor particulars, in the envelope. In fact, all I had was, "Sir, I have the honour to enclose"—and the enclosed was—*nothing!!*—Now I must have written again to Canterbury, explaining the mistake, and must have received my answer back, and I should like to know what time I should then have had left. Pray keep your eye on the Canterbury Incorporation;—there will be something curious in that matter before they have done. The official, whoever it was, takes half the time allotted to do all the work to answer a letter; and then he sends me a nice little parcel of moonshine. Again I say, pray keep your eye on the Canterbury Incorporation!!—I am, Sir, &c.,

An Architect.

IMPURE AIR FROM SEWERS.

Sir,—In The Builder of Feb. 15, I was pleased to read a communication by Mr. G. Hawkins, at the Institute of Architects, on the subject of sewerage. Much credit is due to that gentleman for his valuable and gratifying information; but a great, if not the greatest, evil was unnoticed,—that is, with regard to the most efficacious means of preventing the effluvia, and impure air or gas, arising or escaping from the sewer through the gratings in the street.

The reports of the most eminent physicians prove that during the time the cholera raged in England, the greatest number of victims to that disease was to be found in the immediate neighbourhood of open sewers, and near those gratings from which escaped the impure air, or gas, generated in the covered sewers which are formed under our streets. My attention was first seriously drawn to this subject by my occupying a house near one of those gratings, from which the effluvia arising frequently compelled me to close my windows in the summer. I propose, where the gratings now are, to insert an aqueduct which will admit all fluid to pass freely, while it entirely prevents all impure air from ascending from the sewers; it is of trifling cost, and cannot be put out of order: also to erect ornamental or plain shafts at suitable places, 15 feet or 20 feet high, through which the impure air may escape. With your permission, I will send you a model of an aqueduct, and hope soon that the inhabitants of the metropolis (especially of some parts of it) may not have to complain of the ill-effect produced by the noxious gas arising from the sewers. I am, Sir, &c.,

W. Rowland.

14, Passmore-st., Pimlico, Feb. 26, 1845.

CHELSEA HOSPITAL.

Sir,—As an old inhabitant of Chelsea, also a constant reader of your valuable publication, I was much pleased with your illustration on page 102, having frequently admired the iron lamp-posts of the hospital, for there are two of them; one is in the east court, which is surrounded by shrubberies, and seems to have escaped the observation of your contributor, who has given us so perfect a sketch of the one in the west court; they are, however, facsimiles of each other.

I should like to draw the attention of "C." or Mr. C. J. Richardson, who has given us a proof of his skill in such works, to the chimney-piece in the state-room of the hospital, which is an exquisite work of military trophies, carved in oak.

"C." having stated the opinion of several architects of the chapel's superiority over that of Greenwich, it is to be lamented the commissioners suffer it to remain in the very dirty state in which it is at present. A few years back there was a magnificent sounding-board over the pulpit, of inlaid woods, similar to the altar-piece, but this has been removed, and converted to a much more ignoble purpose by the present clerk of the works for his own use.

There are some remarks in another paper by "E. H." that room might be found in the hospital for some of the monuments of the Abbey. I think it cannot be known to the commissioners that a beautiful painting by West now lies rolled up in the gallery of the great hall, for want of room, it is said, to hang it; it was hung for a short time, on its first arrival, on one side of the hall, against the windows. The heat of the sun causing the paint to blister, the picture was taken down and placed in its present position, where, if not speedily released, it will rot unseen: the subject is, I believe, the victories of the Duke of Wellington, and its size 35 feet by 20 feet.

I am, Sir, &c., W.

COMPETITION DRAWINGS, KING'S ROAD, READING.

SIR,—The letter which appeared in your number of the 15th instant, signed Fairplay, on the subject of the architectural competition for laying out ground in the King's-road, Reading, contains such distinct allusions to the part which was taken by me in the management of that competition, that I feel sure you will favour me by the insertion of these few remarks in your next number. And that the utmost fairness and attention may be given to Fairplay's strictures, it may be well to premise, that I was not previously aware that the decision of the designs had appeared to any person at all acquainted with the subject "to have produced any thing but satisfaction;" on the contrary, no such impression has been conveyed to me by any individual except by one of the competitors, who stated his opinion to be, that *his* were the *only drawings that were in accordance with the instructions;* unfortunately for that gentleman, his designs did not obtain a single vote from any other competitor. I do not, therefore, feel it incumbent upon me to say any thing in answer to that opinion, as it will occur to your readers, that towards those persons who have thought themselves right and all the rest of the world wrong, it is not usual to address the ordinary mode of reasoning, in order to convince them of the fallacy of their views. All other persons with whom I have communicated, have declared themselves perfectly satisfied with the adjudication of the premiums, and gratified that some scheme has been successfully adopted which could secure the advantage of competition without those evils which so generally accompany it.

To the first question then of your correspondent, "Was there any standard laid down for the judges to go upon?" he gives an answer in the same sentence, namely, "A set of rules was printed for the guidance of the competitors in preparing their designs, which, it is stated in the preamble, the proprietor will require to be adhered to by those who intend to compete." Again, he charges, that "two great mistakes appear to have been made by the promoter of this competition. In the first place a set of rules were printed, &c." Is this one of the mistakes that rules were printed for the guidance of the competitors? I would ask your correspondent what fair play there would have been in leaving every competitor to his own fancy in preparing his designs? I believe such directions are invariably adopted in fair competitions. What the other mistake is into which the promoter of this competition has fallen, your correspondent does not inform us.

Now with reference to the conditions in the set of rules referred to, no other answer is necessary than that those designs which were *not* in conformity with those conditions *were rejected* by the adjudicators, and the designs to which the premiums were awarded *are* strictly in accordance with the instructions. On this point all parties had an opportunity of satisfying themselves at the public exhibition of the designs at Reading; there were, I doubt not, many drawings at variance with the conditions, and as such, were very properly excluded from the premiums by the appointed judges.

It is quite true that several of the competitors did not attend to give their votes, but had their plans been chosen, of course they would not have received a premium; this I presume is the "distinction which ought to have been made between those who complied with the rules and conditions, and those who did not." The calculation, however, of the number of those who did not attend at Reading to give their votes is very erroneously stated when it is computed at fourteen, for several of the competitors sent two or more designs, notwithstanding which they were permitted only to give one vote. The question in conclusion, "Where is the use of having rules printed for a competition if it is made optional with the competitors whether they abide by them or not, as has been done in the present instance?" scarcely needs the reply, reject the plans which are not in accordance with the conditions, and take care that the accepted ones are conformable thereto, as has been done in the present instance. I cannot think that the proposition of a set of questions, one of which should be "Whether such plans were in accordance with the printed instructions," would have given much more satisfaction: surely, I had no right to assume that the instructions would be unobserved while I had a reasonable ground for concluding that the adjudicators, from their personal interest in the competition, would take care not to lose sight of so important a feature in the claim to reward the designs. I cannot consider the publication of the votes as any breach of confidence, for as the name of the competitor is not attached to his motto, no competitor could know which is the motto of any other individual.

In conclusion, although "Fairplay" says his only object in addressing you is to state what he considers ought to have been the course adopted, yet he does not appear to be quite clear as to whether he would have submitted the drawings to the adjudicators or taken the matter in his own hands, had he been the proprietor of the land; but it has been my object to avoid the latter mode of awarding the premiums in the present instance, and until some more pertinent remarks than are made by your correspondent come under my notice, I see no reason to suppose that any thing besides universal satisfaction has been the result of this competition; and for the information of your readers, I have only to add (in direct contradiction to the statement of your anonymous correspondent, who would have shewn more fair play had he formed his own judgment on the plans), that the designs to which the premiums are awarded, are not "got up very elaborately, and tickled up so as to attract the eye," nor are the "buildings deeply back lined in dark lake colours, and the grounds all laid out in walks and beds of different colours," but as far as I am able to judge, they are in conformity with the instructions, which will be a sufficient reply also, to the letter signed "Veritas" in your last number.

I am, Sir, &c.,
J. J. BLANDY.

Reading, February 28th, 1845.

CUTTING AND POLISHING MARBLE.

SIR,—In THE BUILDER of the 8th February, your correspondent "J. H." (Pontypool) inquires the materials used for polishing marble, &c. I have copied the following from page 801, of Dr. Ure's "Dictionary of Arts, Manufactures, and Mines," which may be useful to him.—I am, Sir, your obedient servant,
C. H. C.

"*Cutting and polishing marble.*—The marble saw is a thin plate of soft iron, continually supplied during its sawing motion with water and the sharpest sand. The sawing of moderate-sized pieces is performed by hand, but that of large slabs is most economically done by a proper mill.

"The first substance used in the polishing process is the sharpest sand, which must be worked with till the surface becomes perfectly flat. Then a second and a third sand of increasing fineness is to be applied. The next substance is emery, of progressive degrees of fineness; after which tripoli is employed; and the last polish is given with tin-putty.* The body with which the sand is rubbed upon the marble is usually a plate of iron; but for the subsequent process, a plate of lead is used with fine sand and emery. The polishing rubbers are coarse linen cloths, or bagging, wedged tight into an iron planing-tool. In every step of the operation a constant trickling supply of water is required."

EVILS OF NEW LAWS.

SIR,—In the *Times* of February 24, 1845, there is a report of a cause in the Vice-Chancellor's Court (Ellice *v.* Goodson), in which Sir Thomas Wilde makes some observations on a new law relating to the matter in question, which, I think, are particularly applicable to the Metropolitan Buildings Act.

Sir T. Wilde.—"Legislation on such a subject should have been as cautiously entered on as the repair of an old house; before a beam is removed, it should be ascertained what it supports. Under the *old law we knew what we were about;* but under the *new law*, to say the least, *it is not so.*"

His Honour the Vice-Chancellor.—"Every one understood what was meant by the old fictions, and yet they were abolished because they were fictions, and a new fiction substituted."

This last, by changing the word "fictions," into *faults*, will be quite pertinent, I believe, to the new Buildings Act; and I trust it will not be considered impertinent to say so, and to predict of it, "*Opera parit opus.*"—I am, Sir, &c.,
PHILOCLARUS.

HERNE-HILL CHURCH.

SIR,—My attention has been directed to several letters which have appeared in your valuable publication relative to the contracts of Herne-hill Church. The inconvenience attendant upon the assertion of ex-parte statements of this kind is so evident, that I am sure I need not enlarge upon it. With reference to the statements I have only to say they are untrue.—I am, Sir, &c.,
G. ALEXANDER.

6, Clement's-Inn, Strand,
March 11, 1845.

SIR,—Having been a clerk to Mr. Alexander at the time the estimates were made for Herne-hill Church, I beg to say that on Mr. Broomfield noticing the time was short that was allowed for their preparation, Mr. Alexander went himself to the Church Commissioners to get the time enlarged, which was not done. Mr. Broomfield then asked as a favour to be allowed to inspect Mr. Alexander's estimate, which was at first refused, but on Mr. B.'s again applying, Mr. Alexander remarked that as he understood that on the Great Western Railway contractors were allowed to see the engineers' quantities, he saw no objection to allow the inspection of his abstracts and dimension books to compare; but I distinctly told Mr. Broomfield that in no way would Mr. Alexander be responsible for the same, and Mr. Alexander also distinctly repeated the same to Mr. Broomfield. I am positive no alterations were made in the specification, of which a duplicate was lodged with the Church Commissioners, and could no doubt be seen; besides one of the builders tendering made a copy of the specification. As to the drawings, there was but one set, and there was no alteration made in them.

I am, Sir, &c.,
JOSEPH GIBBINS.

6, Portland-place, Hammersmith-gate,
March 11, 1845.

NEW CLAY FOR MODELLING.

SIR,—I have much satisfaction in bringing to your notice the discovery of a new clay, *or conversion of an old clay*, for the purposes of modelling, and which promises to be of essential service to the modeller, and may not be unimportant also to the builder.

In my paper read at the Society of Arts, on Wednesday last, March 5, "On the Construction of Models for Ethnographical Purposes," I have alluded to it, and at the same time produced some beautiful models in this clay by Mr. Sangiovanni, an artist who has made use of it with much success for some years past, and who has never found it to perish or crack, as is the case with clays in ordinary use.

It has all the appearance of hard stone or metal when oiled over the surface, and in this state is not affected by moisture.

Its component parts are of the ordinary clay of London and ground slate, in the proportion of three or four of the former to one of the latter. These must be well amalgamated till brought to a proper consistence for working.

I am, Sir, &c.,
EDWIN DALTON.

5, Fitzroy-street, Fitzroy-square,
March 10.

BLISTERS IN LIME.

SIR,—I have not seen the question of "H. S. S.," page 35 *ante*, fully replied to yet. Your query in the note must be answered doubtless in the negative.

The lime in question should have been run. I presume "H. S. S." to be neither a plasterer, nor a plasterer's labourer, or he would not have asked the question; I shall, therefore, explain the term run. The lime is put into a tub or cistern, water is then added as it slakes, until the whole is converted into thick paste or

* White Oxide of Tin.

putty, but sufficiently thin to be *run* through a sieve into a pan or bay, made with the sand with which it is to be mixed. The fineness of the sieve must be regulated by the nature of the lime, and the work to be performed; in large works, a cistern and sluice, with a cast-iron grating of $\frac{3}{16}$ of an inch space, would be requisite. Should this not be sufficiently explanatory to "H. S. S.," and you wish it, I will write you a chapter on the management of limes.

I am, Sir, &c.,

H. N.

Miscellanea.

Society of Arts.—March 5th. Joseph Hume, Esq., M.P., V.P., in the chair. R. Bowie and Jos. Bennett, Esqrs., were elected members. The secretary read a paper, by Mr. E. Dalton, "On the construction of models for an Ethnographical Museum, and the materials best suited for the purpose." The design for an ethnographical museum, for the illustration and study of mankind, originated with the author more than a year ago, and the object of the present paper was to bring forward the general advantages of such an institution, and the result of inquiries and experiments as to the material best suited for the construction of models suitable for carrying out this important design. The possibility of casting *entire* from the living model is not perhaps generally known. The late Sir Francis Chantry effected this upon a negro man. The specimen is lodged at the College of Surgeons, and presents a faithful representation of the original. The moulds of this cast are in the possession of Mr. Weeks, the sculptor, to whom Sir Francis left the greater portion of his studies. The model of a New Zealander, of the Ngatiawa tribe, now in London, was exhibited to the meeting, as an example of the illustration of the different races of man, proposed to be collected by the ethnographical society. The head and arms of this specimen consist of wax, and were cast separately, and then attached to the body. The hair is removable, so as to allow of an inspection of the conformation of the scull. The time required for completing this model was about fourteen days; and its cost including costume is estimated at 20*l.*; whereas a similar model, completely *undraped* and cast *entire*, would amount to about 40*l.* The wax of this model had been painted in oil colours, so as to represent the tints of the flesh, and render it capable of being cleaned. A new clay was proposed by Mr. Dalton for such models: a notice of it by the inventor will be found in another page.

Difficulties of Ventilation.—A laughable conversation took place in one of the committees of the House of Commons a few days since, relative to the temperature of the room, which had much annoyed hon. members during the day. Mr. Barneby, on entering the room, wished the hot foul air to be expelled, but the valves had not long been open for that purpose, when the chairman complained of the coldness of his legs. Dr. Reid was at last sent for; and on Mr. Aglionby stating to him the nature of his complaint, said that if air was expected to go out, air must be let come in—a statement which the chairman did not dispute, but nevertheless did not seem to think any good reason why his legs should suffer. If that were ventilation, the less of it they had the better. Dr. Reid remarked upon the difference of temperature desired by hon. members. Some said they were too hot—others complained of the cold. If they would select any hon. member as their index, he (Dr. Reid) could adapt the thermometer to his particular satisfaction. Where extremes existed, it was evident that an adaptation of a medium could not be effected. Mr. Aglionby had a decided objection to the process of adaptation being carried on against his legs; and Mr. Buller said, that instead of hon. members' feet being warm and their heads cool, their feet were cool and their heads warm. Several members having commented upon the varying state of the thermometer, and expressed their individual opinions as to the temperature, Dr. Reid gave orders for the cold air valves to be closed, and stated that he would send in hot air as soon as the furnaces were heated. We have yet much to learn on this important subject.

Floating Dock.—A floating dock has been invented by a Mr. Lennox and submitted to the Admiralty. The Director of Works at Woolwich yard has been ordered to prepare detailed drawings of the scheme.

House of Commons. — The new committee-rooms are now completed, with one or two trifling exceptions. During the past week the doors were hung, and fires placed in each apartment to allow them to be properly aired. The rooms vary in size, some of them being very spacious, with a view of affording accommodation to a great number of witnesses and others who are engaged on important bills. The tables are also so arranged, that the confusion so much complained of at present will be entirely obviated, ample space being allowed between the tables and at the sides for the persons in attendance.—*Globe.*

The Royal Academy.—As we were the means of informing the public that the Royal Academicians had resigned the privilege of each exhibiting *eight* pictures as heretofore enjoyed, and limited it to six (although our excellent contemporary the *Art-Union* fancies he learnt the fact from a provincial newspaper), it is necessary we should state that the resolution has been since rescinded, and that the old right of hanging eight pictures has been re-established. We lament this step on the part of the Academy very much, and fear they will have cause to repent it. They seem to have made up their minds that reform shall come from without; how much wiser would it be for themselves to render it unnecessary.

Tenders.

Tenders delivered for the erection of a New Church in Charlotte-street, Fitzroy-square.—Hugh Smith, Architect, Bedford-row.

Messrs. Piper	£7,470
Messrs. Cubitt	7,398
Messrs. Locke and Nesham	7,363
Messrs. Pearse and Guerrier	7,277
Mr. Winsland	6,879

Tenders delivered for Building a Factory for John Gadsby, Esq., in Bouverie-street, City.—Mr. C. S. Richardson, Surveyor, opened in the presence of the parties.

Waterman	£1,374
Chapman	1,365
Ternan and Son	1,293
Waterlow	1,262

For the Erection of Bristol Barracks.—Messrs. Read and Baker's Tender for 60,000*l.* was accepted. The Works to be completed in two years.

For Enlarging the Bristol Docks, near the Cumberland Basin.—Messrs. Renie, Logan, and Co.'s Tender for 18,000*l.* was accepted.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the repairs and restoration of the Tower and Nave of St. Mary's Church, Nottingham. March 17.

For new-paving such parts of the parish of St. Mary, Islington, and repairing the paved Footways, as may from time to time be required, during one whole year from Lady-day next. March 19.

For paving and repairing certain streets and ways in the parish of St. James, Clerkenwell, for one year, from the 25th inst. March 20.

For supplying her Majesty's several Dock-yards with Riga Hand Masts and Fir Timber, Dantzic Deck Deals and Fir Timber, and Norway Spars. March 28.

For the supply of 11,000 feet of nine-inch cast-iron Pipes for a new line of Aqueduct to be laid in the Island of Malta. March 31.

For the erection of a new Workhouse at Stratton, St. Margaret, about Midway between Swindon and Highworth, Wiltshire. April 2.

For the erection of a Church in the parish of St. Thomas, Winchester. April 5.

For constructing the fourth division of the Great Southern and Western Railway. April 8.

For submitting a plan of a Tread-wheel, and constructing the same in the Common Gaol of Great Yarmouth, Norfolk. April 24.

For laying out the grounds of the Victoria Park Cemetery and draining the same, with plans and specifications, to include making the roads, paths, and finding all necessary trees, shrubs, materials, &c.

For the supply of 11,000 feet of 9-inch cast-iron Pipes for a new line of Aqueduct in the Island of Malta. April 30.

For new-paving parts of the parish of St. Mary, Islington, Middlesex; and for repairing and keeping in repair the paved Footways belonging thereto, for one year from Lady-day next. Also for supplying unbroken Guernsey Granite, Core, Ballast, Gravel, and clean Flints.

COMPETITIONS.

Plans and Specifications for Covered Ways at the Lunatic Asylum, Melton. March 18.

Plans for the most convenient mode of landing or embarking passengers, carriages, &c., &c., at George's Pier-head, Liverpool. A Premium of 200*l.* will be given for the Plan selected and acted upon, and a Premium of 100*l.* will be given for that Plan which may be deemed to be the next in utility. March 19.

A Plan, Specification, and Estimate, for a Pier, Slip, or Jetty, to be erected at Weston-super-Mare, Somerset. Twenty-five guineas is offered for the most approved plan. March 24.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

March 17.—At Herringswell, Suffolk: 400 Larch Trees, many of very large dimensions, measuring 50 feet in length, and containing upwards of a load of sound timber in a tree; 19 large Willow Trees; a very large Poplar; and 400 Scotch and Spruce Trees, upwards of forty-five years' growth.

March 17.—At Herringswell, Suffolk: 400 Larch Trees, many of them measuring 50 feet in length, and containing upwards of a load of sound timber; 400 Scotch and Spruce Trees, upwards of 45 years' growth; 19 large Willow Trees, and a very large Poplar.

March 18.—At West Buckland, Somerset: 833 Oak, Elm, and Ash, Maiden, and Pollard Timber Trees.

March 18.—At Waresley, Huntingdonshire: A large fall of Ash and Elm Timber Trees; also Larch, Spruce, Birch, Beech, Chesnut, Alder, and Hornbeam Spires, very straight, large, and long.

March 18.—At Waresley, Huntingdonshire; a large Fall of Ash and Elm Timber Trees, and Larch, Spruce, Birch, Beech, Chesnut, Alder, and Hornbeam Spires, very large, straight, and long.

March 19.—At Rufford Hall, near Ormskirk, Lancashire: 223 lots of Timber, consisting of Ash, Alder, Birch, Beech, Elm, Sycamore, Willow, &c. &c. The Timber is chiefly of from thirty to forty years' growth.

March 28.—At Garraway's Coffee-house, Cornhill: 350 loads of Red Pine Timber; 700 loads of Baltic; 10,000 Colonial Deals; and 10,000 Baltic and Swedish Deals.

March 28.—At Moor-house Farm, Denham, Bucks: 3,591 Oak Trees and Saplings; 220 Ash; 136 Cherry; and 3 Alder Trees.

March 31.—At 7, Store-street, Bedford-square: several thousand Yellow Deals, Fine and Spruce ditto, Battens, Planks, and Boards, Ash Felloes and Planks, and other seasoned Wood.

March 24.—At Bradley's Wood, Halsted, Essex: 500 good Fir Trees; 5,700 capital Hurdle and Hop Poles; 54 Loads of Wood, &c.

March 31.—At Down Hall, Bradwell, Essex 310 Oak Timber Trees, standing with Top, Lop, and Bark; 213 Ash, 157 Elm, and 78 Beech Trees.

The last week in March, or the first week in April next.—A large quantity of Oak and Elm Timber, of superior quality and large dimensions, principally growing in the woods on the Orchardleigh Estate, near Frome, Somerset.

By Private Contract, before the 1st of April next.—287 Oak Trees, of full growth and large dimensions, suitable for all purposes, now standing at Woodside, near Morland, Westmoreland.

April 1.—At Chelmsford, Essex; a very valuable, extensive, and well-assorted stock of Dry Wood in great variety, comprising fine Spanish and Honduras Mahogany, mostly cut between six and seven years; particulaly fine Zebra Wood, English Oak, Pencil Ceder, Birch, Beech, Elm, Rosewood, &c.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

Monday, March 17.—*Statistical*, 11, Regent-street, 8 P.M.; *Chemical* (Society of Arts), Adelphi, 8 P.M.; *Medical*, Bolt-court, Fleet-street, 8 P.M.

Tuesday, 18.—*Linnæan*, Soho-square, 8 P.M.; *Horticultural*, 21, Regent-street, 3 P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.

Wednesday, 19.—*Society of Arts*, Adelphi, 8 P.M.; *Microscopical*, 21, Regent-street, 8 P.M.

Saturday, 22.—*Royal Botanic*, Regent's Park, 4 P.M.

TO CORRESPONDENTS.

"R. Callow."—*No bill for the embankment of the Thames has been brought into the House of Commons during the present session; nor has any formal notice of an intention to bring in a bill for such purpose been given. Lord Lincoln stated in the House some time since, that he should probably do so.*

"A Constant Reader."—*The London address of Mr. Galloway is Galloway, Brothers, West-street, West Smithfield. Mr. Galloway is at present in Egypt.*

"W. C." (Winchester).—*The Health of Towns Commission includes, the Duke of Buccleuch, Lord Lincoln, Mr. Robert A. Stanley, Mr. George Graham, Sir Henry De la Beche, Dr. Lyon Playfair, Dr. Reid, Mr. Richard Owen, Captain Denison, Mr. J. R. Martin, Mr. James Smith, Mr. Robert Stephenson, and Mr. William Cubitt.*

"A Landowner" *should make an arrangement with some respectable solicitor. From two to three guineas for agreement and copy, and seven guineas for lease and counterpart if on one skin (in both cases exclusive of plan) would be reasonable charges. If the lease require two skins, eleven guineas.*

"Holloway Congregational Chapel."—*A competitor wishes to know if a design has been selected.*

"Architectural Modelling."—*Frederick Wetherall, 114, Great Park-street, Kennington-cross, who modelled the gates of the Triumphal-arch at Hyde-park-corner, the frieze at Buckingham-palace, ornaments of Sun fire-office, &c., being out of employ and in distress, has appealed to us to make the same known.*

"Vigil."—*Our present impression certainly is that, notice having been given of the erection of the buildings as shops under the old Act, and no alteration made, that a fresh notice is not called for. As, however, we understand that it has been ruled differently, we must give the question further consideration.*

"A. B. O."—*A communication is lying at the office.*

"R. B. W." (King's Langley), *and* "W. P." (Woodbridge), *under consideration.*

"T. L." (Pentonville Prison).—*We are much obliged by the loan of the drawing, and propose to engrave it.*

"C. T. L." *wishes to know the best mode of coating plaster of Paris figures, so as to give them the appearance of marble.*

Received: "W. J. S.," "Scrutator," "G. Ridley, *and* "I. L." (Temple).

Received: *Second Report from Health of Towns' Commissioners—Prospectus of Victoria Park Cemetery Company.*

ADVERTISEMENTS.

NOTICE. — INVENTORS desirous of obtaining LOANS ON or of SELLING their INVENTIONS, or Patents, should apply to Mr. M. JOSCELIN COOKE, at the OFFICE for PATENTS, 20, Half Moon-street, London, where English and Foreign Patents are obtained, and Designs registered. An INDEX is kept for inspection of all Patents granted for the last century; also copies of every Patent of importance. Instructions to Inventors and a list of charges gratis on application.

IMPORTANT TO INVENTORS AND PATENTEES.

PRACTICAL ASSISTANCE GIVEN to parties taking Letters Patent, by Mr. J. WILSON, Engineer and Patent Agent. Every description of business relating to or connected with Patents, Registration of Designs, Patent Agency, &c., conducted at his offices, 16, CHANCERY-LANE, opposite Carey-street. Negotiations entered into with parties wishing to dispose of or purchase patented or registered inventions. Every necessary information may be obtained at the offices as above, where also may be had printed instructions (gratis), to which Mr. W. begs particularly to draw the attention of parties about to take out patents

Mechanical drawings of every description, original designs for machinery, models, &c., executed with dispatch and economy.

TO ARCHITECTS, BUILDERS, &c.

TO be disposed of a large quantity of good, sound, well-burnt Red Kiln Bricks. A specimen to be seen, and particulars obtained at Mr. F. C. M. SPEARMAN'S, Auctioneer, &c., 77, Old Broad-street, Royal Exchange.

BRICKS.—A large quantity of New White, and Red Bricks of the very best quality for Sale. Samples may be seen, and prices known, by application to Mr. George Knight, Auctioneer and Commission Agent, Crosby-hall Chambers, Bishopsgate-street.

TO BUILDERS and Others.—A cheap substitute for high priced bricks, well worthy the attention of speculative gentlemen, and other capitalists who intend building this season. This article is stone, which may be worked with great advantage. It is in pieces from 3 to 5 inches in thickness, and averaging from 14 to 20 pounds in weight; it is about the same weight as bricks, and will be sold in London at 12s. 6d. per ton. Any quantity may be had from 100 to 200 tons per week; not more would be guaranteed per week, as it will come by railway. A fair sample of 10 or 12 tons may be seen at the proprietor's at any time.—Address, JAMES PERREN, 1, Victoria-place, Surrey-square, Walworth.

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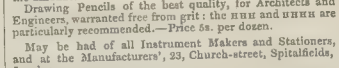
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This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz:—

1 inch diameter of Tile, 11,000 | 1½ inches diameter of Tile, 5,800
1¼ " " " " 8,000 | 2¼ " " " 3,200

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or licence. The purchase of the machine includes free use of it.

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The attention of the unassured portion of the community cannot be too pointedly drawn to the unusual advantages offered to the Public by *this Society* over those of many others, as it enables all classes to effect life assurances in the manner most convenient to themselves, and amongst other of its popular features that of allowing the Assured (by Table 2) to leave HALF THE ANNUAL PREMIUMS unpaid for seven years, will not be found undeserving public attention.

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EDWARD T. RICHARDSON, Secretary.

The Builder.

No. CXI.

SATURDAY, MARCH 22, 1845.

WE have received from several quarters an inquiry to the following effect:—"I am about to fix the shop-fronts to some houses commenced before the 1st of January last, and admitted up to this time not to be within the control of the new Act. Due notice was given to the district-surveyor under the old Act, and I intend to carry out the plan and elevation to which he then assented. Is it necessary I should now give him notice under the new Act, and make my shop-fronts in accordance with its provisions?"

On inquiry we are told, that the district-surveyors have obtained information that this course is to be insisted on. They are advised, we learn, that the provisions in schedule E, entitled "Wooden shop-fronts and shutters," apply generally to *all buildings, whether already built or not;* and in regard to already-built houses, that all projections specified in the same schedule, as not forming part of the external wall, if not *completed* before the 1st of January, must be conformable to the Metropolitan Buildings Act.

Having great confidence in the opinion of the referees and registrar, we are disposed to think our information must be incorrect, or that the district-surveyors misunderstand their instructions. Whether so or not, however, we cannot avoid saying, called on as we are to express an opinion upon the question, that we do not coincide with this reading of the Act. If it were asked us, Is it *better* that all shop-fronts now to be put up should be in accordance with the provisions of the new Act than heretofore permitted? we should say certainly yes; insomuch as those provisions are for the public safety. Party-walls are insufficient to prevent the spread of fire if there be continuous wooden entablature to carry it from house to house; and the clause in the new Act which provides that this communication shall be cut off by the interposition of the incombustible material or otherwise, has been long called for.

But this is not the question now raised. The question simply is, whether or not the provisions of the Act which relate to shop-fronts extend to houses built before the 1st of January when the shop-front was not put up before that date? and with the greatest deference to authorities, and a proper consciousness of the possibility of overlooking the force of portions of a document so voluminous and so important as the Buildings Act, we venture to express our belief that they do *not*, provided the house be made fit for use before the 1st of January, 1846. We will tell our readers why. The fifth section of the Act (which makes the schedule referred to operative), "for the purpose of regulating the building and the rebuilding upon sites of former buildings, and the enlarging and altering of all buildings of what nature soever," enacts, "with regard to every such building hereafter to be built" (with certain exceptions named) "so far as relates to building the same, and with regard to every such building either *already* or hereafter built" (the aforesaid exceptions) "*so far as relates to the rebuilding and the enlarging or altering the same,*" that every such building shall be built, rebuilt, enlarged, or altered, in conformity with the rules and directions set forth in certain schedules, one of which is the schedule (E) in question.

From this it is perfectly clear, that if we build a new house or rebuild an old one, or if we *enlarge* or *alter* either an old or a new house, this must be done in accordance with the Buildings Act. But surely nothing here calls upon us, when we have no desire to alter, to pull down any part of an old or new structure, not in accordance with the Act, and forthwith to make it so? The provisions of the Act do not come into operation until we of ourselves begin to alter the building.

Now, the house duly commenced before the 1st of last January is, in the eyes of the law, already built; the shop-front, if shop-front were intended, and be necessary to make the house complete, is, in the eyes of the law, *already up;* and we find nothing in the Act to force us to take it down. If one shop-front has been put up, and we remove it, the case is changed, and the new front must be in accordance with the directions given in the schedule, because the Act provides that no building already built shall be enlarged or altered but in accordance with those directions.

The clause in schedule E, relating to "Wooden shop-fronts and shutters," says no more than the clause in schedule D relating to "brestsummers;" yet it is not asserted that an intended brestsummer of a house duly commenced before January 1st must be put in in accordance with the directions contained in that schedule.

It is true, that in schedule E, the fourth paragraph says, "with regard to buildings *already* built or hereafter to be rebuilt, as to bow-windows, or other projections of any kind, such projections must neither be built with nor added to any building on any face of an external wall thereof, so as to extend beyond the general line of the fronts of the houses, except so far as is hereinbefore provided with regard to porticoes projected over public ways, and with regard to projections from face-walls and shop-fronts," &c.

This refers to "projected *buildings* beyond the general line of buildings, and from other external walls;" it is so headed, indeed, and would seem to have nothing to do with wooden shop-fronts. But even this contemplates an *alteration* or *addition;* it does not enact that a bow-window, if *bonâ fide* commenced before the 1st of January, must be taken down. Such a bow-window, in the eyes of the law, is then *built*, and this clause refers only to those which are to *be* built with a new building, or added to an old one.

The longer we consider the subject, the clearer it seems to us that, as before stated, the regulations in schedule E, do not control shop-fronts forming a necessary part of buildings *bonâ fide* commenced before the 1st of last January, provided they are finished before the 1st of the ensuing January.

The correctness of this view of the question is made even more apparent, as it seems to us, by an examination of these regulations (headed "Wooden shop-fronts," &c.), for it is there further set forth, that if the street in which the shop-front is situate be less than 30 feet in width, no part of such shop-front must be higher than 15 feet. Now it may happen that a carcass was carried up before last January, in a street less than 30 feet wide, prepared with brestsummer, &c., for a shop-front (like one on Ludgate-hill for example), 18 or 20 feet high, with the concurrence, too, of the district-surveyor under the old Act. And surely that same district-surveyor would not consider himself authorized by any thing in the new Act, to prevent the completion of such a shop-front and insist upon an alteration (which would probably entail the pulling down of the upper part of the house)? because that would be a manifest injustice to the owner (who had complied with the existing law), and would be directly contrary to the evident intention of the new Act, wherein such an injustice is carefully provided against by the arrangement, that if a building were even *commenced* before the Act came into operation, the provisions of the Act should not affect it. Yet, if the doctrine said to be held by the district-surveyors be maintained, such a proceeding might unquestionably take place.

THE NEW HOUSES OF PARLIAMENT.

IN consequence of inquiries in the House of Commons as to the total estimated cost of the building, the following particulars were laid upon the table by Lord Lincoln a few days ago:—

	£.	s.	d.
Sum stated by Mr. Barry in evidence before the select committee of the House of Commons of last session	1,016,924	12	9
Deduct for purchase of premises and miscellaneous expenses	90,605	6	6
	926,319	6	3
Add for alterations at Victoria Tower, &c. ..	800	0	0
And for residence of Clerk of the Crown	1,794	0	0
	928,913	6	3
Estimate of the total cost of the building, according to the latest plan approved	928,913	6	3

The works are proceeding satisfactorily, and it is asserted that the new houses will be ready in 1847.

The centre and curtain portions of the river front are roofed in. The north wing is up in readiness for the roofs, part of which are already fixed, and the remainder are being put on. The south wing is nearly up to the level of the roofs, which are prepared, and in readiness for being fixed. A considerable portion of the north flank of the building is now being roofed in, and the south flank is up to the level of the roof, which is being prepared, and will soon be ready for fixing. The remainder of the north and south flanks, together with the turrets and pinnacles surmounting them, will be completed, Mr. Barry says, in the course of the present year. The Victoria Tower is carried up to a height of 38 feet, and the clock tower is at a height of 36 feet above the ground. The House of Lords is roofed in, and the ceiling and other fittings of that chamber are in hand. The central tower is carried up to a height of 28 feet above the ground. The House of Commons is about 30 feet above the ground. The other portions of the building are, upon an average, 30 feet above the level of the ground, some of which are in readiness for the roofs (now nearly ready for fixing), while others are being roofed in. A contract has been entered into for the finishings of the entire building, and those of the House of Lords, and the rooms provided for the business of that House are in hand.

Mr. Barry states, that some delay has taken place in the fixing of the iron-work of the roofs, owing to the unsettled state of the iron trade, and difficulties with workmen, and that the stone for the exterior of the building is still continuing to be supplied in great abundance, and of most excellent quality.

The iron roofs used are exceedingly light and elegant. They are covered for the most part with large slates from Valencia Island county of Kerry, where quarries of considerable extent have been opened recently, and afford employment to a large number of people.

Much iron is used throughout the building, and this material will probably be more employed elsewhere in consequence. The roof of the House of Lords is composed wholly of wrought and cast-iron galvanized. The joists and flooring of this House are also of iron, and are now in progress. We sincerely wish Mr Barry health to carry out his fine design.

THE THAMES AND ITS EMBANKMENTS;

WITH REMARKS ON THE MOTION AND ACTION OF RUNNING WATER.*

BY JOHN PHILLIPS.

The action of running streams upon their channels depends upon the declivities, and the nature of the soil; but the action of the augmented velocity at the parts to be embanked will ultimately produce an increased depth of the channel, as the scour will continue to act with greater mechanical effect, more particularly upon the bottom of the channel in the middle of the run of the stream, until the resistance offered by the hardness and tenacity of the soil, and also the diminished declivity, becomes somewhat equal to the velocity and the abrading action of the water. It is impossible that the resistance of any material, mathematically considered, can ever be equal to the power exercised by the abrasion of the water; but in order to produce and retain an uniform channel, and by these means a regimen to the stream, other causes, both natural and artificial, have generally an influence, and are brought in to aid this purpose. The momentum of the velocity of the *river-water*, assisted by the inclination of the bed, have considerable influence in checking and retarding, during the first quarter, the flow of the tide, as far as the action of the latter reaches; and the resistances offered by either are as the squares of their reciprocal velocities; so that whichever has the greatest momentum (the flowing tide against the reaction of the river-water, and *vice versâ*), the other must give way to it as a matter of course; but as soon as the action of the flood from the momentum of the sea overcomes the partial resistance of the river-water, the velocity and power of the former will begin to augment accordingly. In many parts of a tidal river these conflicting actions of the streams have considerable tendencies towards producing shoals and bars across the channel. Where the downward stream meets the flood, the ripple and regurgitation of the contending waters disturb the loose sand and gravel of the bed, which being suspended, are carried away with the set of the revolving waters, and thus become deposited as shoals and bars in the eddies. But shoals and bars cannot occur where the material of the bed is such as to offer a sufficient resistance to these actions, and when the stratum is perfectly hard and indurated; and as the tidal water and the pent-up river-water act as a scour during the ebb, the detritus, such as sand, gravel, silt, and mud, will be carried outwards to the sea, and the conflicting actions of the flood and ebb being stronger at the mouth of a river, have a greater tendency to throw up alluvial shoals and bars at that point. Now the velocity and mechanical power of a uniform stream of running water are increased by the augmentation of its depth; and the actual increments of the former vary as the square roots of the hydraulic mean depths, and of the sine of inclination conjointly, and of the latter as the quantity of water and the squares of the velocities. But in the case of tidal rivers, as, for instance, in the Thames, the increase of both the velocity and the power are only partial, as is plainly observable some time before and at the time of high-water. After overcoming the resistance of the river-water, the flow of the tide increases upwards for some time (probably about two-thirds of the time of its flow), from whence its velocity and power gradually diminish to the time of high-water.

There is a point of time too when the ebb tide has the greatest velocity, and this varies, in some degree, very probably, at every ebb. The ebb does not meet with retarding powers altogether similar to the flood. Immediately that the tide begins to recede, its velocity goes on increasing, and the mechanical action upon the channel also, until a certain time previous to low water, or when it loses that amount or body of water upon the channel, both in depth and power, which produces and constitutes the greatest velocity. In some degree, the precise time when the velocity is greatest will be dependent upon extraneous causes of retardation or acceleration. Thus the power of the wind acts, when ever it blows, either as an accelerating or retarding force, and, in consequence, may influence the precise or natural time of both the greatest velocities, and of low or high water. From observations, and by noting the fall of the tide, it appears that the greatest velocity is at about one-third of the ebb; and under ordinary circumstances the flood runs up five hours, and the ebb runs down seven hours. The gradations of the velocity and power of the ebb go on increasing from high-water up to a certain point, and then diminish to nothing down to low-water. Diagrams shewing the increments and decrements of both the rise and fall of the flood and ebb tides at every quarter of an hour, and also the velocities due to the heights of each at the same time, and during the time of full and new moon, and from new to full moon, would be of great value to all persons engaged on, or in any way connected with the river. From knowing the times of high or low water one would, by inspecting the diagram, be enabled to see how much either the flood or ebb had increased or diminished at any point and time of the tides, and also the velocities at those points and times. These could be taken at various points in the river between Putney and Blackwall, and would serve as valuable indices to the state of the tides between those points; but such experiments should be placed under proper scientific supervision, and verified accordingly.

The bed of the river between London and Battersea bridges has been considerably deepened by dredging, and by the increased volume and action of the tides since the removal of old London-bridge; so much so as to have exposed the bases of the piers of Blackfriars and Westminster bridges; and, in consequence, placed their stability in considerable danger. At the low-water of the spring-tides the footings of the north piers of Waterloo and Southwark bridges are exposed, the dredging and action of the tides having ploughed much deeper channels between them than when they were first built. Since the removal of the great obstruction to the river, old London-bridge, the motive power of the ingress and egress of the tides has considerably increased beyond the tenacity and consistency of the soil and the stability of the channel; and there is no doubt that the contemplated embankment would produce a much greater change in the depth of its bed, so much so as that many of the bridges would require increased protection. The present greatest velocities of the ebb of the Thames between Westminster and London bridges increase as the breadth decreases. From the former of these points the breadth gradually diminishes to the latter, and consequently the velocities increase inversely as the areas of the sections. The following table will shew the greatest velocities of the ebb between those points:—

From Westminster to Waterloo bridges the greatest velocity at the surface is	=	40 in. per sec.
From Waterloo to Blackfriars, do do.	=	50 ,,
,, Blackfriars to Southwark, do, do.	=	65 ,,
,, Southwark to London, do. do.	=	70 ,,

These are the velocities at the surface of the river in the run of the tide, but the water at the bottom, from the unevenness of the channel and other retarding causes, does not move with the same velocity as that on the surface. The latter is found thus: from the square root of the velocity at the surface in the middle of the stream, expressed in inches per second, subtract 1·03; the square of the remainder will be the velocity at the bottom; therefore, according to this rule,—

From Westminster to Waterloo bridges the velocity at the bottom is	=	28·031 in. per sec.
From Waterloo to Blackfriar's, do. do.	=	35·295 ,,
,, Blackfriars to Southwark, do. do.	=	49·513 ,,
,, Southwark to London do. do.	=	53·825 ,,

It is of the utmost consequence attentively to consider and produce the stability and permanency of the channel. It is observable that by contracting the channel an augmentation of the velocity is imparted to the water, and this very materially increases the mechanical action of the stream; therefore it is essential, in order to obtain a stable and permanent channel, that the increased velocity and action correspond with the tenacity and consistency of the soil which form the bed of the river. According to the nature and ingredients of the soils which forms the bed of the stream, and the weight and size of the materials that lie upon the channel, from fine sand to large stones, a certain degree of proportional power is required to overcome the inertia of these bodies and to carry or drive them along. Therefore the substances will be acted upon by a momentum, more or less, according to the various velocities of the stream. An acquaintance with the velocity at the bottom of a running stream is most essential, in order to calculate what effect it may have upon the soil forming the bed of the river. In order to preserve an equilibrium between the action of the water and the tenacity and resistance of the channel, the nature and quality of the soil must be reciprocal to the momentum and abrasion of the water.

The motions of all running streams are excited and diminished in their rapidity by certain accelerating and retarding forces. The velocities which they begin to acquire in their descent would go on increasing as the square root of the perpendicular height of the declivity of the channel, and the depths of water due to their heads, were they not impeded by other retarding forces. That which makes all running streams uniform in their motions arises from the friction of the channels, and the tenacity, or the viscidity with which all the particles of the water are held together; and the velocities are owing to, and dependant upon, the declivities of their channels; the quantity of water discharged is also dependant upon the amount of the declivity; and, as was before observed, the quantity discharged is as the velocity; but the velocity is acquired from the inclination, for the surface of every fluid at rest is horizontal, and therefore cannot move until the surface is inclined to the horizon, when it immediately moves in obedience to the natural law of the force of gravity, as every particle of the stream endeavours to seek the lowest state of repose. Now the vertical section of a running stream varies as the inclination of the channel, for the declivity produces the velocity: thus, if a stream move along a channel with a mean velocity of 5 feet per second, and have a section 3 feet wide and 4 feet high, the discharge per second would be $3 \times 4 \times 5 = 60$ cubic feet; but if the same stream run further on in a similar channel, but with an increased declivity, which produces a mean velocity of 10 feet per second, the vertical section of the stream will be diminished to half the area of the former; for $3 \times 2 \times 10 = 60$ cubic feet as before. An increased velocity of stream somewhat diminishes the pressure on the bed, and this also diminishes the friction and the resistance of the channel.

In order to preserve the channel of a river in a state of cleanliness, and to retain its uniformity, the scouring action of running water is the most efficacious mechanic agent; and this action becomes more powerful in preventing the deposition and accumulation of mud, and also of shoals of sand and gravel, when the quantity of running water is large, and moves with a high degree of velocity. A greater quantity of back-water is necessary in those rivers where the course is winding, for the purpose of keeping the channels free from deposits and accumulations, than in those whose courses are direct and straight; for in the former case a considerable quantity of the impetuosity and power of the moving current becomes destroyed by the reflected motions and eddies that are produced by striking against the sinuosities and projections of the banks, and from the centrifugul motions that are imparted to the stream in winding through the concave parts of the channel. Where the course of a river is of a serpentine form, it is observable that the mechanical action, from the greater velocity of the water along the concave portions of the banks, has deepened the channel much more at those parts than at the convex sides; and the abrading action of the current upon the concavities is constantly wearing away those parts, the water carrying off the earthy particles of the soil, leaving the stony particles deposited upon the bed; because the currents are reflected from the concavities on the one side into those on the other, the obliquity of the motions acts upon and wears away the bottom and banks, consequently, the convex banks are always less inclined to the channel, and much wider. But the declivity of the bed of a stream, whose channel is of curvilineal form, is greater along a convex than along a concave bank, on account of the greater length of the curve at the latter part for as the circumferences of curves increase

* Continued from page 124.

proportionally to their radii, the declivity is most where the length of curve is least. Now it would appear that the velocity of the stream must increase where the inclination is greatest, but the momentum of the flowing water reverses the action at those bends. A stream of water running from a straight channel into a curvilinear one, from the impetuosity of its motion, is carried onward and strikes the concave side, from which it is reflected to the opposite bank, at an angle approaching to the angle of incidence—for it cannot be equal to it, on account of the inelasticity and friction of the soil, and the viscidity of the particles of the water—from whence it is again reflected to the opposite bank, leaving the intermediate parts of the banks much less acted upon; and thus a series of convexities and concavities are formed along the channel. Therefore, a great portion of the momentum of the stream is expended along the concavities, from the progress of the water having somewhat of an angular motion, although not strictly so.

It has been deduced directly from observations and experiments, that a running stream of water moves with the greatest velocity at or near the upper surface in the middle of the stream, and that the velocity gradually diminishes from thence to the bottom and sides of the channel where it is the least; and the mechanical action of the water is always strongest where the depth and velocity are greatest; for in proportion as the depth and velocity decrease from the middle of the upper surface towards the bottom and sides, the mechanical action of the water upon the channel is also diminished in the same ratio. As the depth of the stream increases, the abrasion upon the channel must also increase in proportion to the pressure, but, though the abrasion increases with the pressure, it is somewhat proportionably less for greater pressures than for smaller ones. When pressure is removed and a body of water is allowed to flow, motion always takes place first in the middle of the stream, for according to the general law of gravitation, the mobility of the particles of the water when set in motion passes them against each other in endeavouring to obtain their lowest position; therefore, the current in the middle is the first that seeks to escape, and the lateral filaments by losing their mobility, slide or fall towards the centre of the channel; and when the stream is constant, they are continually endeavouring to supply the places of the middle ones. It is a well ascertained fact, that the channels of rivers and running brooks, assimilate very much to the concave curve of a circle transversely to the course of the streams. When water collects into channels, it becomes a powerful mechanical agent in wearing away and carrying along the loosened soil, and both the widths and depths of the channels are dependent upon the nature of the substances of the ground and their degrees of inclination, the banks sloping towards the channels in angles, which are peculiar to the nature of the soil; it is evident that the outline of the channel must be influenced by the peculiar quality or hardness of the soil, but it would appear that the *regime* of concavity is caused by the mechanical actions of the gradations of the velocity and pressure of the several filaments of the channel, for the regular diminution of the velocities of the stream from the middle and surface to the bottom and sides, and the proportional pressures of the water upon the channel produce a proportional diminution of the rubbing action upon the surface of the channel; thus, by the spontaneous operations of nature, the varying and proportional actions of the various velocities of the stream, and the proportional pressures of the water in connection with the bed, produce its curvilinear

obedience to the natural law of the force of gravity when a stream of water is in motion on an inclined plane, every particle of the water endeavours to seek the lowest position to which it can attain, in order to find a state of rest. In pursuit of this object, every particle of the fluid from the furthest extremity of the stream at the sides towards the middle, in endeavouring to attain a central position, acts with a proportional increase of pressure against the next to it, and thus produces a maximum velocity in the middle of the stream. And in this the gravitating action of water by its motion while descending to the lowest accessible level, and when collected into narrow circular channels, produces a power which becomes a most efficacious mechanical instrument in collecting and carrying along with it all the deposits and impediments it may come in contact with in its course, as well as the animal and vegetable refuse of towns. But in order to render the water available in lifting these excrementitious and other substances, and of sufficient power for promoting the necessary transmission of this refuse, a constant and copious supply is absolutely essential. As, in proportion to the quantity of water and the energetic impulse of the stream upon its channel, the removal of these substances is mainly dependent; and the mechanical power of the water, that raises these substances and carries them along in suspension, is more or less according to the depth and quantity, as well as the velocity with which it moves; and the augmentation of the latter is dependant in a great measure upon the declivity of the channel.

A considerable retardation of the velocity and power of a running stream, is produced by the resistance it receives from the friction of the surface of the channel, and the amount of friction is in proportion to the extension of the surface with which the water, while in motion, is in contact, as every point of the surface of the channel exerts a force directly opposed to the motion of the current. And it is this friction which imparts a resistance throughout the moving body, neutralizing the accelerating power of gravity and abrasion of the water, and making the stream to move with a uniform velocity along its various sections and declivities. It appears from the well-known law, of *extent of surface retarding the motion of water*, that if a stream of water be spread out, and allowed to run, in a rectangular channel, the amount of friction and consequent retardation will be much greater than if the same amount of water be confined to a circular channel, for the perimeter of the circle is less than that of any other figure of the same area, and conversely, the circle contains the greatest area of any polygonal or rectangular figure of the same perimeter, therefore, with a given sectional area of water, the amount of the abrading surface, or friction upon the bed, increases as the surface of contact increases, and will be determined by the form and perimeter of the channel through which it flows. Circular channels, therefore, are the most advantageous, where velocity and power of running water are required, as circles have less frictional and resisting surfaces under the same area; and it is for this reason that pipes are made circular for the quick conveyance and distribution of water, gas, smoke, sound, and many other contrivances in the arts. But the applicability and adaptation of these properties of the circle are the most essential in the formation of water channels, for the transmission of noxious animal and vegetable matter by the mechanical agency of suspension in running water, as for instance, house-drains, and public sewers. Now as a contracted circular channel meets the conditions of increased depth, velocity, and power of the stream, then unquestionably, according to the nature of the ground, a circular or elliptical form, with the longer axis upwards, is by far the best for offering the greatest resistance to external pressure with the same amount of materials, and for the quick transmission of any substances by the agency of running water; therefore, this form should in all cases be adopted for house drains, and public sewers; in fact, in a scientific point of view, that this is the best form, there cannot be the least doubt.

By observing the motions of running waters, it would appear that the particles do not move in straight and parallel lines, whatever may be the form and direction of the channel, for, in consequence of the resistance imparted to the current by the friction and asperities of the bed, the particles in contact and moving along the bottom are divided, diffused, and reflected in all directions, to distances that are proportional to the velocities of the stream; and the advancing and progressing force and momentum of gravitation of the waters turns and carries the reflected particles along in revolving and curvilinear motions: and it would appear that these conflicting motions by crossing, recrossing, and intermingling with one another, and with different velocities, retard the equal and uniform motion of the stream throughout its depth, and in consequence the velocity increases proportionally from the bottom to the upper surface, or, the velocity and action increases from the bed upwards as the resisting motions of the particles of the water reflected from the channel become expended and destroyed by the descending action of the force of gravity; for if the particles of water, from the momentum of the stream in moving along the channel, are reflected by the friction and asperities of the bed, may not each particle, however minute, be likened to any other projectile, and be subject to the same law of retardation and acceleration of gravity, and may not the diminution of velocity from the surface to the bottom and sides be thus accounted for?

In consequence of the winding courses of most tidal rivers, the channel which suits the current of the flux may be altogether different to that which suits the reflux, and the obliquity of the reflected streams of the former may not take place at the same points and fly off at the same angles as those of the latter; thus, an oscillatory and sideway motion of the soil on the bed will be produced, and the actions of the flood and ebb alternately cause shoals and ridges of sand and gravel to collect in the channel, and, in consequence of these obstructions, much of the power and velocity of the currents is checked and expended by breakers and eddies, and the water escapes and flows with an increased velocity between the channels formed by the shoals. In all tidal rivers the courses of the alternate currents, and those parts where their actions upon the channels are most strong, are peculiarly marked and observable when the ebb at spring tides is at the lowest. The winding course of rivers and rivulets lengthens and reduces the declivity of the channel, and the velocities are much less and the water higher in the elbows and bends; and where the currents move with the greatest rapidity the channels are most frequently the straightest. When a stream is constrained to move in the direction of a curve, its motion and course is constantly varying, because, from the centrifugal force of its motion, every concentric filament of the stream running round the curve evinces a tendency to fly off, or quit it at a tangent. The velocities of each concentric filament will be greater or less in proportion as their relative distances from the centre of the circle are greater or less, and the centrifugal force increases in proportion as the radius of curvature increases; therefore, the velocity of the stream augments as it recedes from the convex side. All angles and bends very much diminish the progression of the passing currents, and the retardation increases with the smallness of the curves and the abruptness of the angles.

The viscidity of the particles of the fluid and the friction of the channel conjointly, by their action, produce a uniformity in the motion of the water; and when all the obstructions, friction, and resistances of the channel, together, become equal to the force which accelerates the motion of the water, the stream will be uniform, having then no particular mechanical action on the bed, the velocity and abrading action of the stream and the sum of the resisting forces being mutual. When this takes place, and not till then, a permanency of the channel and a regimen of the river will be obtained. The disintegration of clayey and gravelly bottoms takes place by imperceptible degrees, the lesser particles of the soil being removed; then the larger ones, being left free and not held by other tenacious substances, the power of the water drives them along, and these in their progress lick away the soft and impalpable particles, and thus those bottoms not possessing resisting qualities become worn down by the superior mechanical action of the water. All soils have a certain stability consistent with the velocity of the water acting upon them; and by examining separately the effects produced by variations of the velocities of water upon soils, a knowledge of the actions of the running waters of rivers upon their beds is obtained. As different kinds of soil constitute the bottoms of rivers, a knowledge of the various velocities which act upon and carry along different-sized bodies, is of great importance in determining the nature of the soil for the bed, which shall maintain a certain breadth, depth, and velocity of a river. Now it has been ascertained from various experiments, that water flow-

ing along at the bottom of a stream with a velocity of

3 inches per second will work upon and carry away particles of			
	.....	.....	fine clay.
6	do.	do.	fine sand.
8	do.	do.	coarse sand.
12	do.	do.	fine gravel.
24	do.	do.	coarse gravel.
36	do.	do.	gravel 1 in. diam.
60	do.	do.	,, 2 in. ,,
72	do.	do.	stones 5 in. ,,
84	do.	do.	,, 7½ in. ,,

It would appear, therefore, from these experiments that in order to maintain the *present* breadth, depth, and velocity of the river between Westminster and Waterloo bridges, very coarse gravel is required for the bed; between Waterloo and Blackfriars bridges, gravel 1 inch diameter is required for the bed; between Blackfriars and Southwark bridges, gravel 1½ inch diameter is required for the bed; and between Southwark and London bridges, gravel-stones 2 inches diameter are required for the bed. This shews at once that the indurated mass of gravel and clay, of which the present bed of the river is composed, does not offer a resistance, in the greatest run of the tide, sufficient to counteract the momentum of the flowing and reflowing of the tides; and, in consequence, the reason of the deepening of the channel (assisted, indeed, by dredging), is strikingly manifested since the removal of the great dam or obstruction to the flowing and ebbing of the tides, namely old London-bridge.

London and its environs now contain a population of upwards of two millions of souls, and nearly all the impurities that are engendered within this great city and its suburbs are permitted to be discharged into the sewers by drains; almost every dwelling or other premises may now be drained, as sewers, which are of comparatively modern construction, are arranged and placed at such depths below the surface of the lower floors of buildings as are *considered* sufficient to afford perfect drainage from the various tenements. It must be obvious that the impurities, when discharged into the sewers, should not be allowed to deposit and accumulate within them, but should be carried off to the river as fast as engendered, and with the greatest possible speed. The same principle is also applicable to the discharge of the impurities, when received into the river. Nearly all the sulliage matter, as it is discharged by the Westminster, the City of London, the Tower Hamlets, and the Surrey sewers, into the river, becomes deposited upon its banks. Between Putney and London bridges the river is of a serpentine form, and its banks are of very unequal width. At low-water, vast quantities of mud and *living* corruption are exposed to view, at those situations upon its banks which are flat and wide. These accumulations are by far more frequent on the north shore of the river, and are the deposited matters brought down and discharged into the river by the various sewers. Numerous accumulations of it may be seen between Battersea and Blackfriars bridges, and the shore at low water in several places is of a reddish colour. When examined, the cause of this colour is found to arise from myriads upon myriads of small red living worms, embedded in the mud, and entwined together for several inches in depth. At one place between the Horseferry and the new Houses of Parliament, there is an extensive bank of mud, varing in depth up to 5 feet, and the surface of this bank is nothing else than a congeries of worms entwined together, and exceeding a foot in depth. When disturbed, the heaving of the mud is very perceptible, and the etench from them is noisome in the extreme.

In front of Whitehall-gardens, the accumulation of matter from the sewers is nearly 6 feet deep. Nearly the whole of the surface at this point is of a reddish colour, and is also covered with myriads of worms; and at low-water, carrion-crows may very frequently be seen feeding upon them. In warm weather streams of exhalations are evolved from these extended heaps of abomination; and the effluvia being mixed with the atmosphere, are wafted into the streets and dwellings, and, of course, are inhaled by passengers and by the neighbouring inhabitants. The residences of the Duke of Buccleuch, Marquis of Ailsa, Earl of Harrington, and Sir R. Peel, are situate in this locality; and these noblemen and gentlemen are thus living surrounded by a bog, and inhaling air of the most nauseous description.

GOTHIC TRACERY PRODUCED BY MACHINERY.

We mentioned last week that Mr. Billings had brought under the notice of the Institute of Architects, Pratt's patent carving machine. From the time of the revival of pointed architecture in England to the present day, architects, even when they had skill (too seldom alas!), have been trammelled in their efforts to produce works approaching in excellence to those of the middle ages, by the great cost at which alone it was to be effected. At this moment the principles of pointed architecture are better understood than they ever were, and but for the circumstance just mentioned we might hope to see structures raised equal in beauty to the wonderful productions of our forefathers. In designing an edifice in this style, however, the inquiry, now ever present to architects is, what can be done without —how much decoration can be omitted, and yet the characteristics of the style be retained? and so they are compelled to pare, and shear, and leave out, and necessarily fall very short of the early works, which were usually the result of a long period of time, and were effected without regard to the total cost. A variety of expedients in the shape of imitations have been resorted to, but are now very properly abandoned.

By the machine recently patented, and which we have examined with great satisfaction, the difficulty here alluded to will be considerably lessened, insomuch as by its means, the most elaborate tracery can be carved *out of the solid wood or stone* with great rapidity, and for about one-third of the sum it would cost if executed by hand. It is capable of working any form, however elaborate, even to the tracing of a map, and is yet so simple in its operations, that a few hours' practice will enable any mechanic to work it. It may be described as presenting a union of the lathe, drill, and pentegraph. A small cutting tool is made to revolve very rapidly by means of steam power, while, at the same time, it is enabled to pass over the lines of a pattern (formed of cast-iron) which is fastened down on to the wood or stone that is to be carved. A further motion is given by means of the table on which the material is placed; and it is in the production of these various motions that the invention chiefly consists. The tool is said to make 3,000 revolutions in a minute, and, as it presents eight cuttiog edges on its circumference, 24,000 cuts. The hardest oak, the softest pine, and the most brittle stone are equally operated upon; and the largest spandrel of a roof, or the smallest screen-work can be produced. The patterns being inexpensive, it is stated that every panel of a screen may be different without much increasing the cost. The machine was invented by a Mr. William Irving, and was used in the first instance simply for inlaying floors, &c. The credit of its application to carving and other architectural purposes belongs, we believe, to Mr. Pratt, who, discerning its capabilities, effected an arrangement with the inventor, and patented the machine. He has executed, amongst other works, a roof for Ravensworth Castle, and a screen for Great Malvern Church.

We cannot avoid regarding this invention as a most important occurrence for the interests of architecture, and anticipate from it the best results. It has not even the disadvantage which in the first instance usually attends machinery, that of superseding manual labour: on the contrary, it will probably increase the occasion for it, by introducing a description of work not hitherto within the architect's means; and, as the artist's hand is required for the bosses, crocketts, and other enrichments (which the machine merely blocks out), may call into operation a school of carvers.

Protection of Works of Art.—A bill for this purpose has been brought into the House of Commons by the Solicitor-General.

Royal Academy of Arts.—A notice has been issued to the effect, that all works of painting, sculpture, or architecture, intended for the ensuing exhibition in Trafalgar-square, must be sent in on Monday the 7th, or by six o'clock in the evening of Tuesday, the 8th of April next, after which time no work can possibly be received, nor can any works be received which have already been publicly exhibited.

BRICKS AND BRICKMAKING.

In one of the previous numbers of The Builder, the writer observed an extract from the *Mining Journal*, relative to the manufacture of bricks, in which it was stated that an admixture of chalk with the clay from which they are made is injurious to the quality and strength of the bricks; this to a certain extent is true, but not so much so as the author of that paragraph would lead us to infer. Some soils used in the manufacture of bricks are so loose and incohesive, that unless they are held together, as the workmen term it, by an intermixture of chalk, it would be scarcely possible to make them into bricks of any value, either for the market or for building. It must, however, be admitted, that if there is an over proportion of chalk thrown into the clay, more particularly if the chalk is not well mixed, the bricks so made must of necessity be bad both in appearance and quality.

And as it mostly happens that chalk is accessible to brickmakers, they do not fail to employ a very considerable quantity of it in their process of manufacture, which, being badly prepared and improperly used, unquestionably deteriorates the useful value of their bricks; so long, however, as they can contrive to keep them of good colour, they are satisfied even if they possess no other recommendatory quality; because they can always dispose of their stock to cutting builders, who care but little for the quality of the material they use in any kind of building, the speculative, of course not excepted. Good clay is a great thing in brickmaking; but *time* and *labour* are as great if indeed not greater, for indifferent clay with plenty of time and labour will make quite as good bricks as the best clay improperly used if the labour in either case is stinted, the quality of the bricks will be injured one way or another.

If pure argillaceous earth is to be used, it should always be mixed with chalk anu sand care being of course taken not to put in too much of either; the sand should be as clean and free from impurities as possible, and the more silex it contains the better, as it will the harden the bricks when they are burnt; however, there should be too much silicious matter, they will either fuse and run together into clinkers, or else they will turn out to brittle and shaky to be of much service to the builder. If too much chalk is put in, the bricks will be rotten and porous, for it appears to have the effect of preventing the intimate union of the sand and clay when being burnt, but if properly applied, it improves the brick both in quality and colour. To make good bricks it is essential that the earth should be exposed freely for some time to the action of the atmosphere, after it has been first dug out of its native bed, and if it be subjected to the action of frost for some weeks before it is ground up, so much the better for the quality of the manufactured article; the more the clay is pulverized and beaten, the better will it be tempered, so that labour, as I before observed, is one of the very best materials in the whole range of brick-making, as it is with every thing else; but time and labour being of high price, the brick-makers of course avoid the use of them both as much as possible. Good silicious sand when mixed with the clay fuses when at a red heat, and incorporates itself intimately with the other particles of matter in the bricks, and, like most other fusible ingredients, it solidifies on cooling into a hard close-grained, compact body, capable of resisting the alternate changes of the atmosphere longer pehaps than any other material now in similar production: it is the silex that gives the brick the sharp sonorous ring when struck together, and if there is not too much of it, and it is not too highly scorched in the clamp or kiln, the brick will be more durable than most of the stones used for building purposes. If chalk is mixed with clay merely in a brute state, without being washed and ground, the bricks are sure to turn out more or less faulty. The best way of using chalk is to grind it in a large mill, and reduce it to a kind of hydrate, and then pour it over the clay, previously prepared to receive it; as soon as it has set the superfluous water should be run off, and after a little time, allowed for the remaining the water partially to evaporate, it should be intimately mixed with the clay by digging, pounding, and raking, and the more thoroughly it is incorporated with the clay the better,

I have seen bricks so carelessly made with respect to the use of chalk, that on dropping one of them, it would break to pieces, and exhibit the chalk in large solid lumps; in such case, if the bricks should be saturated with water, after being passed through the clamp, they will heat, swell, and crack in all directions, in consequence of the chalk having been converted into caustic lime, by having its carbonic acid expelled when being fired in the clamp or kiln.

Bricks vary as much in colour as they do in quality, which is attributable to a number of causes, the two principal, however, are the natural quality of the component parts of the clay, and the mode in which the bricks are treated in the process of manufacture; some clay contains a very heavy trace of iron in different shapes, varying in colour from deep brown to light yellow, according to local circumstances; it is not unfrequently tinged of a greenish blue by the presence of the silicate of iron, which causes the clay to be mottled in its appearance in the pit. Great care is required in burning bricks to produce them of a good uniform pale yellow colour, which is the favourite of the London market, for if they are burnt too rapidly in contact with a free supply of atmospheric air, they are liable to be of a dingy red colour, alternating into a coarse dusky brown; whereas if they are carfully burned with but a moderate supply of air, say just enough to turn the iron into a peroxide, it will colour them of early a uniform sulphur yellow, which is the preferable colour according to present notions. One great cause of the inferiority of bricks is the unwarrantable haste in which they are made; the field is now often bought, the earth prepared, and the bricks made ready for use in a few weeks; in fact, as many months are required to prepare the earth properly as we now take only weeks to make them complete. It is a very common matter now-a-days for a contractor to take a field near where his work is, and make the bricks in the spring that are to be used in summer. The great falling off in the quality of modern bricks is a very probable cause of the decadence of the art of bricklaying, which has sunk from a high degree of perfection to its present miserable condition.

Where are we to look at this time for such brickwork as the builders of Wren's day produced? The highest ambition of a bricklayer is "to run a few arch-heads and window-crowns in fine stuff," never daring to come into honourable rivalry with the glorious work—neat, plain, close, and smooth—of their worthy, building, but not to be beaten, great grandfathers.

I will conclude these few words by repeating, that until our brick-makers give *more time* and *more labour* to the manufacture of their materials, it is hopeless to look either for good bricks or good brickwork.

JOSEPH LOCKWOOD.

EFFECT OF SEA-WATER ON CAST-IRON.

Mr. FARADAY has addressed the following observations on this subject to Sir Byam Martin, chairman of the "Harbours of Refuge and Police" commission:—

"Sir,—I hasten to reply to your note, though not, I fear, with any certain knowledge, for ill health has prevented me from taking the consideration of the action of sea-water upon, as my observations will permit. I consider that the question is of cast-iron in water. Between these two bodies there is a vigorous action. As far as I have been able to observe, it is the greatest in the water near the surface; less in deep water, and least of all when the iron is buried in sand, or earth, or building materials (into which the water may percolate); for then the oxide and other results formed are detained more or less, and sometimes a cement to the surrounding parts, and always a partial protection. Soft iron, as far as my experience goes (which is much), corrodes more rapidly than hard cast-iron, as far as my experience goes more rapidly than the brittle white iron. But the amount of corrosion in any given case I have not had the opportunity of observing. I have not had the opportunity of observing any good and satisfactory cases of protection.

"In estuaries and the mouths of rivers it is probable that great differences of corrosion may arise from the different circumstances of variable saltness; the soil of the river if near a town, the metallice, will much effect it; thus a wharf of cast-iron might occasionally be greatly injured by making fast to it vessels that are coppered using iron cables.

"As to the protection of iron, and first by a coating; the permanency of a coat of paint, or of tar, or bituminous matter, can only be ascertained by reference to experience. Of this I have none, except in a case where coated iron sheathed for vessels was brought to me. I was much impressed with the thorough adhesion of the coat to the iron. The process was patent, and I cannot remember whose it was. Zinced iron would no doubt resist the action of the sea-water as long as the surface was covered with zinc, or even when partially crusted with that metal; but zinc dissolves rapidly in sea-water, and, after it is gone, the iron would follow.

"As to voltaic protection, it has often struck me that the cast-iron piles proposed for lighthouses, or beacons, might be protected by zinc, in the manner Davy proposed to protect copper by iron; but there is no doubt the corrosion of the zinc would be very rapid. If found not too expensive the object would be to apply the zinc protectors in a place where they could be examined often, and replace them when rendered ineffective. In this manner, I have little doubt that iron could be protected in sea-water. It is even probable that, by investigation and trial, different sorts of iron might easily be distinguished and prepared, one of which would protect the other; thus soft cast-iron would, probably, protect hard cast-iron, and then it would be easy to place the protecting masses where they could be removed when required.

"Hence, though iron be a body very subject to the action of sea-water, it does not seem unlikely that it might be used with advantage in marine constructions intended to be permanent, especially if the joint effects of preserving coats of voltaic protectors were applied. Perhaps engineers are in the possession of practical and experimental data sufficient to allow the formation of a safe judgment on this point. For my own part, I am not, and therefore am constrained to express the above opinions with much doubt and reserve."

ON FIXING CLOSE STOVES.

SIR,—In consequence of the numerous fires that constantly occur from the *careless* manner in which close stoves are generally fixed, I beg to offer the following remarks for insertion in your popular journal, with the hope that they may lead to some improvement.

Nearly all stoves of this kind, if not properly attended to, are dangerous from getting overheated, and consequently should be securely fixed away from any combustible material. If the stoves are placed detached in the open space of a room or workshop, the wood floors should be cut away, and trimmed to at least 12 inches in length all around the stove; an arch of brickwork should be turned under in cement and a piece of stone laid to a level with the floor, which, to the extent of 18 inches further, should be lined with lead, and the stove placed in an iron pan. If the horizontal pipe is carried into the chimney opening, the latter should be filled up with brickwork (or sheet-iron) with a trap-door, so that the soot may be removed, which frequently falls down; several fires have arisen from this cause alone. If the pipe is used for heating glue-pots, drying timber and other materials, the whole of the stove and pipe should be embraced by an iron fender, about 3 or 4 inches higher than both of them, or at least a trough of iron running the whole length of the pipe, leaving a space of 7 or 8 inches round the same. And they might in manufactories, workshops, &c., where appearance is not much considered, be placed on three or four courses of brickwork covered with a piece of stone, having an iron rim to form a fender round its edges; another method might be adopted, and perhaps the more convenient, leaving the chimney open, and having an elbow to the end of the horizontal pipe with a length of perpendicular pipe up the flue, which should be filled up just above the level of the mantel with brickwork or slate, having a trap, so that the chimney might be easily swept. With this arrangement, the stove might at any time be removed and a register grate be placed in the recess. When a stove is close to a chimney opening within the confines of the stone hearth, either of the above plans with regard to filling in the chimney opening may be employed, having a liberal quantity of sheet-lead spread on the floor round the same. Many flues are fixed with the horizontal pipes running through wood partitions, having holes cut just the size of the pipe; the pipe from want of cleaning, gets red-hot, and sets fire to the woodwork. It would be better in all such cases to take out the wood panel, and insert an iron one, which would prevent such accidents, and when painted to match, would make the whole complete in appearance. In no case should stoves or pipes be placed within less than 12 inches from any woodwork, unless it be lined with lead; and in confined places, running through cupboards, &c., there should be double pipes, leaving a space for a draft of air to pass freely between them. Lead is the best material to be employed, the cheapest, and most durable, and being pliable, may be easily dressed round mouldings and other projections, and when well nailed on the floors, is less likely than iron to be turned up by the traffic of the feet. It is of the utmost importance that all stoves should be safely fixed, not only for the security of the party setting them up, but that of his neighbours; a few pounds laid out in the first instance would produce a saving in the end, seeing how many fires arise from them, and that the insurance offices charge from 1s. to 5s. additional premium, according to the number and nature of the stoves. No extra charge is made when they are properly fixed and attended to.

I do not offer these suggestions as new, but as likely to prevent accidents by fire, and the infliction of high premiums by the insurance offices.

W. J. S.

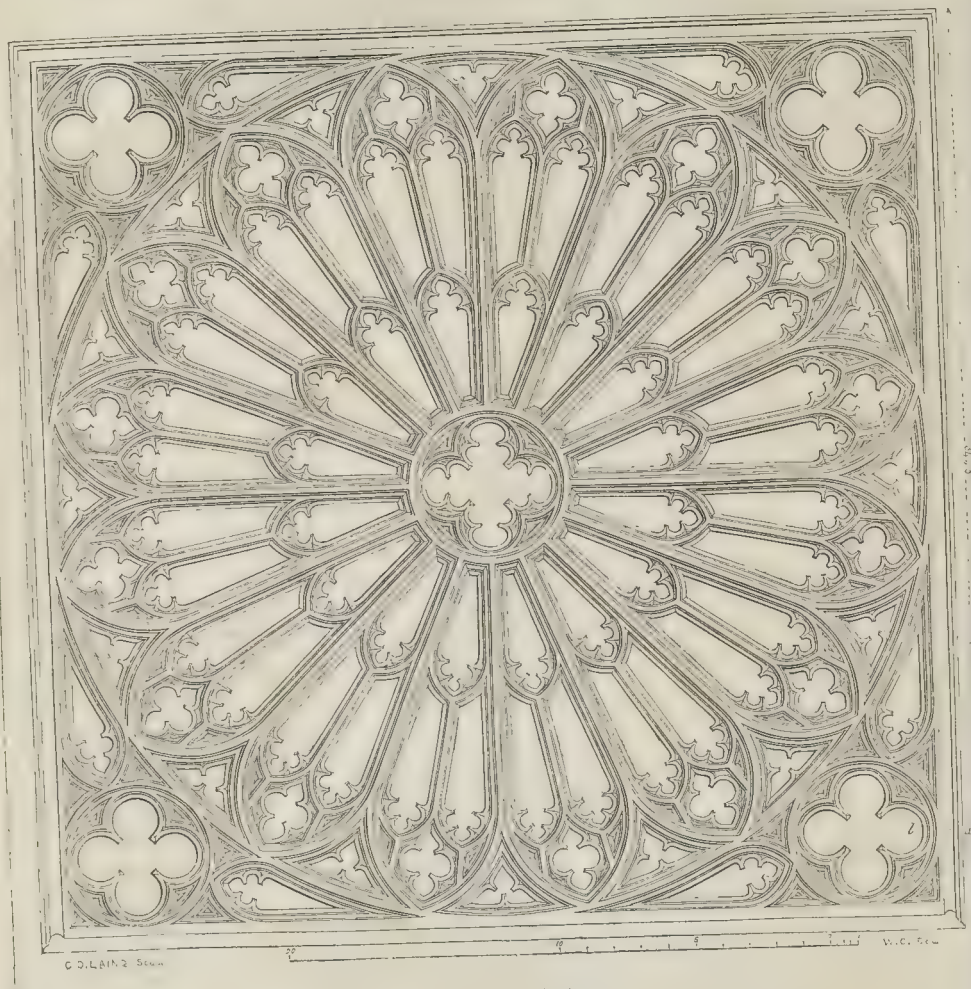
[Schedule F annexed to the Buildings Act, contains the following clause:—

"*Close Fires.*—And as to every oven, furnace, cokel, or close fire used for the purpose of trade or manufacture, it must be 6 inches at the least distant from any party-wall, and must not be upon nor within a distance of 18 inches of any timber or wood-work. And the floor on or above which such oven, furnace, cokel, or close fire shall be built or fixed, must be formed and paved under, and for a distance of 2 feet all round the same, with stone, brick, tile, or slate, at the least 2 inches thick, or other proper incombustible and non-conducting materials." It likewise provides that no metal or other pipe or funnel for conveying smoke, heated air, or steam, shall be fixed on the inside of any building nearer than 14 inches to any timber or other combustible material. —ED.]

RAILWAY NEGLIGENCE.—At the Maidstone Assizes last week, two actions were brought against the South-Eastern Railway Company, to recover the value of certain stacks and farm buildings which were destroyed by fire, originating in sparks emitted from the chimney of a railway engine. Proof was adduced that means had been taken upon other lines of railway, by placing a wire guard over the top of the chimney of the engine, or by using a plate perforated with holes in front of the smoke-box, to prevent the burning coals or ashes issuing from it; but that upon this line these precautions had been altogether neglected. Verdicts were returned in both actions for the respective plaintiffs; in the first, the damages amounted to 800*l.*, in the other to 894*l.* 14*s.*

ATMOSPHERIC RAILWAY.—On the motion of Mr. Shaw, a committee has been appointed by the House of Commons, to inquire into the merits of the atmospheric system of railway propulsion. The right hon. member stated, that Sir John Rennie, Mr. Cubitt, and other eminent engineers were confident of its success; and the Messrs. Maudslay, of Westminster-road, were willing to contract for keeping the apparatus in repair at an expense of not more than 5 per cent. per annum, whereas the cost of repairing the ordinary locomotive engines was 50 per cent. per annum; and the first expense of the atmospheric railway was not greater per mile than that under the present system. Sir Robert Peel consented to the appointment of the committee.

ROSE-WINDOW IN SOUTH TRANSEPT OF WESTMINSTER ABBEY.



(Exterior View.)



SECTION OF MOULDING AT LARGE, ON LINE *a—b*.

ROSE, OR CATHERINE-WHEEL WINDOWS.

Circular windows are found in the buildings of the 12th, 13th, and 14th centuries in England, France, and Germany. As well as rose, or catherine-wheel windows, they are sometimes called marigold windows; and in French works we have the term *œil des ailes*, *rosa vitrea*, &c. In Normandy, and other parts of France, they are more common than in England; and, in the later examples, present very elaborate tracery, constructed with extraordinary boldness and skill.

A simple circular aperture was the germ from which the rose window grew to be a masonic marvel. One in the west end of St. James's Church, Bristol, and another in the east end of Barfreston Church (recently restored), are early specimens. The latter is shewn in an interior view of the church, given in our second volume, p. 265.

And those in the west front of the church of St. Ouen, in Rouen, the cathedral at Strasburgh, and the transepts of Westminster Abbey, may be pointed out as examples of its most complete and perfect state.

The annexed engraving, from a careful drawing by Mr. Caveler, represents the exterior of one in the south transept of the latter wonderful building, and is 34 feet 3 inches in diameter.* The upper spandrels, which give it the square form outside, are solid; the vaulting withinside circumscribing the upper half of the circle. Under it are two rows of windows, occupying the whole width of the transept; and these, together with the rose window, are about to be filled with stained glass by Messrs. Ward and Nixon, which is now nearly ready. The corresponding window in the north transept differs but slightly from this in the tracery, and, as most of our readers know, is glazed with stained glass. Fig. 2 is a section of the moulding on the line, *a—b*, at large, and will serve to illustrate sufficiently the working of the window. It may be ascribed to the latter part of the fourteenth century.

For some notes on the beautiful building of which it forms a portion, in addition to what has recently appeared in our journal (p. 98 and p. 110, *ante*), we refer to an article on the abbey in another part of the present No.

GOTHIC ORNAMENTS FROM THE CATHEDRAL CHURCH OF YORK.

In continuation of our series, we present two other examples from this beautiful building.

Fig. 7 shews one of two compartments in the spandrels formed by the arch of the door at the west end of the north aisle, and the cill of the window above it. The door in the opposite aisle has two similarly shaped compartments in the same position, but the sculpture is different in each of them. The panel shewn, represents (at the same time) two passages in the life of Samson. It is about 2 feet square, and is in high relief. The other three are much defaced: they represent various conflicts.

Fig. 8 represents a crocket on the lower part of the pediment of the great west door, with part of the mouldings of the arch. It is 1 foot 8 inches long. The crockets on the upper part of the pediment are different.

* In Rouen Cathedral there are three, 50 feet in diameter. There is a fine example in the west front of Rheims Cathedral. Amongst the earlier specimens in Normandy are those in the *Abbaye aux Hommes*, Caen, and the Ducal palace in the same town.

GOTHIC ORNAMENTS FROM THE CATHEDRAL CHURCH OF YORK.



Fig. 7.



Fig. 8.

SOCIETY OF ANTIQUARIES.

A movement has taken place in this ancient and valuable society which is likely, we think, to have a good result. In a discussion caused by a proposal, that in future no meeting of the society should be suspended in commemoration of the death of King Charles 1. (Jan. 30th), it was admitted by members of the council that they scarcely ever met, and that, through neglect, the business of the society had accumulated, and was now in a complicated state. The arrears of subscriptions amounted to more than 2,000*l*. The following suggestions for the future conduct of the society, amongst others, were then made, and, together with the original proposition, were referred to the council, to be reported on at the anniversary:—

1. That the president of the Society of Antiquaries of London be requested to attend at the next anniversary of the society, and to deliver an address to the members, which may comprehend the names of the members deceased during the past year; the number of new members; the state of the finances; the state of the arrears due to the society; the advance made by antiquarian research and science in Great Britain during the past year, and such information as may be available respecting the progress of science in other

parts of the world; together with such observations as he may be pleased to combine with them,—such addresses being delivered by the presidents of the Royal Society, the Geographical, the Geological, the Astronomical, and the presidents of other enlightened modern societies of London.

2. That the auditors, in their next annual report, be requested to explain the charge of 447*l.* 10s. allowed as salary to the officers of the establishment; and to specify the sum paid to each of them,—a practice observed by auditors in other societies.

3. That the librarian be allowed hereafter a competent salary in lieu of fees; and the payment to the librarian of 2s. 6d. by each member on receiving each volume of the Transactions be abolished.

4. That a general opinion having been expressed that the office of president should not always be filled by the same individual, however accomplished and erudite he may be; that no person be allowed to hold the office of president in future beyond the term of four years.

5. That if the authors or contributors of papers deemed worthy of being read be fellows of the society, they be requested themselves to read them (unless such authors or contributors prefer that these papers be read by the secretary); and that immediately after the reading of each paper, the members of the society be invited by the chairman to make observations upon the contents of each paper.

6. That the council do meet for the despatch of the business of the society at the usual place, at three o'clock, on the first Wednesday of every calendar month, except in September and October; and that this meeting be not adjourned unless by the votes of a majority of two-thirds of the members present.

A CHAT ABOUT WESTMINSTER ABBEY AND GREAT MEN'S MONUMENTS.

BY G. GODWIN, F.R.S*

"They dreamt not of a perishable home
Who thus could build. Be mine, in hours of fear,
Or grovelling thought, to seek a refuge here;
Or through the aisles of Westminster to roam,
Where bubbles burst, and folly's dancing foam
Melts, if it cross the threshold—"

Our metropolitan minster (*west* of St. Paul's) is perhaps without exception, the most beautiful and instructive sight in London; and yet how many inhabitants of this great city there are who but for the accidental visit of a country cousin, which led them to seek the Lions, had never seen it? and how many more to whom it is still unknown ground? They have travelled, perhaps, to York, to see the Minster there; they have sought objects of interest at Cologne; they have thrown their eyes round the Cathedral of Strasburgh—but Westminster Abbey, close at home, has escaped their investigating gaze. Let them lose no time in seeking it out. We feel persuaded that few can visit this wonderful museum of skill, genius, noble thoughts, and memories of good deeds, without an elevation of mind, an improvement in taste, and a chastening in feeling which must tend in a greater or less degree to good. Walk through it, examine it, study it, as often and carefully as you may, you will ever find some fresh claim on your attention, some beauty before overlooked, or some evidence of unpretending piety, which makes you prouder of humanity and more determined to do nothing derogatory in your own person. It is, indeed, a spot "where folly's dancing foam melts if it cross the threshold;" where thoughts that are unholy die; where the past great ones of six centuries speak powerfully to you—it is to be hoped, not uselessly.

"Thinke how many royall bones,
Sleep within these heap of stones.
Here they lie, had realmes and lands,
Who now want strength to lift their hands.
Where, from their pulpits seal'd with dust,
They preach, "In greatnesse is no trust!"
Here's an acre, sown indeed
With the richest royall'st seed
That the earth did e'er suck in,
Since the first man dy'd for sin."

The multitude of monuments which it contains, from that of King Henry III. upwards (omitting, for the present, any remarks on the destructive effect produced by those erected in modern times), render it an index to English history, and a commentary; while the specimens of the workmanship of different epochs in wood and stone, and glass and metal, which these and other portions of the building present, make it a lecturer on British art, and a record of its progress. Edward the Confessor's chapel, at the east end of the choir, is alone a sufficient reward for a pilgrimage of a hundred miles. Here, where old Time seems to have secluded himself from the garish present, and reigns over remnants of the past, are ranged memorials of our early sovereigns—the pious Edward, Queen Eleanor, Edward I., Henry III., Queen Philippa, Richard II. and his Queen, and the gallant Henry V. It has nothing in common with the present time: it stands alone, and cannot be realized in the mind of any one of the thronging thousands, who are passing at so short a distance from the spot, if they have not visited it. Examine the pavement, examine the shrines—the chantry of Henry V., the screen next the choir, covered with minutest sculpturing—and see how the powers of art *have* been lavished in honour of God. Our forefathers were not satisfied with the decoration of the mere face of the part in human sight—the highest exercise of their powers was deemed hardly worthy of the temple; and so long as any portion, however remote or hidden, remained capable of improvement, so long was it deemed incomplete and requiring alteration.

Strange changes have occurred since a sacred edifice first occupied this site! What if it be *not* true that the Romans had a temple to Apollo here, or that Peter the Apostle raised the first chapel in the "Thorney Island," as the place was once called? There is good reason to believe that old Sebert, king of the East Saxons did, quite at the commencement of the 7th century: and this will give us a good 1200 years to talk about.

It was at first but a small building: Edward the Confessor perhaps made it larger. "Without the walls of London," says an ancient scribe, "uppon the river of Thames, there was in times passed a little monasterie, builded to the honor of God and St. Peter with a few Benedict monks in it, under an Abbote, serving Christ: very poore they were, and little was given them for their reliefe. Here the king (Edward) intended (for that it was neare to the famous cittie of London, and the river Thames, that brought in all kind of merchandizes from all partes of the worlde) to make his sepulchre:" and so commanded that the tenth of all his possessions should be applied to its re-construction. This was probably about 1050. Hardly 200 years afterwards Henry III. went to work upon it, and erected much of what we now see, and at his own cost be it remarked, if the chroniclers speak truly. By the eighth Henry the monastery was suppressed, and Thorney Island became a city, the abbey church, its cathedral.

Of the elegance of the Abbey as a structure it is almost needless to speak: it may be termed the finest example of the pointed style of architecture ever executed in England, and remains the most complete, with the exception of the cathedral at Salisbury. The combinations which its various parts form, especially at the eastern end, are as numerous as they are striking, and serve to impress a strong conviction on the mind, of the skill of the old builders, and the power they possessed of so arranging their structures as to excite pleasurable and lofty emotions. Amongst the most stiking of these combinations is that presented when standing beneath the porch of Henry VII.'s chapel, the gloom in which, most artistically devised, serves to render the full flood of light, to be found in the chapel itself, striking and effective in the highest degree. Burke remarks, in his essay on the sublime, "I think that all edifices, calculated to produce an idea of the sublime, ought rather to be dark and gloomy; and this for two reasons; the first is, that darkness itself, on other occasions, is known by experience to have a greater effect on the passions than light. The second is, that to make an object very stiking, we should make it as different as possible from the objects with which we have been immediately conversant; when, therefore, you enter a building, you cannot pass into a greater light than you had in the open air: to go into one some few degrees less luminous, can make only a trifling change; but to make the transition thoroughly striking, you ought to pass from the greatest light to as much darkness as is consistent with the uses of architecture." This the architects of the middle ages well understood; they appreciated the "dim religious light," and accordingly built their ecclesiastical edifices, for the most part, with comparatively few openings. When, however, as in the case before us, the style adopted rendered larger windows necessary, they reversed the arrangement, and so still obtained the required effect.

Many of the striking combinations to which we have referred are now sadly interfered with by the modern monuments, with which the Abbey is lumbered up—monuments for the most part so absurd that they would make us laugh if they did not make us sad. Mouldings, pillars, and adornments of all descripions have been ruthlessly cut away for them; openings have been interfered with, and even several of the spaces between the large clustered columns in the side aisles and chapels are blocked up to the top with tasteless and incongruous masses of stone and marble, alike unsuitable and discordant in colour and design.

The sculpture of the best periods of the middle ages has an entirely distinct and original character, prompted by the spirit of the time and carried out by genius. It is in no way imitated from the master-pieces of Pagan art, which might have been used as models; but is nevertheless full of feeling, and appeals to the sympathies rather than to the eye. In the ancient tombs at Westminster, as elsewhere, the sculpture is seen to be a portion of the building, conceived in the same spirit, and displaying the same feeling of reverence. All the figures are in repose, all are devotional—there is no flutter, no action even, certainly no worldly action; they do not seek to record, in vain self-glory, any moment of the past, but carry us forward to the great hereafter, and inculcate humility. Alas! how sadly this contrasts with those of more recent date, where every man "for his own hand," has worked in his own way, careless of the general effect, and has not worked well. Mountains of most *material* clouds, urns, flames, figures in ill-conceived and violent momentary action, accurate models of periwigs and whiskers, the evanescent fashions of a period of universal bad taste, form the staple—but why endeavour to prove what nearly all seem to acknowledge?*

As the writer has elsewhere remarked, in reference to the tasteless tombs and monuments with which all our cathedrals and churches have been gradually encumbered and overladen:—"Like some frightful fungus, they have spread insidiously over all parts of these structures, destroying alike their propriety, beauty, and stability." No more lamentable example of this evil is to be found than in Westminster Abbey; and it is to be hoped that efforts will be made, not simply to prevent the increase of this abomination, but, as opportunities occur from time to time, to remove the excrescences now deforming this fine pile, and so restore its harmonious proportions and original integrity. The triforium might be made to contain many of the monuments, as has been done at the Temple Church. Perhaps, too, the Chapter House, which is about to be cleared of its present contents (dirty shelves and presses), could receive some without injury to itself, so as gradually to restore to our venerable Abbey its former appearance.†

In spite, however, of the contemptible charater of the records, who can look around the south transept,—the poet's corner,—without emotion? Dryden, Cowley, Chaucer, Ben Jonson, Spenser, Butler, Gay, Thompson, Goldsmith, Gray, Dr. Johnson, Shakspeare, and a score of other heroes (heart-teachers, peaceful conquerors) marshal themselves before us, although not all buried here, and people the quiet aisles.

Nothing tends more strongly to elevate and refine the mind, to incite to virtue, or to deter from vice, than the contemplation of the burial-place of one who has rendered himself in either of these particulars an object of regard. The

* From "Facts and Fancies."

* One of Churchill's earliest effusions (before 1750) was prompted by these incongruous monuments. It commences—

"In famed cathedral who'd expect
Pallas, a heathen goddess,
To lift her shield, come to protect
Lord Stanhope?—this most odd is."

See Mr. W. Tooke's admirable edition of his poems, 1844

† This suggestion was originally published by the writer in April 1843. It has been since urged by others.

power of association is great: and the merest memento of a wise, enterprising, or virtuous man,—of one who has advanced the cause of civilization, or desolated countries to gratify a restless ambition,—is often sufficient to induce long trains of wholesome thought. When, however, we see his burial-place, his last and narrow home, the man himself passes before the mind's eye; and the impression made, the lesson inculcated, is much more powerful. If a conqueror, we see him bereft of his pomp and power, to obtain which the blood of his dependants had been lavishly shed, and comprehend more fully than before, the folly of risking enduring happiness for that which hardly *is* before it is not; while, at the same time, the mind is rendered more contented with its sphere; reminded, that whether powerful or weak, rich or poor, all will find the same earthly goal,—the grave; and that the time which intervenes is so short, as hardly to be worth consideration:—

> "A little rule, a little sway,
> A sunbeam in a winter day,
> Is all the proud and mighty have
> Between the cradle and the grave."

Do we contemplate the remains of a good man? All his noble sacrifices, all the fine results of his exertions; the family saved from ruin, the generation advanced in knowledge,—pass vividly before our eyes. The heart involuntarily acknowledges the example, and good seed is sown. If these reflections be correct, it is important to a state that the mouldering remains of all men who have distinguished themselves above their fellows should be preserved and pointed out; and when party-feeling or prejudices lead to their disregard in one generation, it should be the business of the next to repair the omission.

If this were done, we should have statues, obelisks, busts, and temples at the corner of every street, in the centre of every square, and on the parapets of all the bridges. Rivals to Phidias and Praxitiles might arise amongst us; love of the beautiful and the good would be encouraged in the masses, and great changes in society would be effected. The time for it is approaching.

This, however, is rambling beyond the Abbey walls. The present state of the ancient monuments there is deplorable. Those who are in authority say they consider these monuments very sacred things, not to be touched without great care and consideration, as more harm than good might be done in attempting to improve their appearance. This is quite true, but there is nevertheless a limit to that forbearance, and this limit has been reached; if steps are not taken in several cases forthwith, nothing will be left to guide the restorer. We should be right glad to see a perfect restoration of the Abbey commenced, including the completion of the centre tower or spire, and the removal of the ugly western towers put up by Wren, who knew little of Gothic architecture, and liked it less. Relative to the erection of these towers, he wrote to the Bishop of Rochester:—"I shall speedily prepare perfect draughts and models, such as I conceive proper to agree with the original scheme of the architect, without any *modern mixtures to shew my own inventions*." Unfortunately, to do is not so easy as to know what ought to be done.

Amongst the earliest improvements to be made in the Abbey is the introduction of stained glass in the rose-window, and twelve lower openings of the south transept. The impulse which has been given lately to glass-painting in England is a pleasant sign, and cannot be too strongly aided. So firm was the belief that English artists in this department were inferior to foreigners, that the Chapter, it is said, had nearly determined on sending to Germany for the work in question; luckily, however, one or two members of it were staunch friends to English art, and succeeded in appointing an English artist; the result of which, it is to be hoped, will fully justify them for so doing.

We have not yet looked into the chapel of Henry VII., *orbis miraculum*, as Leland calls it—one of the most beautiful specimens of the last period of Gothic architecture which England or any other country can boast.* From its roof, "pendent by subtle magic," to the floor, the whole presents a rich lace-work of decoration. Of the roof, indeed, description can give no adequate notion. It is literally—

> "Self-poised, and scooped into ten thousand cells,
> Where light and shade repose, where music dwells
> Lingering—and wandering on, as loth to die,
> Like thoughts, whose very sweetness yieldeth proof,
> That they were born for immortality."

The lover of architecture after studying the perfect development of the pointed style in the minster itself,† with its acutely-pointed arches, its lofty attenuated columns, its infinite divisions, finds here the style which succeeded it when the arch was becoming more horizontal, and when a love of decoration threatened, as indeed did soon afterwards happen, to overwhelm good taste, and lead to the abandonment, for a time, of pointed architecture altogether.

As relates to sculpture, Henry VII.'s chapel presents one of the finest illustrations of early art in England, in the series of figures which fill the countless recesses in the walls. It is said they were once three thousand in number, but this is perhaps doubtful. They display admirable feeling for art, and deserve attentive examination. The carving, too, in the stalls here, is good, and leads us to express regret that so little encouragement is now given to this branch of art in England.

There are a considerable number of artists employed in it at this time, but unfortunately—such is the dominion of fashion (another word for caprice)—it is chiefly, if not wholly, in the imitation of old work, to be afterwards stained and sold as such. The upholsterer is the *arbiter elegantiarum*, and the result is exactly what might be expected under such circumstances. The remedy for this, and many like evils, is to make artistical knowledge more general, and to induce the multitude to talk and think on the subject. With an increased public—an extended circle of admirers and employers—the powers of the artist will be more fully called into play; and the more critical that public is, the more strenuous will the efforts of the artist be to maintain himself superior to his judges.

* Commenced A.D. 1503.

† Commenced A.D. 1220.

INSTITUTION OF CIVIL ENGINEERS.

March 11th, 1845.—Sir John Rennie, president, in the chair.

The discussion was renewed upon the relative merits of the screw and paddle-wheels as methods of propulsion, and was extended to so late a period, that no papers could be read.

It was stated that the Napoléon screw-steamer, in the French post-office service, made on an average, quicker voyages than any of the paddle-wheel steamers of the same power on the station; that in smooth water the latter vessels would make some way, but in rough weather the former was decidedly superior. The same result had been noticed with the Archimedes. When steaming down the river, she was frequently passed by merchant steamers, but by the time she had arrived at Dungeness, if there was any sea up, she had regained her place, and was a-head of the paddle-wheel steamers.

It was thought, however, that with the feathering paddles, invented by M. Cave, and equal power, the Napoléon would have done quite as good work as with the screw.

The peculiarities of the steaming qualities of the Rattler, in spite of her bad build, were fully described. It appeared that in heavy weather, when sailing and steaming, and when it was thought that she was dragging the screw through the water, the dynamometer shewed a very effective exertion of power, and that the slip was extremely small: that when the royal yacht was obliged to shorten sail, because of losing speed by the heeling over of the paddles, the Rattler was enabled to use all her canvas and engine power together, and to gain way in the same proportion as the other vessels lost it. The general impression appeared to be that the experiments were very satisfactory, and if the Rattler had been a well-formed ship, and the power on board had been greater, the results would have been much better.

A good adaptation of the screw was mentioned in the two schooners the Margaret and Senator, built by Messrs. Pim, at Hull, and trading between that port and London. They were fine schooners of 242 tons burthen, fully rigged, but having near the stern two engines, each of fourteen-horse power, connected by wheel-work with a screw propeller. The result of a trial between the Senator and the Shannon, the latter being a regular paddle-wheel steamer of good power, was, that in the voyage between Dublin and London, the Senator arrived in London only ten hours after the Shannon, having consumed only eighteen tons of coal, while the Shannon had used ninety tons; proving that for mercantile purposes, where extreme speed was not essential, but that punctuality was desirable, the screw-propeller, adapted to sailing vessels, was calculated to be of essential service.

A curious letter was read from Lady Bentham, proving, by extracts from documents, that half a century ago, the late Sir Samuel Bentham, to whom was intrusted the building of several men-of-war, was the originator of the introduction of *water-tight bulk-heads*, dividing vessels into compartments, for preventing accidents from leaks, and also for stiffening them. Sir Samuel was aware of the plan having been used by the ancients, and also that the Chinese use the plan now. He also invented the wrought-iron water-tanks, and the metal casks for storing the powder, both being fitted to the shape of the ship. The letter containing these interesting facts, was remarkable for the clearness of its expression and for the accuracy of demonstration, when it was considered that it proceeded from a lady in her seventy-fifth year.

Correspondence.

TO GIVE PLASTER OF PARIS FIGURES THE APPEARANCE OF MARBLE.

Sir,—I am always pleased to communicate to others any item of useful information which I may have gained either in the way of my business, or otherwise; and I often think that The Builder might be made extensively useful, if parties would make a more frequent use of its pages for that purpose.

In answer to the request of "C. T. L." in The Builder of last week, I hope he will find the following methods satisfactory for the purpose of making plaster of Paris casts look like marble.

I am, Sir, &c.,
Charles Newnham.

Put into four lbs. of clear water one oz. of pure curd soap, grated and dissolved in a well-glazed earthen vessel; then add one oz. of white bees'-wax cut into thin slices; as soon as the whole is incorporated, it is fit for use. Having well dried the figure before the fire, suspend it by a twine, and dip it once in the varnish; upon taking it out, the moisture will appear to have been absorbed; in about two minutes' time stir the compost, and dip it again, and this generally suffices. Cover it carefully from the dust for a week, then with a fine soft muslin rag, or cotton-wool, rub the figure gently, and a brilliant gloss will be produced.

Or,

Take skimmed-milk, and with a camel's-hair pencil lay over the model until it holds out, or will imbibe no more. Shake off, or blow off, any that remains on the surface, and lay it in a place perfectly free from dust. When dry, it will look like polished marble, and this mode answers equally well with the former, except it be exposed to the wet weather.

N.B. The milk must be well skimmed, or it will not answer the purpose.

COMPETITIONS.—LUNATIC ASYLUM FOR THE COUNTY OF SOMERSET.

Sir,—As you have expressed your desire to assist the efforts of architects in obtaining a better system of competition than at present exists, I beg leave to contribute my mite of experience on the subject.

I am much surprised that the profession can submit to be tricked with false pretences of rewarding the most meritorious (when it is well known that in four cases out of five favouritism has been shewn), without making some effort to bring their taskmasters to account, and thereby prevent them from attempting to make fools of them, and availing themselves of their gratuitous labours.

I believe it is generally admitted that architects as a body are particularly selfish, and

possess the spirit of rivalry even to weakness. I have known many architects who, having blindly entered into competition, when they found themselves deceived, consoled themselves that their names were not made public, fell back on their more certain dependance, and resolved never more to waste time by entering into competition, unless they had some *certain interest* with the parties; and instead of stepping forward and calling around them their fellow sufferers, to probe the matter, they feared to mix themselves up with those beneath them, or to be regarded in the light of disappointed persons. So we go on from year to year, and competition is now become as a snare laid by the fowler to catch hungry small birds only; for in four cases out of five if the prize is not awarded to some favourite, it is sure to be given to some person who has studied the art of making bad compositions pleasing to the eye, and blinding the umpires with a few splashes from their brush.

I beg to suggest to the profession, to form a society, to be named "the Anti-competition Association," and to address every member of the profession in the United Kingdom, requesting their signature to the principles of the society, and that of all persons employed under them; viz. never to engage in any competition in which security is not guaranteed, that impartial justice shall be done in awarding the premiums, and naming the judges who are to decide on the respective merits of the designs submitted; and, at the same time, some architect of high standing as a referee in case any doubt should arise.

These thoughts have been called forth by my having recently entered into a competition for a lunatic asylum for the county of Somerset, and devoted a whole month in making the drawings, having no person to assist me. The manner in which the affair has been conducted is, to say the least, to me full of mystery! In the first place, the advertisement required a design for a lunatic asylum, including farm-buildings, lodges, estimates, and specifications, and a personal inspection of the site; all to be done in the space of fourteen days, in the depth of winter. After repeated applications from many architects to extend the time, they consented, within two days of the date fixed, to allow a month longer; but, at the same time, requested those gentlemen who had prepared designs to send them in by the time first stated. (Query: for what purpose, after the extension of the time?) I determined on competing. My drawings, and I presume those of the other competitors, were sent back in five days after delivery, accompanied with a printed circular; consequently no public exhibition could have taken place. I have written two letters, one to the committee, and one to the clerk of the peace, requesting to know the names of the successful competitors, and of the visitors, and am refused any information on the subject. Should any of your numerous readers think, like myself, that justice has not been done in this case, and be able to give any information on the subject, by so doing they will oblige a subscriber to your work, who is

A Freeholder of the County of Somerset, and a Freeman of the City of Bristol.

March 14th, 1845.

COMPETITIONS—THE CLIFTON UNION.

Sir,—Architectural competition is a subject entertained by a great number of your readers, and it would be conferring a favour on me, as well as many others, if you would make public what has transpired in the *Clifton Union* competition, or whether it is yet made known who the successful architect is. We hope better things of this than the generality of competitions.—I am, Sir, &c.,

A Subscriber.

COMPETITIONS—HOLLOWAY CONGREGATIONAL CHAPEL.

Sir,—In answer to the inquiry of "A Competitor" and for general information, I beg to state, that the successful competitors in the Holloway congregational chapel competition are Messrs. Emmett and Chadwick of the Adelphi, whose plans are stated to have been distinguished by the *letters* E. D. O. (See The Builder, No. 106, page 84.)

The committee have refused to exhibit the drawings (even to competitors), and have declined to give any further information.

Should any of your readers be acquainted with more particulars, I (and no doubt the rest of the disappointed) shall feel obliged by their giving them publicity.

At the same time, I would suggest that in this, and all similar cases, the remedy is in a great measure in the hands of competitors themselves. *Let them all unite to exhibit their designs themselves*, and surely the successful candidates would (if for no purer motive), for very shame join them.

I am, Sir, &c.,

Another Competitor.

March 17th, 1845.

BUILDING SOCIETIES.

Sir,—I have carefully reviewed the whole of Mr. Wiltons remarks on this subject which appeared in your journal, and, in my opinion, they have left the question in a worse position than it was; for this reason—in defiance of the positive evidence of such societies having been in successful and beneficial operation at Liverpool for nineteen years, Mr. Wilton denounces them *in toto*; and that upon assumed grounds as thoroughly erroneous as the fallacies he proposes to expose. You have termed it an "abstruse subject;" for such a reason, would it not be a disgrace to the intelligence of the present day that these societies should not be placed upon an intelligible footing? Mr. Wilton has evidently bestowed much attention on the matter; and agreeing as I do with him that the London and Westminster society is a most thorough bubble, he has not touched one of the practical objections to it; and it appears to me to be quite open to any advocate of that society to shew that he has created giants to slay them,—having assumed as data, propositions that have no existence in their scheme. If this be true, it must, to a great extent, relieve from blame those respectable parties who have lent their names to these bubbles, it being aside their habits to investigate an "abstruse subject" even to the extent Mr. Wilton has done. It is evident, that however palpably incorrect the statements of an opponent may be, if the subject is intricate and the arguments used as intended to prove the fallacy are themselves open to objection, the hand of the opponent is thus strengthened. I probably should have been unable to divine the whole matter had I not adopted the course of going down to Liverpool and thoroughly investigating the subject. My objections to many of the details are just as applicable to the Liverpool as to the London societies, and at Liverpool were by intelligent men, admitted as objections.

My object is to propose the *juste milieu* between existing details and the intention of the legislature. Without entering into any details of figures (although I have made millions upon the subject) which are oppressive to the minds of parties unaccustomed to such details, I will confine myself to the evident broad objections of the London bubbles, charging with positive blame those who have with knowledge put forth such erroneous statements. I will, therefore, in this letter, only put forth such a statement as to period of duration (the broad charge against the London societies) that the commonest understanding may comprehend. If comprehended and admitted to be true, parties may then be imperceptibly led into further development of details, as a glimmering of truth (which you seek) will lead to an interest in a further discussion. These societies were intended for the benefit of our humbler neighbours, and, under proper regulations, would be highly beneficial. Such parties receive as true, statements sanctioned by respectable men.

The history of the transaction, as by the prospectuses proposed to them (for the moment putting aside the 101 other fallacies), is this: they are told that a certain amount will be advanced to enable them to buy or build a house upon an annual payment per share, of which 6*l.* is termed subscription, and 2*l.* 8s. redemption. I contend that this is neither more nor less than an annuity of 8*l.* 8s. A party granting an annuity naturally inquires the period for which it is to be paid, before he decides the amount (controlled by the discount he bids) he is content to receive in respect thereof. The parties upon whose dictum he depends distinctly declare ten years; and in some prospectuses, to establish the fact, a quotation is made thus:—"The following is an extract from the tenth and final report of the Liverpool Building Society, which terminated successfully in ten years from its commencement." I admit it terminated in ten years, but what were the conditions of this society? Is it not intended, an inference should be drawn, that they were *pari passu* with the proposed London Societies? What were the facts? In this quoted Liverpool Society, the monthly payments were 12s.; redemption-money, 8s., and thirteen payments, or lunar months, to the year. So that a party borrowing in the Liverpool society, paid an annuity of 13*l.*, whilst a member of a London society would pay only 8*l.* 8s., the value of shares in each society being 120*l.* This having been put forth with knowledge of the facts, would appear to be little short of a fraud. I will endeavour to elucidate this by a very simple operation of figures, and for the present there leave the question, with this remark, that the error into which Mr. Wilton and others appear to have fallen is, treating it as a purely financial question. Upon such a ground it needs no lengthened argument or complexity of figures to prove that parties proposing to lend money at 4 per cent. cannot by any process have a return made to them of their capital in ten years with 20 per cent. per annum profit. There is no doubt that these societies were originally established upon a rational theory of mutual benefit; accomplishing, by the combination of numbers, that which was impracticable for individuals. If your columns are permitted to be open to the subject, I pledge myself to prove to demonstration, that such societies may be formed upon, and existing societies conformed to, scientific and mathematically correct principles. The course I propose to adopt would be to point out the objections to existing details *seriatim*, and suggest the remedy, without embarrassing the subject with complexity of figures.

I am, Sir, &c.,

G. R.

COMPARATIVE STATEMENT OF REVENUE OF THE TWO SOCIETIES.

	£. s. d.	£. s. d.	£. s. d.
Liverpool Society.			
300 Shares, 13 months, at 12s., or 7*l.* 16s. subscrip. } 100 .. For years	.....	2,340 0 0 10	23,400 0 0
200 borrowers during first six years; additional re } demption 8s. per share, or 4*l.* 16s. per annum } For an average of years	.....	960 0 0 7	6,720 0 0
Total revenue	.....		30,120 0 0
London Society.			
300 members, 12 months, at 10s.; 6*l.* subscription For years	.....	1,800 0 0 10	18,000 0 0
900 borrowers, during first six years additional re } demption, 4s. or 2*l.* 8s. per annum } For an average of years	480 0 0 7	3,360 0 0	
Total revenue	.....	.....	21,360 0 0
Revenue in favour of Liverpool Society	.....	.....	8,760 0 0

It will be perceived that with nearly 41 per cent. less revenue, the London society proposes to accomplish similar results in a like period. In the Liverpool society eighteen members only received 120*l.*, and the evidence is distinct, that borrowing ceases at the end of six years.

[We have already devoted so much space to this subject, that we cannot comply with our correspondent's request. If "the objections to existing details" are not already known by our readers, they never will be.—Ed.]

FURNITURE TO ACCORD WITH THE BUILDING.

Sir,—Observations contained in a recent number of your publication lead me to think that an account of the manner in which the Conservative Club-house has been furnished, will be gratifying to your feelings as a man of

taste, and a zealous advocate of consistency in design and architecture.

The committee of the club has just set an example highly creditable to the order to which it belongs, and which is calculated, if followed by other bodies, or by wealthy individuals, to encourage the art of design more than any thing that has yet been done in this country.

Disregarding the old practice of allowing upholsterers to give designs, they, instead, employed and paid a professional artist to make the required drawings, under the direction of the architects of that mansion; and the result has been eminently successful, the furniture being thoroughly in keeping with the architecture, and contributing greatly to the effect and beauty of the interior, according to the opinion of every visitor.

The novelty of this plan forms a striking contrast to the principle laid down by a committee of Parliament, appointed to examine the charges for the furniture of Windsor Castle, manufactured by Messrs. Seddon; they struck out all charges for designing and drawings, setting forth as a reason that a manufacturer should be his own designer. Comment is superfluous—but the result was most mischievous, and most injurious and degrading to designers, for manufacturers could no longer charge for designs without fear of having them struck out of their estimates or charges; besides every manufacturer was, as it were, privileged by Act of Parliament to consider himself a man of taste and a qualified designer, and quite independent of professional artists.

However, brighter days are at hand, and the public begin to be sensible of the fact, that many years of hard study in the art of design, and exclusive attention to it, can alone make a designer. I am, Sir, &c.,

40, Brompton-square. H. Whitaker.

Miscellanea.

Decorative Art Society.—On Wednesday, the 12th inst, a paper was read by Mr. Owyer "On the interior decorations of the Royal Exchange." He referred to a former paper read in December last, and contended that the decorations did not improve upon further acquaintance; that the ceilings and walls contrasted painfully with the floor and pilasters; and that, admitting the style of decoration to be an approved taste, this incompleteness in such a building was much to be regretted. He suggested that an ornamental or a mosaic pavement in the ambulatories, comprehending in its design decided lines assisting the perspective, would tend to improve the whole effect of the interior. That the walls might have been adorned with representations from the history of commerce—such as the signing of important treaties, or by portraits of celebrated men, who have been connected with the rise and progress of our commercial greatness; and that these works ought to have been by our leading English artists, as offering to them a public gallery for their productions. A question was put respecting "the vehicles used for the wax or encaustic painting" at the Exchange, but no satisfactory reply was obtained, and information was again solicited upon this important point, which, in fact, marks the distinction between *encaustic* and *distemper* painting, between durability and that which is not durable. The invention (patented by Mr. Wicksee), of compressed glass mosaics for pavements, for mural decorations, or for furniture, was explained, and some beautiful specimens exhibited in the room; this led to some further remarks on the exclusiveness of the Gresham Committee, to whom this inventor had applied to be allowed to shew his specimens, but no notice was taken of the request. It was thought that had there been competition afforded to artists generally, much better results in the decorations of the Exchange would have been realized.

City Bricklayer.—A vacancy having occurred in this appointment, caused by the death of Mr. Cartwright, several parties have announced themselves as candidates. The appointment is in the gift of the lord mayor, aldermen, and common council, and when contested is determined by vote.

The Electric Telegraph.—The speed of railway communication, wonderful as it seems, is infinitely eclipsed by another nobler invention, the gift of science to the useful arts, and which may be pronounced little less than miraculous; we mean the electric telegraph. A motion made at one end of the line, extending from London to Portsmouth, a distance of 88 miles, was conveyed to the other without any sensible lapse of time. It is not doubted that by similar apparatus, consisting simply of wires with powerful magnets at each end, intelligence could be conveyed in the same instantaneous manner from London to Edinburgh, or Inverness. The expense for the 88 miles was only £24,000, or rather less than £300 per mile. There is little doubt that they will be extended to all the more vulnerable extremities of the land; and it is easy to see how vastly this beautiful invention, combined with railways, will add to the security of the kingdom, both from foreign invasion and domestic insurrection. The electric wires, extending over the island, may be compared to the nerves ramified over the body, which give instant notice of the slightest movement in the most distant member. The government seated in the sensorium will enjoy, when danger threatens, a sort of omnipresence. It will be able to communicate with the remotest parts in a few seconds, to know what is passing in these parts, and to direct, without the loss of an instant, the measures which the conjuncture requires. The danger known, the railways furnish immediate and gigantic powers to meet it. With their aid, a march, which in former times occupied a month, is contracted to a day; and supposing ten thousand soldiers to be stationed in London, they could now be sent to York in less time than would have been spent on the march to Windsor seven years ago.—*Scotsman.*

Pressing Workmen.—Our contemporary the *Literary Gazette* says, a curious document has been lately published by the Comité Historique of Paris, concerning the completion of the Louvre and the Tuileries. It belongs to M. A. Lenoir, and was once in the office of the Grand Provost of France. It appears from this paper that all masons and other handicraft men could be forced to work upon the king's buildings, by order of the provost, to the exclusion of all other buildings, which they were obliged to abandon for the time being. The king (Louis XIV.), after ordering all due preparations to be made for the collecting of stone, &c., commands that, while these palaces shall require the aid of a considerable number of hands, no workmen in Paris shall be allowed to work on any other edifices whatever; and further, that no person shall presume to erect any building in Paris and within ten leagues round, under penalty of 10,000 livres fine for the first offence, and the galleys for the second. It is observed that in certain cemeteries of France—and it is known to have been especially the case within the cloisters of monasteries — there exist lofty crosses of stone, with a stone pulpit attached to them. This cross is styled the Hosannah cross, because on Palm-Sunday a procession was made thither from the church; certain prayers were offered up there, and the "Hosannah" sung.

Enlargement of King's College Hospital.—A public meeting was held on the 13th instant, at Willis's Rooms, King-street, St. James, under the sanction of the council of King's College, for the purpose of originating a subscription for the above object. His Grace the Duke of Buccleugh presided, and was supported by the Bishops of London and Lichfield, Lord John Russell, Sir Robert Inglis, the Governor of the Bank of England, Mr. Alderman Copeland, &c. 15,000*l.* is the sum required to complete the increased accommodation proposed. The contributions announced at the meeting amounted to upwards of 2,000*l.* The Queen sent a donation of 100*l.*, and the Queen Dowager one of 150*l.* There still remains to be raised 13,000*l.*

Royal Commission of Fine Arts.—In consequence of applications from sculptors requesting to be allowed to exhibit in Westminster Hall specimens of their art, a notice has been issued inviting artists to send models for statues or groups, during the first week in June next, to Westminster Hall, to be there exhibited, subject to the regulations and conditions which were published relative to the former exhibitions.

Railway under the Thames.—At the annual meeting of the proprietors of the Thames tunnel, held last week, the chairman, in answer to a question whether there was any truth in the report that a proposition had been made for the construction of a railway through one of the adits of the tunnel, stated that "A plan was submitted by the late Mr. Samuda, who proposed to form a railway through the tunnel, for the conveyance of carriages and carts, one side being for foot-passengers, and another for vehicles. The apparatus for the railway would cost about 10,000*l.* When it was sufficiently matured, the plan would be laid before the proprietors.

Master Carpenters' Society.—A meeting of this society will be held at the Freemasons' Tavern, on Wednesday evening, the 26th instant, when, the usual business being disposed of, new members will be admitted. Several of the clauses in the New Buildings Bill will be brought before the board and discussed.

Art Union of London.—We draw the attention of our readers to the advertisement of this widely-spread institution in another part of the journal. The subscription lists will be closed on the 31st inst., and the general meeting for the distribution of the funds will be held on Tuesday, the 22nd of April.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

A Plan, Specification, and Estimate, for a Pier, Slip, or Jetty, to be erected at Weston-super-Mare, Somerset. Twenty-five guineas is offered for the most approved plan. March 24.

For the supplying and erecting a Water-tank for the Sheffield and Manchester Railway Company. March 25.

For supplying her Majesty's several Dock-yards with Riga Hand Masts and Fir Timber, Dantzic Deck Deals and Fir Timber, and Norway Spars. March 28.

For the erection of Waiting-rooms, &c. for a Steam-boat Pier, at the Market-quay, Blackfriars-bridge. March 28.

For supplying the Commissioners of the Great Dover-road district, Newington, Surrey, with the best-tooled York Paving-stone, and the best Guernsey Granite; also for labour and mortar in taking up, squaring, and relaying old pavement-stone. March 28.

For the supply of 11,000 feet of nine-inch cast-iron Pipes for a new line of Aqueduct to be laid in the Island of Malta. March 31.

For the supply of Rails and Chairs for the Eastern Counties Railway. March 31.

For the erection of a new Workhouse at Stratton, St. Margaret, about Midway between Swindon and Highworth, Wiltshire. April 2.

For certain repairs to Snake Bridge (over the River Alde), Suffolk. April 2.

For Lighting Camden-town, St. Pancras, with coal-gas for five years, from the 24th of June next. April 3.

For the erection of a Church in the parish of St. Thomas, Winchester. April 5.

For the erection of a Church, in the parish of St. Thomas, Winchester. April 5.

For cutting, forming, and completing a new line of Private Carriage-road, one mile in length, from Whitehaven Castle, Cumberland, the seat of the Earl of Lonsdale, to the Turnpike-road, between Bransty toll-bar and Lonsdale-place, near the town of Whitehaven. April 7.

For constructing the fourth division of the Great Southern and Western Railway. April 8.

For about 250,000 Railway Sleepers not less than 9 feet long, for the Chester and Holyhead Railway. April 9.

For erecting at Alresford, Hants, between five and six thousand feet superficial of new Brickwork, to be either neat flat, joint-pointed with white mortar, or neatly tuck-pointed. The parties to find labour and the erection of scaffolding only. April 10.

For the restoration of the Parish Church of Grays Thurrock, Essex. April 12.

For submitting a plan of a Tread-wheel, and constructing the same in the Common Gaol of Great Yarmouth, Norfolk. April 24.

For all the Works to be done in the erection and completion of the new cast-iron Bridge over the Haven of Great Yarmouth, including the finding of labour, certain materials, &c. April 26.

For the construction of the third and fourth divisions of the Chester and Holyhead Railway. April 28.

For the supply of 11,000 feet of 9-inch cast-iron Pipes for a new line of Aqueduct in the Island of Malta. April 30.

For new-paving parts of the parish of St. Mary, Islington, Middlesex; and for repairing and keeping in repair the paved Footways belonging thereto, for one year from Lady-day next. Also for supplying unbroken Guernsey Granite, Core, Ballast, Gravel, and clean Flints.

For the execution of the Works necessary for the Drainage and Improvement of Lough Carrib, in the counties of Galway and Mayo.

For the supply of Rails, Chairs, Sleepers, and Bolts, for the Taff Vale Railway.

COMPETITIONS.

Plans, &c., for the erection of a Commercial Middle School in connection with the committee of the Manchester Church Education Society.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

March 24.—At Bradley's Wood, Halsted, Essex: 500 good Fir Trees; 5,700 capital Hurdle and Hop Poles; 54 Loads of Wood, &c.

March 24.—At Drayton, Somerset: 240 Oak Trees, almost the whole of which are sound clean Timber of superior quality.

March 27.—At the Hyde, Edgeware-road: 37 Butts of fine Elm Timber, felled and lying by the side of the Edgeware-road.

March 28.—At Garraway's Coffee-house, Cornhill: 350 loads of Red Pine Timber; 700 loads of Baltic; 10,000 Colonial Deals; and 10,000 Baltic and Swedish Deals.

March 28.—At Moor-house Farm, Denham, Bucks: 3,591 Oak Trees and Saplings; 220 Ash; 136 Cherry; and 3 Alder Trees.

March 28.—At Kesgrave Hall, Suffolk; Ash, Elm, and Birch Trees, Elm Pollards, Stock Birch, Elm, Chesnut, and Alder Stands, and other Poles.

March 31.—At 7, Store-street, Bedford-square: several thousand Yellow Deals, Pine and Spruce ditto, Battens, Planks, and Boards, Ash Felloes and Planks, and other seasoned Wood.

March 31.—At Down Hall, Bradwell, Essex; 310 Oak Timber Trees, standing with Top, Lop, and Bark; 213 Ash, 157 Elm, and 78 Beech Trees.

The last week in March, or the first week in April next.—A large quantity of Oak and Elm Timber, of superior quality and large dimensions, principally growing in the woods on the Orchardleigh Estate, near Frome, Somerset.

By Private Contract, before the 1st of April next.—287 Oak Trees, of full growth and large dimensions, suitable for all purposes, now standing at Woodside, near Morland, Westmoreland.

April 1.—At Chelmsford, Essex; a very valuable, extensive, and well-assorted stock of Dry Wood in great variety, comprising fine Spanish and Honduras Mahogany, mostly cut between six and seven years; particulaly fine Zebra Wood, English Oak, Pencil Ceder, Birch, Beech, Elm, Rosewood, &c.

April 3.—At Whitley, near Baythorne End, Suffolk: a large quantity of Fir Timber.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, March 24. — *Medical*, Bolt-court Fleet-street, 8 P.M.

TUESDAY, 25.—*Medical and Chirurgical*, 53, Berners-street, 8½ P.M.; *Zoological*, Hanover-square, 8½ P.M.

WEDNESDAY, 26.—*Pharmaceutical*, 17, Bloomsbury-square, 9 P.M.; *Ethnological*, 27 A, Sackville-street, 8 P.M.

THURSDAY 27.—*Numismatic*, Somerset-house, 7 P.M.

SATURDAY, 27.—*Westminster Medical*, 32, Sackville-street, 8 P.M.; *Institute of the Fine Arts* (Society of Arts), Adelphi, 8 P.M.

TO CORRESPONDENTS.

"An Old Surveyor," "Vigil," *and* "W. H." *will find an answer in our leading article.*

"Architectural Drawing Schools."—*We often receive inquiries as to the best school, and are unable to afford satisfactory information. We should be glad to learn what establishments of this kind there are in the metropolis.*

"B. F." (Minories).—*There is no such class at present.*

"H. N."—*We shall be happy to receive his communication on the subject of Limes.*

"A Constant Subscriber" *must give notice to the district surveyor before any chimney-stack or flues be pulled down, cut into, or altered.*

"R. B. W." (King's Langley) *is thanked for the offer of his very nice drawing. We regret that we cannot avail ourselves of it, having already provided similar examples. We hope to hear from him again.*

"W. P." (Woodbridge).—*We are indebted for his enclosure, but consider the subject hardly of sufficient importance to be engraved. It is left as directed.*

"R. B. R." (Fleetwood).—*We thank our correspondent for the sketch, but cannot promise at this moment to engrave it. The ordinary mode of obtaining copies of "brasses" by means of heelball, is cleaner and more simple than that suggested by "R. B. R."*

"G. P." (Preston) *is thanked. The drawing shall be engraved shortly.*

"R." (Sudbury).—*The fluid to supersede Indian ink, of which he asks, is sold by Stephens, 54, Stamford-street, Blackfriars-road. We cannot answer for its goodness, not having tried it.*

"Herne-hill Church Estimate."—*The insertion of "Mr. Broomfield's" letter would subject him to an action at law: we must decline doing so.*

"H. W." (Brompton).—*We shall shortly examine the building in question, and shall probably be glad to avail ourselves of the offered tracings.*

"One of the Competitors" (Holloway Chapel).—*We cannot listen to anonymous charges without proof.*

"A Plasterer" *and* "W. G. Lock."—*Next week.*

"N. B." *wishes to know if Windsor Castle will be open to the public on Whit-monday.*

"H. C."—*The question is too general for us to answer.*

"Clay for Modelling."—*Mr. Dalton wishes us to state, the clay mentioned in our last number was first used for modelling by Mr. Sangiovanni.*

"Scrutator's" *communication is declined with many thanks for kind intentions. It is left for him at the office.*

Received.—"C. E. G." "E. G. B." (Oxford); "P. T."; "A Fair Tradesman," *and* "*The Illustrated Family Journal, No.* 3." *A good two-pennyworth.*

ADVERTISEMENTS.

EMBARRASSED CIRCUMSTANCES. —PERSONS IN DIFFICULTIES being desirous of availing themselves of the Benefit of LORD BROUGHAM'S HUMANE ACT, are requested to apply to MESSRS. GRAND AND CO., of 54, Coleman-street, City, where every information may be obtained, FREE OF EXPENSE, or arrangements can be made with Creditors, by which means the painful necessity of resorting to BANKRUPTCY or INSOLVENCY may in many cases be avoided.—N.B. Partnership accounts adjusted.

TO BUILDERS and Others.—A cheap substitute for high priced bricks, well worthy the attention of speculative gentlemen, and other capitalists who intend building this season. This article is stone, which may be worked with great advantage. It is in pieces from 3 to 5 inches in thickness, and averaging from 14 to 20 pounds in weight; it is about the same weight as bricks, and will be sold in London at 12s. 6d. per ton. Any quantity may be had from 100 to 200 tons per week; not more would be guaranteed per week, as it will come by railway. A fair sample of 10 or 12 tons may be seen at the proprietor's at any time.—Address, JAMES PERREN, 1, Victoria-place, Surrey-square, Walworth.

TO UPHOLSTERERS, CARPENTERS, BUILDERS, and CONTRACTORS.

	s.	d.
Furniture cleaned and stopped ..... per yard	0	1½
Lined ditto ditto	0	2½
Sofa and Chair Covers at equally reduced prices.		
Linings cleaned and dyed all colours (Pink excepted)	0	3
Pink and Rose colour	0	4
Moreen cleaned, and watered or embossed to elegant patterns	0	4
Ditto re-dyed	0	6
Silk Damask cleaned and finished	0	6
Ditto ditto dyed all plain colours	0	8
Ditto ditto scarlet and crimson in grain	1	0
Window Blinds cleaned and calendered	0	3
Blankets cleaned from ..... 4d. to	1	6
Counterpanes from ..... " "	1	0
Carpets cleaned and hotpressed ..... per yard	0	4
Mattress Cases cleaned, &c.	2	0

AT CALDWELL, AND CO.,
SILK DYERS, SHAWL AND FURNITURE CLEANERS, EMBOSSERS, &c.,
54, Mortimer-street, Cavendish-square.

Furniture taken down and re-made. Letters punctually attended to, and all goods delivered within the week. Please to copy the Address.

PAINTING BRUSHES OF SUPERIOR QUALITY.
TO PAINTERS, BUILDERS, &c.
J. J. KENT AND CO.,
MANUFACTURERS,
11, GREAT MARLBOROUGH-STREET, LONDON,
Offer to Painters, Builders, &c., Painting Brushes of a quality far superior to those generally offered for sale, to which they beg to call the attention of all who prefer quality and durability to apparent cheapness.

ooooooo.—7 in. Dusters.
ooooooo.—7 in. ditto, extra.
oooo.—Ground Brushes.
Plasterers' Brushes.
Distemper ditto. Ground and Unground.
Sash Tools, and Common Tools.
Tar Brushes and Masons' Brushes, and all other Brushes used by Painters and Artists.

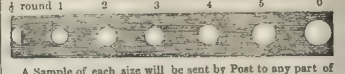
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E. WOLFF AND SON, in introducing their Extra Hard Lead Pencils for Mathematical and Architectural purposes, beg to draw attention to the advantages resulting from their adoption in preference to the ordinary Pencils. They are made to six distinct sizes, by which means they can be fitted to all instruments, and are so constructed that each Pencil may be cut in halves without waste; thus making two Pencils each of a length, and most convenient for use, and obviating the difficulties existing with respect to the ordinary Pencils.

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Drawing Pencils of the best quality, for Architects and Engineers, warranted free from grit: the HHH and HHHH are particularly recommended.—Price 5s. per dozen.

May be had of all Instrument Makers and Stationers, and at the Manufacturers', 23, Church-street, Spitalfields, London.

WALLIS'S PATENT LIQUID WOOD KNOTTING. — This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; a boy can use it as well and effectually as the best workmen: it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20s. per gallon.

VARNISH.—It has long been a desideratum amongst the consumers of Varnish to obtain a good and genuine article; brilliancy, facility of drying, hardness, and durability are the qualifications necessary, but these are seldom if ever found united. The experience of a life-time devoted exclusively to the manufacture of this article, the great and important discoveries of modern chemistry, and the daily improvements in machinery, have enabled Messrs. George and Thomas Wallis to produce Varnishes (both oil and spirit) unrivalled in every respect, and they confidently recommend them to the trade, as deserving of notice both in price and quality.

Builders, Coachmakers, Painters, and others may depend on having supplied with a genuine and unadulterated article, Fine Oil Varnish, from 10s. per gallon; best White Spirit Varnish, 21s. ditto; Best Spirit French Polish, 20s. ditto; White Lead, Oil, Turps, and Colours of every description at the very lowest prices.—WALLIS'S Varnish, Japan, and Colour Manufactory, 64, Long-acre, one door from Bow-street. Established 1750.

HIP TILES to suit slate roofs in colour; Ridges, with plain or rebated joints, roll tops, and vertical ornaments; drains, many sizes, with plain or socket joints; paving in squares, hexagons, octagons, &c., different colours; roofing, in Grecian or Italian styles, other devices also, or plain; conduits, which do not injure pure water; fire-bricks and tiles; clinkers, and oud-door paving; sundry wall-coping, garden-borders, chimney-tops; also tubular and other flues of peculiar material. No agent, but a depôt at WHITEFRIARS, and 22, WATER-LANE, FLEET-STREET, LONDON, under Mr. PEAKE'S personal care, to supply genuine TERRO-METALLIC goods at fair prices as per quality.

The TILERIES, TUNSTALL, STAFFORDSHIRE, are near the centre of England, whence boats are sent direct to any inland place; or to the Mersey for the coasts, the colonies and elsewhere.

HATCHER'S BENNENDEN TILE-MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz:—

1 inch diameter of Tile,	11,000
1½ " " "	8,000
1½ inches diameter of Tile,	5,80
2½ " " "	3,20

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or licence. The purchase of the machine includes free use of it.

The Builder.

No. CXII.

SATURDAY, MARCH 29, 1845.

THE Commissioners for promoting the Fine Arts, in connection with the new Palace of Westminster, passed a resolution previous to the late exhibition of orks of decorative art in King-street, St. mes's, to the effect, that those persons who ght be selected for employment on matters of at description, should, if the commissioners ought fit, be required to produce a specimen their art, to be completed under such conions as the commissioners might stipulate. They afterwards selected certain artists who d submitted carvings, and singled out one ry justly, so far as the works in his name re considered) as pre-eminently deserving be employed in the new Houses.

On this the wood-carvers in London held a eting, eighty were present, and, first apving the principle laid down in the resolu- of the committee referred to, expressed ir conviction that the artist thus distinshed was not competent to produce works al in delicacy of execution to those exhid in his name, and called on the commisers to require him to execute a specimen ler such regulations as might remove all bts of his right to the position in which he been placed. Further, they pointed out t a second artist selected by the commisers was not a carver, and was incapable of ducing work equal to that exhibited as and suggested that the practical ability ll the gentlemen selected for employment ood-carvers at the new Houses of Parliat should be tested.

memorial, founded on resolutions passed he meeting, was signed by ninety-three d-carvers in London, five in Bristol, five Warwick, three in Leamington, and three Peterborough, and was presented at the e of last year. To this they have recently ived the following reply:—

Whitehall, 1st March, 1845.

g,—I have to acquaint you that a petition, d by various wood-carvers, and forwarded by o Benjamin Hawes, Esq., M.P., to be pred to her Majesty's Commissioners on the Arts, has been submitted to them accordingly, hat I have received their commands to notify n in reply, that they are resolved in every nto satisfy themselves that artists are fully tetent to execute with their own hands the s that may be allotted to them.

I am, Sir, your obedient servant,

C. L. EASTLAKE, Sec.

. W. G. Lock, Hon. Sec.

e have purposely avoided naming the s alluded to, as it is to be hoped they will ible to satisfy their brother carvers of iright to the position given them: we deal y with the principle involved.

he resolution arrived at by the comoners is a good one. It is of the utmost rtance to get rid of the third person ing between the public and the artist: this be done, he remains simply a anic, and cannot hope to raise himself, more than we can hope he will aid ising his profession. Wood-carvers in nd have been long kept down, and we are most anxious to see the opportunity of encouraging carving, offered in the re-building of the new Houses of Parliament, made available to the utmost extent.

"We have very little opportunity of designing," said Mr. Mitchell, a wood-carver, to the Committee on the fine arts in 1841. "We are generally, which I consider the principal evil of the business, under the dominion of upholsterers; so that we very seldom design any work, or have any opportunity of doing so. The higher part of our profession is not encouraged. So far as regards the encouragement we receive at present, it is very little, or rather it tends to depress us from proceeding in any way as respects improving ourselves; for the generality of our work we receive from upholsterers, whose business it is to curtail the price as much as possible. And further, an intermediate person being employed is injurious, not so much that it affects the remuneration for our labour, as that it *destroys every opportunity of rising in our profession.*" And this, all who have watched the effect of the system both on carving and *glass-painting*, and other decorative arts, must at once admit to be true, and be desirous to remedy.

We are glad to find the carvers bestirring themselves to obtain a proper place in society; still more so that they are anxious as a body to fit themselves to maintain it. In the association which they have formed, books on their art, specimens, and prints, are eagerly studied, and we fully believe that nothing but opportunity is wanting to develope some first-rate artists.

Being much interested in the subject, we have taken pains to learn the condition of this society, and find that there are now 108 members, fourteen of whom are employed in the country, and exempt from subscription, and that the number is steadily increasing. During the last three months several works have been purchased by the society for the use of its members, and a fine cast of a Saviour, from a crucifix executed in box, at Rome, for Napoleon. The last quarterly return shewed that there had been, in the preceding three months, 131 loans of books or prints from the collection, including forty-three works on Gothic designs, eighteen Elizabethan, seventeen French, six heraldic, five Greek and Roman, &c. &c.; shewing a great demand for Gothic in proportion to other styles. Halfpenny's York Minster has the largest circulation of this class, next follows the Glossary of Architecture, and then Pugin: in the same three months there were sixteen loans of casts. They subscribe regularly to the Art-Union of London. About three years since the Society sustained a severe loss by one of the trustees absconding with more than 20*l.*, otherwise it has prospered and increased from its formation; still, the contribution being small, few purchases can be made, and we venture to suggest to our readers that donations of prints and books would increase its usefulness.

Among the most recent carvings executed in England, the patterns for the gates of the Fitzwilliam Museum, at Cambridge, designed by Mr. Basevi, are well spoken of.

LIGHTING BY ELECTRICITY.—Mr. Weekes's plan for lighting towns by electricity is about to be carried into effect in America. The editor of the *Cincinnati Mechanic* states that an experiment he lately witnessed was perfectly successful, that the apparatus is by no means costly, and that for lighting Cincinnati, two towers, it is considered, will be sufficient to illuminate the whole city. Mr. Weekes's plan was first published in this country as far back as 1831.

GLASS AND GLAZING.

"By some fortuitous liquefaction," remarks Dr. Johnson in the 'Rambler,' "was mankind taught to produce a body at once in a high degree solid and transparent, which might admit the light of the sun, and exclude the violence of the wind—which might extend the sight of the philosopher to new ranges of existence, and charm him at one time with the unbounded extent of the material creation, and at another with the endless subordination of animal life; and what is yet of more importance, might supply the decays of nature, and succour old age with a subsidiary sight. Thus was the first artificer in glass employed, though without his own knowledge or expectation. He was facilitating and prolonging the enjoyment of light, enlarging the avenues of science, and conferring the highest and most lasting pleasures; he was enabling the student to contemplate nature, and the beauty to behold herself."*

The removal of the duties from this very adaptable and important material has induced considerable stir in the glass trade, and cannot fail to lead to many advantageous results. To the shares of glass companies it has imparted sudden value. Manufactories long since shut up have been opened again, and in other places where they have continued in operation, are forthwith to be enlarged. The Birmingham Plate Glass Company, who relinquished business two years ago, are about to renew their operations, we are told, which will have the effect of giving employment to hundreds of persons. The manufacture is to be revived in Cork, where it went to decay after the imposition of the duty. Works for the production of glass are talked of in Worcester; and in Sunderland Messrs. Hartley and Co. have commenced building three new glass-bottle houses, which will give occupation to nearly a hundred men. Moreover, persons heretofore in the habit of importing Bohemian glass in large quantities are about to discontinue doing so, and to turn their attention to the manufacture of the material in this country.

Sir Robert Peel asserted in his financial statement, that the square of glass which now costs one shilling would be reduced to fourpence; but, in reality, the reduction will not be quite so great, and when put into our windows the difference to the consumer will be even less, as the value of the glaziers' labour remains the same, and forms an important part of the cost of a square of glass. Common glazing in sashes will be done probably for 7d. per foot.

The immediate reduction in cost, however, although this will be considerable, is not the ultimate advantage of the alteration. The working of the present system (next week we shall be able to say, of the *old* system), is troublesome and oppressive, as it entails the constant presence of an exciseman, even when glass is produced in very small quantities, merely for the sake of experiments; and has had the effect of preventing efforts to improve its manufacture, and of rendering the application of additional skill and ingenuity almost impossible.

It cannot be doubted that in a very short time considerable improvements will follow the removal of restrictions, and that the actual cost of glass will be lessened very considerably. That it will be applied in numerous ways at present unthought of, seems certain. The premier spoke of the superiority of a balance-spring of a chronometer made of glass instead of steel; and alluded to pipes of glass now being manufactured in France, for the conveyance of water, which cost 30 per cent. less than pipes manufactured of iron, and would bear a greater external pressure than iron.

Since then we have heard of glass bells for churches, glass mountings for weavers' looms, glass pavements for streets and halls, glass milk pans, and various other novel applications of it. A provincial paper speaks of a "picture-frame of common wood, the front of which is overlaid with slips of glass beautifully mottled, so as to produce the effect of veneered wood

* Pliny gives the following account of the discovery of manufacturing glass:—A merchant vessel, laden with *nitrum* (salt or soda), being driven on the coast of Palestine, near the river Belus, the crew accidentally supported the kettles on which they dried their provisions on pieces of the *nitrum*, the sand about it was vitrified by its union with the alkali, and produced glass.

of the finest kind. The effect is, in fact, in some respects, superior to that of the finest veneering used in framing prints, for while every description of wood may be imitated in this manner, the brilliancy and polish of the material affords a great advantage both in beauty and durability. In cheapness also, a very important point, the superiority of the new adaptation will, we imagine, be no less apparent over the working of the more expensive woods." Picture-frames too, of all sorts, will be in greater request, for the cost of glass being lessened, drawings and prints will be framed and hung up more universally than formerly.

To horticulture the alteration will be of the greatest service; and many persons will now be able to enjoy the pleasure of a conservatory, or hot-house, who have been prevented up to this time by the cost of maintaining such structures. The duty being levied by weight, and crown-glass sold by measure, the manufacturer has been led to reduce its substance as far as possible, and the result is that much glass is used which will hardly bear its own weight, or keep out the wind; and in greenhouses and such erections the breakage is a constant and heavy expense.

Glass, besides being cheap, will now be more durable, for the materials of which it is composed are so inexpensive, that the manufacturer will be led, as lessening the risk to himself, to make the glass much stouter.

There is yet a more important consideration in connection with the removal of this impost, and that is, as it concerns the general health. A prohibition of light is a direct encouragement of dirty habits, disease, and immorality. Light is as necessary as air and food, and a deficiency of it leads to numerous disorders.

So long as the infamous window-tax is continued, the cheapening of glass will produce in this respect but little improvement; but as that tax *must* ultimately be removed, or so altered as no longer to offer a premium for unhealthy arrangements, we may anticipate at no distant period most important advantages. Want of ventilation, deficiency of light, and a corrupt atmosphere, hurry thousands to a premature grave, and unfit even a larger number for the due enjoyment of life.

A writer in the *Lancet* says:—

"The fact of the multiplicity of windows being an immense advantage for health, is most important, and should be strongly impressed on the public mind whenever the opportunity offers. It must not, either, be forgotten, that in this respect we have not only the window-tax to contend with, but architectural prejudices.

"Our ideas of architectural beauty are principally derived from the buildings of southern Europe, where the intensity of light is so great, that it has rather to be avoided than courted, and where it is less necessary to favour its admission into dwellings, from the inhabitants spending so much of their time in the open air. The result is, that among architects a multiplicity of windows is considered a defect instead of a beauty, and studiously avoided. We trust, however, that no such doctrine will be allowed to exercise a permanent sway in a climate to which it so little applies, and that, however detrimental to architectural beauty windows may be considered to be, their importance in a hygienic point of view, will be the paramount consideration."

We will conclude our present notice with a brief reference to the history of glazing windows, comparatively a modern application of the material. Artisans were brought from abroad in the 8th century, to glaze the church windows at Weremouth, in Durham, and glass continued to be used partially from that time. For some centuries, however, it was considered a moveable luxury, not necessarily part of the house. In 1505 it was held in law that though the windows belonged to the heir, the glass was the property of the executors, and might therefore of course be removed by them, *because the house was perfect without the glass.*

So late as 1567, an entry then made in the minutes of a survey at Alnwick Castle, the seat of the Duke of Northumberland, shews that the glass casements were taken down during the absence of the family to preserve them from accidents: and even at the end of the 17th century, that the lower rooms in the royal palaces in Scotland were without them, and had simply wooden shutters to exclude the air, and, at the same time, the light.

The first regular window-glass manufactory of which we have any account, appears to have been commenced in Crutched Friars, London, in the year 1557. The first sheets of blown glass were made at Lambeth in 1663. In 1691, the glass made at the Bear-garden on the Bankside was called "Crown window glass, exceeding French glass in all its qualifications." The same manufactory was afterwards removed to Ratcliffe, and the glass became celebrated as "Ratcliffe crown glass." This and the other glass-houses in London were ultimately abandoned, on account of the expense of fuel, and at this time we believe there is not one left. Newcastle-upon-Tyne, Stourbridge, Bristol, Liverpool, Warrington, Birmingham, and Leeds, are the chief seats of the manufacture in England.

The duty on flint-glass is very inconsiderable, 7*s.* per cwt., as compared with that on crown-glass, and for some time little difference will be found in the price of cut-glass articles; hereafter, however, for reasons before stated, its cost will, without doubt, be considerably lessened. Crown-glass differs from flint-glass simply in this respect, that it does not contain lead nor any metallic oxide except manganese, and occasionally a minute portion of oxide of cobalt, to destroy colour. This they do by what at first sight seems paradoxical, namely by each imparting colour. The manganese gives a slight tinge of red, the cobalt of blue, while the sand and alkali produce a yellow tinge; but the colours neutralize each other, and the result is an almost perfectly transparent material. The glass manufacturers, when the alteration was first announced, were alarmed by a statement, that no drawback would be allowed on the stock in hand. Several deputations attended the minister, to shew the injuries they would sustain by the removal of the duties, and in consequence, arrangements have been made to meet their views. The following is a copy of the order issued by the excise:—

"The board have received instructions from the Lords Commissioners of her Majesty's Treasury to allow drawbacks on glass on the following conditions:—

1. Warehouses at the cost of the manufacturers or dealers must be provided, and being approved by the excise, put under our lock. These warehouses to be at the different manufactories, and in each town where we have a supervisor.

2. That no glass be warehoused excepting under the same regulations as if for export.

3. That no quantity of crown or German sheet glass less than 10 cwt. be received at the same time from any individual.

4. That each package be marked with the net and gross weight, and with the name and abode of the depositor.

5. That the bottle on the manufacturing premises of such of the bottle makers as require it shall be taken account of and warehoused, or secured by the excise.

6. That on the repeal of the duty on crown, German sheet, and bottle glass, the quantities so under the excise locks shall be delivered to the respective owners, precautions being taken to ascertain that such quantities correspond with those deposited.

7. That so soon as the re-deliveries shall be completed, and the accounts have been examined and certified at the head office, the owners shall receive documents authorizing them to claim the sums to which they would have been respectively entitled by way of drawback on exportation, deducting 25*l.* per cent.

8. That on the 5th day of April, the stocks of plate-glass, whether in the rough, smoothed, or polished state, be taken; and on all rectangular pieces of 6 inches by 4 at the least, and not less than 1-8th of an inch in thickness, the sum of 1*s.* 10½*d.* per square foot be allowed, and on such as is polished and not 1-8th of an inch in thickness, the sum of 4*l.* 4*s.* per cwt.; if unpolished and under 1-8th in thickness, no allowance."

Health of Towns.—Mr. Mackinnon has postponed his motion relative to the Health of Towns until the first Monday after Easter.

Baths and Wash-houses.—An exhibition of the competition designs for the first model establishment will take place at Mr. Rainy's gallery, 14, Regent-street, on Monday next, and the three following days.

CONSTANTINE'S BRIDGE OVER THE RHINE AT COLOGNE.

Many of our readers have, no doub visited the bridge of boats thrown across th Rhine from Cologne to Deutz; and many them have most probably been informed by th "*cicerone*" that a stone bridge once unite the two towns, the remains of which (as asserts) are still to be seen at the Beye Thurm, at the southern end of the town, a to which, as an object of interest, the travell is generally conducted.

That a stone bridge across the Rhine, or, least, the foundation of one, did once exi we have every reason to believe; but that t projection at the Beyen Thurm formed a pa of it (and which a casual observer wou readily suppose) is a decided fallacy. T projection, which juts at that point into t Rhine, formed the foundation of a scree entitled "*die Arck*," on which two guar houses were built, and under which was arch for the passage of small vessels at su times as the Rhine was barred, as was the ca in the years 1414 up to 1463, when Colog was in league with the Duke of Berg agai its Archbishop Dietrich von Moers. Th projection was connected by a wall with t Thurm or tower. In October, 1556, the to council decided that this projection should demolished, being of opinion that the stre was thereby forced towards Deutz. T order was, however, not carried into executi (although repeated in 1583) until the sev teenth century. At the northern end of t town a similar projection with tower exist and was, in like manner, connected by a w with the Cunibert's Thurm, the lower part which is still standing; so that here, as at Beyen, ingress and egress to the town cou when required, be prevented. The above been clearly proved by historians; and visiting St. Gereon's Church, a picture still be seen under the altar-piece, rep senting the projections, and shewing cle the use for which they were designed.

We have said that we have every rea to believe that a stone bridge, or at least foundation of one, did exist. That the Ro emperor Constantine caused it to be built been doubted by many. In 1766, the wa being very low, the engineer Rheinhart deavoured to discover its remains, and afte lengthened search found, in the bed of Rhine near the Salzgassen Gate, mas stone columns, as of arches, still stand He states the distance of these columns f each other to have been 7 Ruthen, 4 inc Rheinland (86 feet 9 inches English), and breadth of the bridge 36 feet 8 inches Rh land (37 feet 9 inches English). Many o historical grounds may be given in fav of our opinion, and it may be safely said Constantine commenced this bridge, but probably did not succeed in finishing it. read, however, that the Emperor Otto quarrelled with his brother Bruno I., A bishop of Cologne, owing to the latter ha caused the old Roman bridge to be demoli in the year 950, in order to make use of materials for building the church and cloi of St. Pantaleon. This would lead u believe that the bridge was really finis or why this quarrel?

According to Wallraf,* the Roman bri commenced at the Old Mars Gate, pa over the left or smaller arm of the Rhine, was guarded by two towers at its connec with the Rheininsel. This assertion is only in direct opposition to the discov of Rheinhart, but is also entirely ungroun and cannot be proved either historicall otherwise, no writers having spoken o and no remains having been ever found o near the spot.

From an inscription found in St. Herib Abbey, in Deutz, we are led to believe Constantine caused a tower to be built o eastern bank of the Rhine to guard the br and from which Deutz took its origin. authenticity of this inscription is, how greatly to be doubted. It is possible, more than likely, that Constantine cau castle or tower to be built on that ba guard the passage across the Rhine fro attack of neighbouring enemies, but tha tower was a part of the bridge still re to be proved.

* See Wallraf's "Beiträge zur Geschichte der Köln."

We have written the above to guard the ontinental tourist in his researches, from acing too much faith in the assertions of s accompanying "*cicerone*."

Cologne. W. H. Pepys, Jun.

CHURCH OF ST. PETER'S, HOWDEN.

A strong appeal for funds to restore this ifice has been issued; we sincerely hope may be responded to satisfactorily, notwithanding that it is dated "Feast of all Saints," d bears, unfortunately, other party badges. rom the document in question we learn the llowing particulars of the early history of the ilding and its present state:—

"Before making an appeal on behalf of the urch of St. Peter's, Howden, perhaps it will t be uninteresting to give a rapid sketch of early history.

There was a church and priest at Howden the time of the Domesday survey. In the ys of King Edward the Confessor, the nor, church, and lands were wrested from monastery of Peterborough, and being the king's hands, William the Conqueror e them to the Bishop of Durham, who e them to the monks of Durham. The rch was first a parochial chapel, in the ronage of the priory of Durham, and . 1267, Archbishop Walter Grey ordained prebendaries, one of whom as an hebnary to orderly keep his turn, and serve the e of the parish by his respective priest, and ther ordained that the prebendary of Howden uld be the first prebendary, and free from cure of souls.

he great patron and architect of this church Walter Skirlaw, Bishop of Durham, whose taste and spirit we are indebted for of the most glorious ecclesiastical edifices he kingdom. It is true, in extent and protion it may find many not only to compete n, but also to surpass it; but it will bear severest comparison with the most ened, in elaborateness of detail and finish. e many similar structures, it has been the k of successive periods, though probably ts general construction the completion of original design.

y reference to Hutchinson's 'History of ham,' vol. iii., we find copies of the ters, &c., of Howden, from which it ears that A.D. 1268, the church was made egiate. It is, therefore, more than proe that the re-building is posterior to that . Indeed, we may conjecture it to have in the following order, and the architecl evidences of the building confirm the osition:—

I. The nave, transepts, and tower, up to the leads;
II. The choir and chapter-house; and
III. The lantern-tower and school.

whole may be included in the period from 1280 to A.D. 1400. (Bishop Skirlaw died .) The particular dates it would be rdous to fix, nor is it necessary.

present the choir is in perfect ruin, as in great part, the chapter-house. The ons of the building now in sufficient r for the purposes of Divine worship are ave and transepts. And here it is not too to say, that it would not be possible to rate the zeal and honourable pride of the hioners, which have led them to no or- y sacrifices in order that their house of r should not lie waste. And first and ost have stood forth the respected vicar is excellent churchwardens, who, mindful e high responsibilities of their office, and the true spirit of worthy sons of the h, have counted no sacrifices too great, o exertions too severe, which could prove eans of putting this sacred fabric into a dion so as securely to stand the admiraand delight of four centuries to come, has been of the four which have passed

e appeal on behalf of this church is as for a great national undertaking, to ve and restore an edifice which may as a school and model for present and instruction to the admirers of ecclesiasarchitecture, which might well excite in our forefathers, but we fear, in these f coldness, will be the object of our envy than our imitation."

SUPPLY OF WATER TO THE METROPOLIS.

At a recent meeting of the Statistical Society, Mr. J. Fletcher, the honorary secretary, gave an outline of the present system of supplying the metropolis with water. London, in the first instance, derived its supply of water from shallow wells, from the Walbrook and other streams descending from the north, and from the Thames itself, by direct carriage. In the reign of Henry III., the corporation obtained liberty to bring water from Tyburn, which they did by means of a six-inch leaden pipe carried to Charing-cross, and thence to several conduits in the city. In 1438 the corporation brought water from Highbury to a conduit opposite Cripplegate Church. In the following year the supply to the cisterns at Tyburn was augmented by the waters of some springs at Paddington, obtained from the Abbot of Westminster. This continued to be the only great source of supply until the middle of the sixteenth century, although the water of various springs in the neighbouring fields were brought to supply particular buildings or localities in the city; the conduits at Holborn-cross and on Snow-hill deriving their water from the springs collected into Lamb's-conduit, near the present Red Lion-street; that at Aldgate from springs at Hackney; one in Lothbury from springs between Hoxton and Islington; the Charterhouse from White Conduit-fields, and Christ's Hospital from the Devil's-conduit, north-east of the present Brunswick-square. In 1543 an Act was passed to enable the corporation to bring water from Hampstead Heath, St. Marylebone, and Hackney. Nor was it until 1568 that Thames water was raised by machinery for the supply of London.

The New River Company supplies all the metropolis north of the Thames from Charing-cross, Tottenham-court-road and the Hampstead-road, on the west, to the Tower, Shoreditch, and the Kingsland-road, with Dalston, on the east; the East London Waterworks Company, all those portions which lie to the east of the City, Shoreditch, the Kingsland-road and Dalston, extending their mains even across the river Lea into Essex, as far as West Ham; the Chelsea Waterworks, the whole of Westminster and the suburban parishes, south and west of Charing-cross, Pall Mall, St. James's-street, Park-lane, and the Uxbridge-road, as far as Kensington-palace; the Grand Junction Waterworks Company, the great square of town included by Oxford-street, Princes-street, St. James's-park, the Green-park, and Hyde-park, the Park-square district, between the Edgeware-road, the Uxbridge-road and the Regent's Canal, and a considerable district in the angle formed by the western end of Oxford-street and the southern end of the Edgeware-road; the West Middlesex Waterworks Company, all that portion of the town lying west of Tottenham-court-road and the Hampstead-road, and north of Oxford-street, the Edgeware-road and the Regent's Canal, with the exception of the part near the junction of Oxford-street and Edgeware-road, which is supplied by the Grand Junction Waterworks—the West Middlesex Waterworks also supply Bayswater and the suburban parishes of Kensington, Fulham, Hammersmith and Chiswick; the Southwark Waterworks, nearly the whole of the parishes of St. George and St. Saviour, Southwark; the Lambeth Waterworks Company, the whole of the parish of Lambeth and parts adjacent; the South London Waterworks Company, which is also called the Vauxhall Waterworks Company, it was calculated in 1830, supplied above 300,000,000 of gallons. In addition to the works mentioned, there are the Kent Waterworks, which supply Deptford, Greenwich, Woolwich, and Rotherhithe. The quantity of water raised by the eight great metropolitan companies in 1833 appears to have been equal to 357,288,807 imperial barrels; the number of houses and buildings supplied 191,066; and the average daily supply above 35,000,000 of gallons, or, 183 gallons to each person served, on the average.

Westminster Improvements. — The committee have plans now before them from Messrs. Tarring, Donthom, Lapidge, Lewer, Alders, S. Smirke, Bardwell, H. H. Russell, and Abraham. The plan of the latter gentleman is that known as "Mr. Wason's."

THE SMOKE NUISANCE.

The preamble and chief enactment of the "Bill to prohibit the nuisance of smoke from furnaces or manufactories," introduced in the House of Commons by Mr. Mackinnon are as follow:—

"Whereas great loss of fuel arises from the mismanagement of the fires of manufactories, and much injury to the health and comfort of the people is occasioned by the smoke issuing from the furnaces and chimneys thereof, and of the furnaces and chimneys of plying steamboats on rivers within the jurisdiction of towns or populous places, and the same can be remedied by proper care and attention; be it enacted by the Queen's most excellent Majesty, by and with the advice and consent of the Lords spiritual and temporal, and commons, in this present Parliament assembled, and by the authority of the same, that from and immediately after the *passing of this Act* it shall be lawful for the justices of the peace for any county, riding or division, usually acting in any special sessions division, and for the justices of the peace for any city, borough or place at any special sessions respectively, from time to time to appoint any police officer or other proper person, and they are thereby required so to do, to be inspector of smoke nuisances within the limits of such special sessions division, city, borough, or place, or any part thereof respectively; and such appointment from time to time to alter or cancel, as such justices in special sessions shall from time to time think fit, and to allow to such inspectors, or any one or more of them, such salary as the said justices in special sessions shall from time to time think fit; or in the case of any such inspector being a paid policeman, to require him to perform the duties of inspector of smoke nuisances, without any additional salary; every such salary to be charged upon and payable out of the county rate, or such fund as is charged with the salaries of policemen for the district for which any such inspector is appointed; and if there be more than one such fund, then in such proportions as the said justices in special sessions shall from time to time think fit.

And be it enacted, that from and after the *first day of January, one thousand eight hundred and forty-six*, it shall not be lawful for the occupier of any furnace or chimney to permit opaque smoke to issue from such chimney for any longer period of time than is necessary for the kindling of the fire of such furnace in connection with such chimney, and previous to the running of any engine connected therewith, which time allowed for kindling such fire shall not exceed *fifteen* minutes during one day.

And be it enacted, that from and after the said *first day of January, one thousand eight hundred and forty-six*, if opaque smoke shall be suffered to issue from any such chimney for any greater number of minutes than is hereinbefore limited in that behalf, the occupier, or any one of the occupiers of such chimney, shall for every first offence forfeit and pay any sum not exceeding *forty shillings*, nor less than *twenty shillings*; and for every second offence, any sum not exceeding *pounds*, nor less than *forty shillings*; and for every additional offence, any sum not exceeding *pounds*, nor less than *pounds*; to be recovered in a summary way before any two or more justices of the peace, in and for the county, riding, division, city, borough or place, wherein the offence shall be committed: provided always, that if such defendant shall charge that the offence mentioned in such summons was committed, if at all, through the negligence or wilful misconduct of any other person, it shall be lawful for any justice of the peace of the county, riding, division, city or place, on the application of such defendant, to summon such other person to attend at the hearing, before two or more such justices to answer the charge of such defendant in that behalf; and such charge shall be heard and determined as the justice of the case may require; and if the defendant shall satisfactorily prove that the offence mentioned in the original summons was wholly or in part caused by the negligence or wilful misconduct of such other person, the justices by and before whom the charge so brought by the original defendant is heard and determined, shall order the whole, or such part as they shall think fit, of the penalty and costs,

if any, which are adjudged against the original defendant, to be reimbursed to him by such other person, to be levied in like manner as penalties under this Act may be levied upon any original defendant: provided also, that if at the time of any such order being made as is last mentioned, such other person be in the receipt of or entitled to receive any wages from such original defendant, or any co-partnership of which such original defendant is a member, it shall be lawful for the said last-mentioned justices to authorize such original defendant to deduct the sum, if any, so awarded to be reimbursed to him as aforesaid, out of the wages then or thereafter to become due from him or his co-partnership, to such other person as aforesaid, either in one sum, or by such instalments as the said justices shall, in any such case, think fit to award."

When Mr. Mackinnon moved the second reading of the Bill a few evenings ago, the Earl of Lincoln said he thought it would be the better course to pursue, and would tend very much to more satisfactory legislation on this matter, if Mr. Mackinnon would consent to postpone the second reading of his Bill until after Easter. He had promised that he would look into this subject. He had done so, and was still continuing his inquiries amongst scientific gentlemen as to the best mode of curing this evil of smoke in towns. It was only within the last two days that he had received additional information on the matter, but which he was not then prepared to communicate to the House. The House was already aware that a measure of a nature somewhat similar to that contained in the present Bill, but on a much larger scale, and of much greater importance to the country, was under the consideration of the Government, and he could not help thinking that it might be more advisable to consider this question in connection with the other. He would, therefore, ask his hon. friend to postpone the second reading of his Bill until after Easter, when both measures could be considered with greater propriety.

Several honourable members expressed opinions upon the Bill, and it was ultimately deferred until Wednesday, the 2nd of April.

We understand that in Birmingham from eighty-five to one hundred owners of steam-engines have adopted sufficient remedies to ensure the consumption of their smoke.

WORKS IN THE PROVINCES.

At Lyme Regis, very extensive improvements are in contemplation. The inhabitants have lately petitioned Parliament on the subject. The petition sets forth that the custom-house and other places in the town having been destroyed by fire, it would be advantageous to the inhabitants if a new street were formed from the east end of Broad-street to Charmouth-road; a bridge over the river Lyme; a new street from the middle of Broad-street to the sea shore; and a reservoir for supplying water to houses not at present properly supplied.

A few weeks since a public company was formed at Chippenham for the purpose of supplying the respectable householders, and the poor gratuitously, with water, of which they are at present greatly in want. It was also intended to erect a fountain in the centre of the town, and to provide, in different parts, thirty plugs, for a supply of water in case of fire. This excellent determination has, for the present, been frustrated by Joseph Neeld, Esq., who represents the borough in Parliament. He intimated his determination to oppose the bill unless provisions were made in it for the drainage and sewerage of the town by a tax on the *tenants* of houses, of which Mr. Neeld possesses about sixty.

In Manchester, a proposal is made to roof with glass two neighbouring streets to the Exchange, for the convenience of the congregated merchants. It is to be called the Peel Arcade.

A new Independent Chapel has lately been erected at Shrewsbury, the cost of which was 2,300*l.*

At Liverpool, the wealthy admirers of the Rev. H. M'Neile, are about to build and endow for him a spacious and handsome church in the park. It is stated to be the intention of the promoters of this undertaking to vest the presentation in the same reverend gentleman.

The new town of Crewe is well lighted with gas, not only in the streets, but in its cottages also. The directors of the Grand Junction Railway a short time ago gave instruction to carry gas into all the cottages, somewhere about four hundred, at Crewe, allowing one burner for 7s. 6d. per annum.

The amount subscribed for the restoration of Chester Cathedral is nearly 3,000*l.*, including a second donation during the last week of 100*l.* from the Marquis of Westminster. The cost of the works already contracted for and in progress is 2,504*l.*, and the complete restoration of the choir, it is expected, cannot be effected for less than 5,000*l.*

We stated a short time since that a bridge was about to be erected over the Tay, at Mugdrum. An Edinburgh paper states, that at a meeting of the town-council of Perth, on Monday, an official announcement was read from the Admiralty, intimating that the Lords Commissioners had resolved on not giving their consent to the plan of a bridge over the Tay, at Mugdrum, for the Edinburgh and Northern Railway.

The old Market-house of Killarney is to be razed to the ground, and a Temperance Hall built in its stead. The Earl of Kenmare has given 50*l.* towards this project.

The restoration of the chancel of St. Mary's Church, Nottingham, has been entrusted by Earl Manvers to Mr. H. M. Wood. Mr. Cottingham superintends the restoration of the other parts of the edifice.

On Monday last, the foundation-stone of a Roman Catholic Chapel was laid at Pontypool, by the Rev. W. Woollett. Mr. Scoles, of London, is the architect, and Mr. Hunt, of Newport, the builder.

The Duke of Cleveland, who expended about 2,000*l.* last year on the improvements at Raby Castle, is about to make further large additions and alterations. The baron's hall is to be enlarged, and the circular room newly-faced, and the Chinese dining-room is to be remodelled.

A new dock, with an area of nearly four acres, was opened at Adrossan, last week. It has been formed at the expense of the Earl of Eglintoun. Fifty ships can be accommodated in it.

A new fort is to be erected in Liverpool, at a cost, inclusive of the site, of 27,000*l.*

The feofees of Barnstaple-bridge are about to make a great improvement at the lower end of High-street, by pulling down the Boot-inn, and the unsightly buildings adjoining, and erecting two handsome houses with shops, designed by Mr. Gould, architect.

Seven hundred men are employed night and day on the construction of the Birkenhead Docks, and in April it is supposed there will be nearly 2,000. It is expected the docks will be partially opened within two years, and completely within three. The Dock Warehouse Company have commenced making fifty millions of bricks in order to begin building their warehouses the moment their Act is obtained.

The erection of the new schools at Magdalene College, Oxford, is delayed in consequence of a claim said to be made by the city to have the sons of freemen admitted should the proposed plan be carried out. It has been proposed to substitute stained-glass windows in the College Chapel of Magdalene, in place of the present chiaro oscuro paintings, and one of the Fellows (Mr. Roundell Palmer) has offered to resign the proceeds of his fellowship to assist in this.

The dilapidated state of the parish Church of Baddesley Ensor, in Warwickshire, renders it necessary to build an entirely new place of worship. The estimate for the new church is 2,500*l.* to accommodate 400 persons. Towards this amount W. S. Dugdale, Esq., M.P., has subscribed 500*l.*, Lady Sykes 50*l.*, and the incumbent, the Rev. W. Bradley 50*l.* There is still wanting 1,900*l.*

The foundation-stone of the Cyfarthfa Rolling Mill was laid on the 18th instant by Mrs. Crawshay, of Cyfarthfa Castle, in the presence of a large concourse of spectators. The welkin rang with the vociferous cheers of the assembled workmen. They were afterwards regaled with a plentiful supply of *cwrwda*. The building will cover an area of 3,066 square yards, being 193 yards in length, and 143 in breadth.

A clear moiety of the amount required by the Ecclesiastical Commissioners for England as a public benefaction, before they would erect a parsonage house for the In cumbent of St. John's Church, Cornish-Hall End, Finchingfield, having been raised by subscription, orders have been issued for the commencement of the works. Mr. Johnstone of Grinstead Green, Halstead, has obtained the contract.

At Scarborough, the improvements on the South Cliff are rapidly and widely extending The Crown Hotel, with its lofty pediment and Corinthian columns, forms an imposing featur in the great façade.

The subscribers and shareholders of the pro posed Colchester Literary and Scientific Institu tion, have deemed it advisable to suspend pro ceedings until the Legislature shall have decide on Mr. Ewart's Bill for the establishment o Museums of Art in the provinces.

We have already stated that St. Patrick Cathedral, Dublin, is about to undergo ver extensive repairs. Dean Pakenham, durin the past week, has addressed the Editor of th *Times* on the subject of these repairs, and th expenses incident thereto. He says, "M purpose is, first, to repair the dangerous defec in the building. The cost may be abo 4,000*l.*, of which I have as yet obtained b about 2,700*l.* Then, if means increase, it intended to lengthen the choir by moving th organ back about 20 feet into the great aisl and keeping it on such a level as to give a vie of the whole roof from west to east. This w make it necessary to groin the great aisl which at present shews the unsightly su structure of modern slating. The west fro of the organ must also be gilt. 'Tis now b a worn-out piece of bad scene painting. For windows, including their stone casements, mu be restored. The outward aisles must b aired, and then the beautiful arches which lo into them, and which are now built up and d faced with galleries, may be re-opened witho injury to the congregation. The woodwo also requires much."

In a late competition at Edinburgh for Free Church College, Messrs. Matthews, London (secretary to the Association of A chitectural Draughtsmen), and Mackenzie, Elgin, have been awarded the first premiu and Messrs. Clark and Bell, of Glasgow, t second premium. The committee called the services of Mr. Barry to decide upon t best designs. The premiums were 100*l.*, a 50*l.*, and the proposed cost of the building about 25,000*l.*

ARCHITECTURAL COMPETITIONS.

CLIFTON UNION WORKHOUSE.

Sir,—You are no doubt aware that t guardians for the Clifton Union issued January last an advertisement inviting arc tects to send plans for their new union wo house, holding out as an inducement there that the architect furnishing the best des should superintend the building at 5 per c on the contract, and that 25 guineas should awarded to the next in merit.

In consequence of this, thirty-one archit of the metropolis and other parts of the ki dom, set their wits to work to devise cer accommodation for the paupers, at an expe to themselves varying from 20*l.* to 70*l.* each

Now, let us observe the result. From whole waggon-load of designs two are selec but it is not at first decided which is to be t building. Up to a time all is shrouded mystery, for it is firmly and conscientiou believed, that there never was an instance which any one of a board of guardians co even guess at the real name and address c tained in the sealed envelope. At last the portant secret is solved; and, who would thought of such a coincidence? it is the t architect who has been already employe the board, and who has also devoted muc his time in concocting certain notions of cer persons for months previous. The other longs to an unknown and a nameless man; many tasteless individuals had taken a fa to it, and thought it looked rather more a house of charity than a prison; but these it proved, had very mistaken notions.

The battle now commences in earnest, calculations are entered into enough to bo the head of Sir Robert Peel; when, in midst of the mystification, it is thought de ble that the opinion of an architect of ku respectability should be taken, in orde

decide the knotty point as to which is really the best design. This is done—with I suppose the parish to pay,—yet after all, his opinion proves worthless, for the stupid man persists in reporting most favourably of the stranger's design; it is therefore found ridiculous and absurd to expect a professional man to possess either taste or judgment in a matter of this kind, and a cry being raised that the nameless individual's plan had not more than *enough* room, and that the other had, it was finally settled that the unknown should be sent about his business.

Thus you see, Sir, 900*l.* to 1,000*l.* have been expended by us foolish people in complying with the wishes of the guardians, which we might just as well have kept in our pockets, had those few gentlemen who were aware of the fact before been so good as to inform us they possessed such a jewel of an architect at Bristol.

While confessing myself the fortunate winner of the very liberal premium of 25 guineas, I must own to have committed one great error, for which I here beg to offer my apology. Whether it was from some vague notions of having heard of such things as sham competitions, wherein some evil-disposed persons, for the sake of taking in the unwary, threw dust in the eyes of their colleagues who happened to be too honest, or whether it was from not having the proper fear of the guardians before my eyes, or perhaps some old-fashioned notions, that where honesty exists there is no need for concealment, however this may be, I actually had the temerity to ask permission to see the successful design, in order that I might inform my professional brethren from ocular demonstration that they never had and never would have a chance of success in Bristol again. I am sorry I did it now, but fortunately there was no danger of its being complied with. I was met by a peremptory refusal; and now I reflect on it, what right have we to inquire if faith has been kept with us; is it not sufficient that we are allowed to expend our time and money upon the faith of their advertisement? It must have been thought grossly impertinent in me, or any other of the competitors, to make such an inconvenient request. The refusal of the board, however, speedily brought me to my senses, otherwise I might have been led to doubt if the man who obtains my money under false pretences is the best judge of honour and integrity.

There will, I fear, be some persons wicked enough to believe, notwithstanding the protestations of the authorities to the contrary, that they have been duped, and that the whole affair has been a rank job, perhaps others may call it by an epithet not quite so polite; but these are easily put down,—*call them disappointed people*, and the thing is done. In adding my testimony to the perfection of the system of competition, I cannot but express my decided admiration of that pursued at Clifton, which, for the guidance of all those who wish the arts of the country to flourish, may be reduced to the following receipt. Take a large portion of the ordinary stuff of society, mix them up with a few gentlemen who are far above suspicion of doing any thing at all, but they must not be omitted, as they act as decoys; drop in then one or two shrewd, clever, but not over-scrupulous fellows, don't be afraid if their sinking, for their lightness of character will always keep them at the top; simmer the whole together until the scum begins to rise, and it is done. This, I assure you, is the finest mixture for catching architects that can be procured.

I am, Sir, &c.

THOMAS ALLOM.

Hart-street, Bloomsbury,
March 18th, 1845.

CONGREGATIONAL CHAPEL AT HOLLOWAY.

SIR,—A well-conducted press can have no more legitimate object than the exposing of abuses with a view to their removal. Your strictures upon the abuses to which competition in the fine arts is liable, prove that you are willing to lend your valuable assistance to destroy as far as possible the evil of the system, and to retain what is good. Competition of this kind, although not exclusively confined to architectural design, is resorted to more for that than any other object, both on account of the greater demand for subjects, and the greater numbers of persons willing to supply that demand.

Architectural competition, in itself excellent, is rendered debasing by the manner in which it is conducted. Capable of eliciting the finest works, it has frequently produced the very worst. Interest, not talent, gains the prize; and acquaintance with a committee-man is better than knowledge of the five orders. Architects have frequently themselves to blame; young men anxious for employment compete for every thing that offers, and thus often become the mere tools of designing speculators; but what shall we say when architects themselves, as is too frequently the case, become partners in the fraud.

Nothing will more effectually tend to remedy this great, this crying evil, than an exposure of every individual case in which there is the slightest appearance of trickery, or a want of manly straightforwardness; not a doubtful anonymous charge to which currency is given under the guise of "viator" or "scrutator;" but a plain statement of facts to which for the public benefit, the writer will suffer the little inconvenience which may attach to subscribing his own name.

At the present time we think the following slight history of the competition of the Congregational Chapel at Holloway, will be acceptable to many of your readers. Allured by the fairness of the advertisement, we were tempted to become competitors, and on application to the quarter mentioned in the advertisement, were duly supplied with a printed paper containing very full particulars of all that was required, drawn up in the most business-like way possible; this excited inquiry, and inquiry produced the discovery that a Mr. Emmett, an architect, was a member of the committee. We immediately set to work with redoubled vigour, feeling convinced that if not ourselves successful, we should only have to succumb to greater talent, or more fortunately directed efforts, and that a committee so ably guided in the straight path, would do nothing at which the most censorious could cavil. Still doubts would intrude—we endeavoured to crush the obnoxious thought at once; could we, following in the course of that calumniator Dickens, believe there were Pecksniffs in the profession? Never! But the still small voice would not be quieted, it had been done, and might be done again, and perhaps after all Mr. Emmett did intend being a competitor himself. To satisfy all doubts, we applied to Mr. Emmett for information respecting the arrangements necessary for the proper performance of worship in a congregational chapel, our knowledge thereof being somewhat defective. The answer meagrely but civilly gave the information required; this was sufficient, more was not expected from a member of a committee, pledged to do equal justice to all. It was apparently good proof that he did not intend competing, as in that case he should certainly have stated that he himself was a competitor.

Being much engaged we made an application to Mr. Brooks, the managing member of the committee, for an extension of the time, such being frequently granted; but it was refused, and very properly so if not allowed to others. The drawings were sent in on the day named in the instructions, and we heard nothing more of the matter until the 11th instant, when, in reply to an inquiry on the subject, we received the following epistle from Mr. Brooks:—

"Lansdowne-place, Holloway,
"11th March, 1845.

"Mr. Brooks's compliments to Messrs. Lahee and Mabin, and begs to say the plans of Messrs. Emmett and Chadwick, of the Adelphi, have been selected, and that the others can be obtained upon application to Mr. Bartlett, of 26, Paternoster-row."

Thus not even deigning the empty courtesy of thanks for trouble taken; it is true one does not expect eider-down from thistles, nor sweet savours from a pole-cat, but civility might have been anticipated from persons, to gratify whom some pains had been taken. In reply to further inquiry as to whether "the report is correct that Mr. Emmett is or was a member of the committee appointed to judge of the designs presented, and also whether the selected design might be seen," the following answer was received:—

"Lansdowne-place, Holloway,
"19th March, 1845.

"Mr. Brooks's compliments to Messrs. Mabin and Lahee, and, in reply to their note, begs to say that the successful candidate (Mr. Emmett) ceased to be a member of the committee from the moment he determined upon submitting a design, and ever since has been exactly upon the same footing as the rest of the candidates; he is sorry to say that this is only one of the many falsehoods promulgated in this affair. As respects shewing the successful design, he begs to add that the committee have declined doing so."

We have little more to add; yourself and the public are informed of all the facts as far as we know any thing of them, and comment is unnecessary. We write solely on public grounds; feeling little or no personal interest in the matter. Messrs. Emmett and Chadwick's design may have been the very best presented: a full 2,500*l.* worth of beauties, turreted, pinnacled, plastered, and stuccoed, in the most approved style; at any rate, they certainly enjoyed peculiar advantages for understanding the particular tastes and requirements of the Committee, and ought to have produced something more in accordance with their wants than any other persons: but the question is not so much whose plans are the best, or whose the worst, as whether the conduct of the Committee is just and correct, and such as those who have expended time and money, confiding in their honour, have a right to expect. We are, Sir, &c.,

MABIN and LAHEE.

16, Manor-place, North King's-road, Chelsea.

CANTERBURY WORKHOUSE.

SIR,—In your last number you were requested to have a vigilant eye on the Canterbury incorporation. I have endeavoured to look to the proceedings, and being in Canterbury for a short time, made all the inquiries I could, as I like fair play in every thing, particularly with architects, whose talents, when exerted for the public good, ought to be tested by competent persons. Now, Sir, there were twenty-two designs sent in from various parts, agreeable to the advertisement; and I should say the average time that was given to the architect to get up these plans was only a fortnight. How is it the guardians are pressed for time? Are they so very desirous that the inmates should be enjoying the comforts they intend giving them in the new house, or is it they wish to be sitting in the new board-room, that they are so fast? As there were twenty-two plans and specifications to be examined, will any of your readers inform me what reasonable time it would take for moderate judges to investigate and select three of the best in detail?

I will inform you how long the eleven Canterbury guardians were in doing so; not classing these with other persons, as you will find by the time they took, they were never equalled. They met at eleven o'clock in the forenoon: and, unclosing the twenty-two sets of plans, examining them very carefully in all their details, reading the specifications, and comparing the estimates with the same,—will you believe me when I tell you it, occupied in all but three hours; they left at two o'clock with the three best plans selected, so that you find they are men of extraordinary skill, and I do think that in justice to the most active and skilful of the eleven guardians, their profession and callings should be known, as it must tend very materially to relieve the disappointment the architects feel on having their plans returned "not accepted" to know they have been fairly and carefully treated, and I have only to name their professions for you to be satisfied.

The most skilful amongst them is a baker, a pastry-cook from Germany; how many unions he has seen in Germany I do not know, but it is doubtful if he ever was in one in England. Another is of the Jewish persuasion, who, no doubt, has studied unions of the Gentiles. One is a horse doctor; another is a land-surveyor and auctioneer. I have been told there is one or two of them blind, and that one mostly looked at the drawings wrong side upwards.

I shall see by your next if you wish any further information. If you do, I am in a situation to send it you. The London architects ought to stir, they have been used very ill.

A FAIR TRADESMAN.

THE ELECTORAL CHAIR OF SAXONY AT THE PRYOR'S BANK, FULHAM.



THE above elegant specimen of a carved chair, drawn by Mr. C. J. Richardson, was brought into England from Germany by Messrs. Pratt, of Bond-street, and now belongs to Thomas Baylis, Esq., of the Pryor's Bank, Fulham. In the back of it are the arms of Saxony; and it was stated in Germany to have been the electoral chair. The date is about 1620. It is of walnut wood, and the embroidery in the back and seat is of most costly design. The chair is worth a large sum of money. The Pryor's Bank, where it now is, adjoins the river on the Fulham side of Putney-bridge, and has been fitted up by the present estimable proprietor, Mr. Baylis, in the style of past time in a costly manner. It is literally filled with curiosities, and on some future occasion will furnish us with ample materials for an interesting article.

ON THE CONSTRUCTION OF THE HAND-RAILS OF STAIRS.*

THE rules for our guidance in obtaining the moulds requisite for the formation of the hand-rail of a staircase with a level landing, are governed by the same principles as those for a winding staircase. In fig. 13, we have laid down the development of the inclination of the central line of the rail; the line *i l*, in the triangle P, shews the position of the butt joint contiguous to the straight portion of the hand-rail, and the line *g d*, in the triangle O, gives the position of the joint at the end of one-half of the twisted part. The lines *a f*, *b e*, and *d c*, are the three heights by which the position of the cutting plane through the cylinder is obtained; and the line A B C is a line taken through the middle of the rail upon its plan.

In fig. 14, the line *a b c* is the same as A B C in fig. 13, and the lines *a m*, *b l*, and *c k*, are respectively equal to half the heights of the lines *a f*, *b e*, and *c d*; in fig. 13, the line *a m* in the present case is drawn parallel to *c k*, from which by the line *k m n*, intersecting a line drawn through the points *c a*, we determine the point *n* of the insecting line A C′; and the point *o* of the same line is obtained by the intersection of lines drawn through the points *c b* and *k l*. The line A B is drawn at right angles to A C′, and is taken in this case through the centre of the plan of the rail. The triangle A B E is conceived to be turned up, and to stand perpendicularly over the line A B; the point *d* in the line A E is made equal in height to the line *c d* in fig. 13, and the point *f* (measuring from the base line A B) is equal in height to the line *a f* in fig. 13. The surface A E G G is conceived to be turned over as on a hinge upon the line A E until the line A G rests upon the line A C′. We have, in a former article, explained the mode of obtaining the section of a cylinder when cut obliquely by a plane given in any position; the circular line *b c*, joined with the straight part of the line towards the point *a*, may be conceived to form the base of a portion of a solid cylinder, annexed to a portion of a quadrilateral solid, which, when united, forms a plane and cylindric surface coinciding with a vertical surface passing through the middle of the rail. The slanting surface, A G G E, when turned over as above mentioned, will form the cutting plane, or section through the cylinder, and as the foot of this slanting surface, which we have described as its intersecting line with the plane of the base, has been determined by lines drawn down over the points *k m* and *k l*, to the points *n* and *o* on the plane of the base, the slanting surface will pass directly through three resting points each respectively equal in height to the height of the lines *a f*, *b e*, and *c d* in fig. 13; from which the intersecting line A C, in fig. 14, was determined. Upon this slanting surface, which is here shewn in ledgement, the face-mould is laid down, first by ascertaining (as we have already noted) the centre line of the mould, which will rest immediately over the centre line on the plan, and the inner and outer curved lines which form the width of the face-mould are made parallel to the central line, and the ends of the moulds determined in the manner which we shall point out below, and which we think is preferable to the methods propounded in our last article. In this figure the line R S represents the back of a block of wood used in forming the jointing-box, which we shall enter upon in our explanation of fig. 18.

Figs. 15 and 16 are required for explaining the theory of the butt-joints: at first sight they seem difficult and complicated, but when carefully examined and clearly understood, they are easy and simple; both of these figures represent a theorem well known during the last two centuries in ascertaining the bevels for the back of the hip-rafter of the roof of a house, or the bevel of a mill-hopper at right angles to the arris formed by the intersection of two of its surfaces.

In hand-railing, the inclined surfaces of the face of the plank and the face of the butt-joint of the rail, intersect each other, and may be said to form a hip, similar to the intersecting surfaces of the hipped roof, or the angle of the mill-hopper. Let the lines *a b*, *a c*, *a e*, and *b e*, in fig. 15, represent the corresponding lines A B, A C, A E, and B E, when reduced to a smaller scale; let the line *a h* be drawn at the same angle or bevel to the line *a b*, as *p a* is to the line A B in fig. 14, then from the point *b*, in fig. 15, draw the line *b c* square to, or at right-angles to *a h*. By looking carefully at the direction of the line *h a*, in fig. 14, it will be seen to range in the position of a vertical plane passing down the middle of the straight portion of the rail, which plane we have shewn in fig. 13, at the end of the development of the circular face, and on which also is drawn the inclination of the butt-joint, as indicated by the shaded pitch-board marked P. Now, having the foot of the inclined surface of the plank in the line *a c*, and that of the inclined surface of the butt-joint in the line *k c*, or *h c*, the inclination of the slanting surface of the plane of the plank in the line *a e*, when turned up, as on a hinge, until it stands immediately over its base line *a b*; and having likewise the inclination of the surface of the butt-joint, taken on a plane standing perpendicularly on the line *a h*, as shewn by the pitch-board, P, on the same surface in the development, fig. 13; the lines *a c* and *h c* may therefore be compared to the figure of the eaves of a house, where the pitch of the slanting surfaces are shewn by the lines *a e* (fig. 15), and *l i* (fig. 13). We are next to find the bevel of these two surfaces at right angles across the arris of their intersection. Let the line *b e*, when turned up perpendicularly upon the point *b*, be considered to represent the perpendicular of a triangular plane standing upon the line *b c* as a base; also let the line *b f* represent the same perpendicular line and *f c* the hypothenuse of the same triangular plane, which is now conceived to be turned down as on a hinge upon its base line *b c*. The perpendicular line *h i* on the same plane will be the height of the surface of the plank, immediately over the point *h* of its base; and a line conceived to be drawn from the point *i* in this position down to the point *a* will agree with the inclination of the surface of the plank, when taken in the direction of the line *a h*. Let us then conceive this vertical plane upon the line *a h* (which, as we have already noted, is the same vertical plane, as described in fig. 13, as ranging down the middle of the straight portion of the rail), to be turned down as on a hinge upon its base line *a h*, we should then have the triangle *a h k*, wherein the hypothenuse *a k* represents the slope of the plank in the direction of the line *a h*; it is also in this plane that we have the inclination of the butt-joint; we must, therefore, determine the point of intersection of the two inclined planes of the face of the plank, and the face of the butt-joint. Thus, let the pitch-board

* See page 9, *ante*.

DIAGRAMS TO ILLUSTRATE ARTICLE ON HAND-RAILS.

Fig. 13.

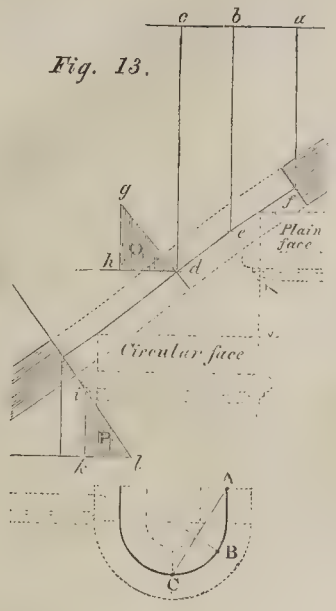


Fig. 14.

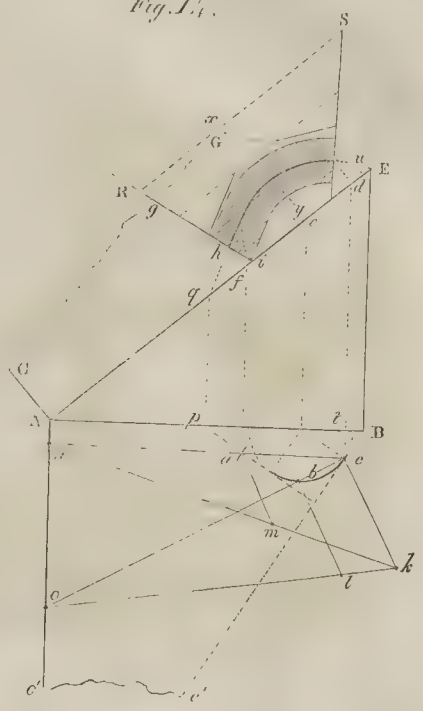


Fig. 15.

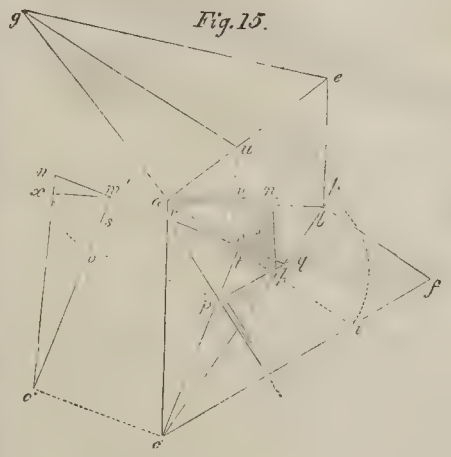


Fig. 16.

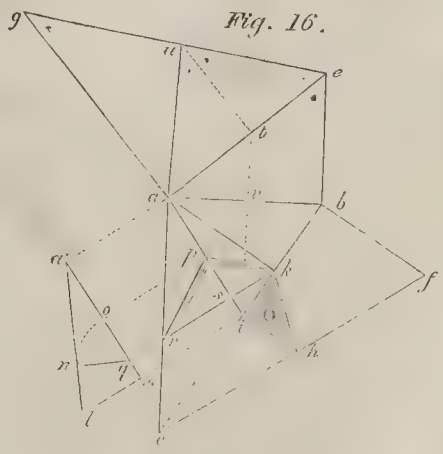


Fig. 17.

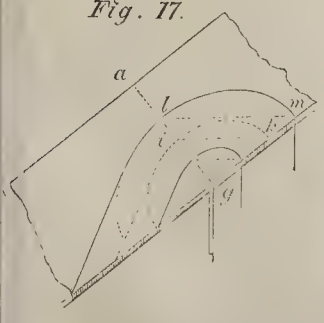


Fig. 19

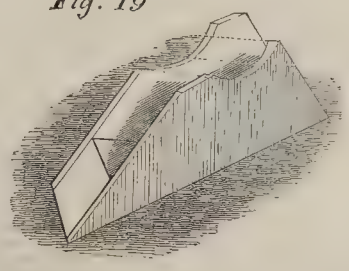
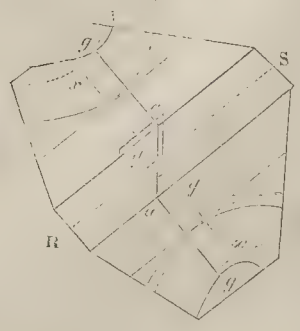


Fig. 18.



marked P, in fig. 13, be placed with its base $k l$ to coincide with $h m$, in fig. 15, the point i of the pitch-board will intersect the line $a k$ in the point n, from which let fall the perpendicular $n m$, and draw the line $m c$, which is the base of the hip or arris of the two intersecting surfaces; hence then let the line $m' c'$ be the base of a plane passing vertically through this arris $m' n'$, its height over the point m and $n' c'$ is the line of the hip; from the point m draw the line $x m'$ at right angles to $n' c'$; and with the point m as a centre, describe the circle $x o$, and let fall the perpendicular $o p$; draw $r q$ through the point m at right angles to $m c$, and draw also the lines $r p$ and $p q$; and the angle which $p q$ forms with the line $p r$ is the bevel for the joint across the end of plank. Again, to find the direction of the end of the face-mould, as shewn by the line h R, in fig. 14, let fall a perpendicular from the point x, in fig. 15, through s down to the point t; draw the line $t v$ at right angles to $a b$, until it meets the line $a e$ in the point u; and from the point u draw the line $u g$, having first drawn the line $a g$ perpendicular to $a e$, the length of the line $a g$ being made equal to $a e$; if the triangle $a b e$ is again turned up on its base, and the triangle $a g e$ turned over upon the line $a e$ as on a hinge, the line $a g$ will coincide with the intersecting line $a c$, and the line $u g$ will be the arris formed by the intersection of the surfaces of the plane of the plank, and that of the butt-joint; moreover, the point u would coincide with the point x, if turned up, and placed vertically upon its base line $m e$. Having obtained the bevel which the line $u g$ forms with the line $a e$ in fig. 15, let the same bevel be applied to the line A E in fig. 14, and made to pass through the point h in the face-mould to the point R; and the line R h produced across the end of the mould will be the direction of the butt-joint on the face of the plank.

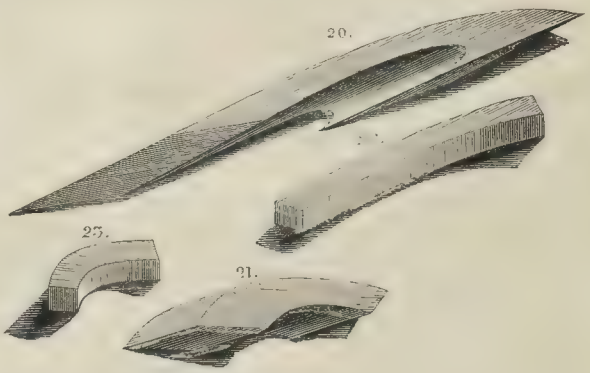
The use of fig. 16 is to explain the mode of obtaining the bevels for the butt joints at the middle of the twisted portion of the rail; it is much simpler in its details than that of fig. 15. In fig. 16, the same trihedral is taken to work upon, but instead of placing the pitch-board P upon the plane standing on the line $a h$, which ranges down the middle of the straight portion of the rail, we make use of the pitch-board O, which is applied on the plane surface standing upon the line $b c$, which is directly at right angles to the plane on the line $a g$, in fig. 15. Hence then, after having the base $a b c$, the vertical plane $a b e$, which is at right angles to the intersecting line $a c$, and the plane $b c f$, as in the former figure, begin by making $a k$ in the same position as $a h$ in fig. 15. Let the point d of the pitch-board marked O, fig 13, be applied to the point k on the line $b c$, fig. 16, when the slanting edge of the pitch-board will be found to intersect the line $f c$, in the point h; from h let fall the perpendicular $h i$, and draw the line $a i$, which is the base of the hip or arris of the inclined surfaces of the planes of the plank and that of the butt joint; draw any line $m' a'$ parallel to $a i$, and make $a' m'$ equal in length to $a i$, make the perpendicular $m l$ equal to $h i$, and draw the line $a' l'$, which is the line of the hip, standing immediately over its base line $a i$; from the point k, at right angles to $a i$, draw the line $k r$, which produce to q, draw the line $n q$ at right angles to $a l$, and with the point q as a centre describe the circle $n o$; parallel to $q s$, draw the line $o p$, join $p r$ and $p k$, and the angle $r p k$ is the bevel for the joint across the end of the plank. Care must be taken that these bevels are applied from the upper surface of the plank when the straight end of the twist is at the lower level.

Again, to find the line forming the end of the face-mould, from the extreme end of the face-mould to the point s, fig 14. In fig 16, draw the line $i v$ at right angles to $a b$, produce $i v$ to meet the line $a e$, in the point t, draw also the perpendicular $t u$, cutting the line $e g$ in the point u, join $a u$, which is the line or arris of the intersecting surfaces of the plane of the plank, and that of the butt joint. In this, as in the former figure, if the triangle $a b e$ is turned up on its base $a b$, and the triangle $a g e$ be made to turn over upon the line $a e$, as on a hinge, the line $a q$ will coincide with the intersecting line $a c$, and the line $a u$ will coincide with the hip or arris formed by the intersection of the plane of the plank with the plane of the butt-joint.

Fig. 17 shews the mode of forming the side-moulds of the jointing-box for the purpose of adjusting the vertical sides of the wreathed rail. The central line of the side mould in this figure is the same in every respect to the central line in fig. 14, and the inner and outer curves are produced by the formation of similar ellipses, by means of the trammel, as pointed out in the earlier part of this subject. The mode of obtaining the lengths of the major axes of the inner and outer ellipses are shewn by dotted lines drawn parallel to $i k$, the width from the central line to the point l being made equal to half the width of the hand-rail. The bevel from the point g shews the angle of obliquity at which the side-moulds are placed in their positions on the opposite sides of the jointing-box.

Fig. 18 shews the mode of forming the jointing-box. The block of wood, R S, in fig. 14, is here shewn on its back edge, and the sides of the box, which are curved to the contour of the side-moulds, as obtained by fig. 17, are shewn in ledgement on each side of the back of the block. This block is first formed of material planed true and adjusted to a thickness nearly the same as the thickness of the plank out of which the rail is cut; having squared the sides and edges of the block, mark off the points R and S on the line in the centre of the back-face corresponding exactly with the points R and S, in fig. 14; also mark off the point x, on the same line from this point x, square over and draw the lines $x y$ and $x y$ on each side of the block; with the bevel marked $p q$ in fig. 15 adjust the end across the plank at the corresponding end of the rail, as marked by the line R h', in fig. 14; also with the bevel $r p k$, in fig. 16, adjust the end across the plank at the other end of the rail, as shewn by the line .S, taking care in bevelling the ends across the block that the length of the line R S, in the line upon the back face of the block, be kept exactly the same length as the line R S, in fig. 14. Having thus adjusted the block in the manner here described, next proceed to fix the side-moulds on the faces of the block. In the line from $q q$ on the back edge of the block, and in the point on the line R S, as drawn upon this edge, let the bevel of the line A E and B E be taken and applied to the edge of the block, as shewn in fig. 18, we have thereby the obliquity at which the side-moulds are to be placed, as shewn by the points $a' a$, from which draw the lines $a g$ and $a g$, on both surfaces of the block; having done this, take the side-mould, as shewn by fig. 17; in applying which to the sides of the block, let the line $a q$ on the side-mould be placed to correspond with the lines $a q$, as already marked off on the sides of the block; let the side-moulds thus placed be firmly screwed to the sides of the block, and the superfluous ends cut off and planed clean and true to bevelled ends of the block, as already obtained, and the jointing-block is complete.

The face-mould in fig. 14 is applied to the plank (out of which the rail is cut), on both sides of the plank directly opposite or square to each other, and the solid is cut out without any obliquity whatever; a slight allowance is made at the ends of the solid material, so as to allow for the slight bevel required in the joint. Having cut the solid out of the plank, next place it in the jointing-box, apply to the sides of the box a pair of hand-screws, and adjust the solid, so as to agree with the average line of the curved edges of the side-moulds; upon the side of the jointing-box, next proceed to adjust the inner surface of the hand-rail by means of a hollowing plane adapted to the horizontal curve of the rail, and shut the ends of each joint as in a common mitre block. Having then the inner vertical surface of the rail, and the height of the back of the hand-rail at each end in the centre of the solid, and also an intermediate height between these two ends, the twists of the rail may be joined together, and finished with ease.



Figs. 20 and 21 shew the quantity of material required in the formation of the twisted part of a handrail, for a 3-inch well-hole with seven winders, according to the theory laid down by a former writer on this subject.

Figs. 22 and 23, shew the comparative quantity of material required for the same portion of the hand-rail, by adopting the mode we have been endeavouring to describe; the thickness of plank being the same in both cases.

The saving arising not only in the economy of material, but also in the diminution of the amount of labour, is too obvious to require comment.

GEORGE RIDLEY.

THE DRAINAGE OF THE ANCHOLME LEVEL.

At the last meeting of the Institution of Civil Engineers, March 18th, a paper by Sir John Rennie on the drainage of the Ancholme level, Lincolnshire, was read. It commenced by describing the position of the Ancholme level, which consists of a low tract of land of about 200,000 acres in extent, situated on the south side of the river Humber, about 10 miles below its junction with the river Trent. The rives Ancholme runs through the centre of this level, and with its tributary streams, empties itself into the Humber at the village of Ferraby. The alluvial matter brought down by these streams formed a bar at the junction of the Ancholme with the Humber, which by preventing the discharge of the drainage waters, caused the level to be inundated with water, rendering this part of the land totally unfit for tillage. The paper then, after entering into great historical detail as to the works which were executed at various periods from the time of the Romans, to render this tract of land available for agricultural purposes, stated that in the year 1801 the late Mr. Rennie being applied to for his opinion as to the best plan for improving and completing the drainage and navigation of the level, reported that he attributed its defective drainage to the deficient capacity of the Ancholme and the subsidiary drains to carry off the floods, to the cill of the old Ferraby sluice having been laid too high, and to there not being any catch-water drains to prevent the floods from the adjacent high lands descending into the level. As a remedy for these evils, he recommended that the main river, Ancholme, should be still further improved, by straightening, deepening, and enlarging its channel; and that two new locks should be placed upon it; also that, with a view to preventing the floods from the highlands inundating the level, two catch-water drains should be made, one on the east side, and the other on the west side of the river Ancholme,

with separate and independent sluices at their junction with the Humber, by which means all the highland and lowland waters would be separated, and each body of water would thus be effectually discharged into the Humber without interfering with the other. The catch-water drains involved an important and novel principle, for in his opinion by the old Dutch method of simply cutting a series of straight drains to some convenient point, for discharging their water, the highland and lowland waters were mixed together, and the highland waters coming from a higher level with a greater velocity down upon the lowlands forced their way first to the outfall. The less rapid waters of the lowlands were thus kept back and were left to stagnate, the sluices being unable to discharge the whole body of water during the time when the tide with the Humber permitted the sluice doors to be opened, and it was thus impossible that the level could be drained; but by separating the highland from the lowland waters, each body of water could be effectually discharged by an independent sluice. These catch-water drains would answer all the important purposes of irrigation during dry seasons, and for navigation.

The plans, which were also at the same period being beneficially carried into effect by Mr. Rennie, and on a more extensive scale, in the east and west and Wildmore Fens, near Boston, and also on the Witham, near Lincoln, were partially executed, but the works not being completed, and, for want of funds, not being subsequently kept in repair, the drainage was found very insufficient, and at length Sir John Rennie was called in to complete the system. He proposed that the plans of his father should be carried out, that the Ancholme should be further improved, and a new sluice made at Ferraby, with a cill placed at a lower level, and new bridges made throughout the line; also, that an overfall and weir should be constructed, with a large reservoir to catch the sand, which was brought by floods from the surrounding hills, and had previously blocked up the main and lateral drains. Minor weirs and reservoirs were also recommended for the smaller drains and works where they united with the level. These works having been executed, the effect was that the drainage was rendered complete and effective, and the district was converted into a tract of fine arable land. Subsequently another sluice was constructed below Ferraby with its cill 2 feet below the low-water mark of extra spring-tides in the Humber. This sluice, which had three openings of 18 feet each in width, with draw-doors and self-acting gates, was perfect in its effect, discharging above four times the quantity of water in the same time that had been previously accomplished.

The whole of these works were completed by Sir John Rennie 43 years after Mr. Rennie's report, and 556 years after a regular system of drainage had commenced, and the district was freed from water without the aid of mechanical power, thus establishing what was contended to be the surest principle of drainage, the separating of the highland from the lowland waters by catch-water drains, and discharging them, independently of each other, by their several outfalls.

In an interesting discussion which ensued, the correctness of the principle was fully admitted, and it was shewn that by selecting proper localities for the outfalls, and by placing the cills of the sluices below low-water mark of spring-tides, there were not any fen districts in the kingdom that could not be drained without mechanical aid.

Removal of the Westminster Law Courts.—Mr. Charles Buller has entered upon the books of the House of Commons a notice of his intention, "after Easter, to ask a question relative to the removal of the Law Courts from Westminster."

New Church in Peter-street, Westminster.—A most liberal subscription has been entered into towards defraying the expenses incident to the erection of this church. The estimated cost of the site, including the site of a glebe house adjoining the church, is nearly 4,000*l.* The estimated cost of the church, which is to contain 1,200 sittings, is 6,000*l.* The contributions already obtained amount to 7,980*l.* 10s. The amount still required is 1,420*l.*

THE IRON TRADE.

The iron trade still continues remarkably active, and notwithstanding the recent advances, it is confidently expected that the prices will rise still higher before the close of the month. Speculators are turning their attention to Welch pigs, which have not advanced in ratio to that of Scotch. Welch pig is 6*l.* 10s.: and the latest accounts from Wales, Staffordshire, and Scotland advise of further advances of 5*s.* per ton upon pigs, and from 10s. to 20s. per ton upon bars, rods, hoops, and sheets. Staffordshire iron of every description is particularly rising, and has within the last week again advanced 20s. per ton, making a total increase of 4*l.* per ton on last October prices. 5*l.* 10s. is offered for Scotch pig, but few sellers are to be found; 6*l.* is demanded. Bars have advanced, and are now selling at from 9*l.* 10s. to 10*l.* per ton; plates at from 13*l.* to 13*l.* 10s.

It may be a matter of some interest in the present state of the trade to know the probable supply and consumption for the current year. For this purpose the following table has been drawn up with much labour, assisted by practical men:—

Estimated Consumption for 1845.	
2,000 miles of railways, to be made in 1845 and 1846—say, half in 1845 contracted for—	
1,000 miles of railway, 250 tons per mile for rails ..... *Tons*	250,000
Add for loss of one-fifth, in coverting pig-iron to rails	50,000
1,000 miles of railway require, of chairs	70,000
Add loss in manufacture, 5 per cent.....	3,500
Iron required for railways in progress, and passed in 1844	150,000
Iron for waggons, stations, engines, tanks, &c., computed from inspection of railway companies accounts, that each mile of railway requires 300 tons per mile above the weight of permanent rails and chairs—1,000 miles will then give	300,000
Export in 1844, 460,000 tons—say, from the increase of railways abroad, and the remission of duties on iron by some of the continental states, it will be....	500,000
General consumption of iron in Great Britain (exclusive of railways), in bar-iron, castings, water and gas pipes, in steam-engines, and the whole hardware of the country.....	480,000
Total ..... *Tons*	1,803,500

The following estimated supply for the same period is based upon the amount actually produced in Great Britain in 1844, to which is added a probable increase, induced by the high prices of the present year.

Pig-iron produced in England and Wales in 1844..... *Tons*	856,000
Iron produced in Scotland, 1844	354,000
Total for Great Britain, 1844..	1,210,000
Add for increase induced by high prices in 1845	120,000
Total for 1845 ..... *Tons*	1,330,000

If this statement approaches the truth, there will be a deficiency of nearly 500,000 tons of iron, which must cause the suspension of many great public works. It is possible that from extraordinary exertions a greater quantity may be produced than 1,330,000 tons, but it cannot be materially greater.

New Churches, &c.—The Society for promoting the enlargement, building, and repairing of Churches and Chapels, decided last week that grants should be voted towards the erection of new churches at Andershaw and Droylsden, near Manchester; Quarry Bank, near Stourbridge; Warmley, near Bristol; West Fordington, near Dorchester; and Wooden Box, near Ashby-de-la-Zouch. Grants of money were also made towards obtaining an increase of accommodation, either by an extension of the building, or a re-arrangement of the seats, &c., in the parish churches of Whitechapel, Sedgehill, near Shaftesbury; Horningheath, near Bury St. Edmund's; Rudbarton, near Haverfordwest; Colmere, near Alton; Lindfield, near Cuckfield; Osmington, near Aylescombe Regis; and Rudgwick, near Horsham.

LIST OF NEW PATENTS RELATING TO ARCHITECTURE, ENGINEERING, &c., GRANTED FOR ENGLAND.

Furnished by Mr. A. Prince, of the Office for Patents of Inventions, Lincoln's-Inn Fields.

[SIX MONTHS FOR ENROLMENT.]

William Snoxell, of the Quadrant, blind manufacturer, for improvements in roller-blinds and shutters. February 4.

John Seaward, of the Canal Works, Poplar, engineer, for certain improvements in steam propelling machinery. February 5.

Darius Isaac Green, of Villiers-street, Strand, gentleman, for improvements in the means of raising and moving heavy bodies, parts of which are applicable, amongst other uses, to mines, vessels, and public works. February 8.

Robert Bewick Longridge, of Bedlington Iron Works, Morpeth, Northumberland, for an improved locomotive engine. February 10.

Frederick Herbert Maberly, of Stowmarket, Suffolk, clerk, master of arts, for certain improvements in machinery or the apparatus for stopping or retarding railway or other carriages; applicable also for these purposes in regard to other engines or wheels. February 10.

Thomas Truman, of Cromwell Lodge, Brompton, gentleman, for an apparatus, being an improvement for filtering and purifying water. February 10.

Richard Haworth, of Bury, Lancaster, engineer, for certain improvements in steam-engines. February 10.

William Irving, of Regent-street, Lambeth, engineer, for improvements in the construction of apparatus for cutting ornamental forms, beads, recesses, and mouldings, in wood, stone, and other materials. February 10.

Oglethorpe Wakelin Barratt, of Birmingham, experimental chemist, for certain improvements in the manufacture of acids, and in treating the noxious vapours or gases given off from chimneys and from chemical and other works. February 10.

Joseph Quick, of Sumner-street, Southwark, in the county of Surrey, engineer, for an improvement in steam-engines. February 10.

Thomas Brown Jordan, of Cottage-road, Pimlico, mathematical divider, for improvements in machinery and apparatus for cutting, carving, and engraving. February 17.

James Graham, of Calvert-street, Middlesex, metal-refiner, for improvements in the manufacture of zinc, antimony, and brass, and in casting brass, and an apparatus for making pots used in such processes. February 17.

Samuel Hall, of King's-arms-yard, Coleman-street, for improvements in steam-engines, boilers, furnaces, and flues, in consuming fuel, preventing smoke, and in propelling vessels. February 20.

James Murdoch, of Staple-inn, for certain improvements in the manufacture of gas, and in the apparatus employed therein. February 20.

John Bottom, of St. Phillips-road, Sheffield, machinist, for certain improvements in carpenters' stocks and braces. February 20.

John Baptiste Vallure, of Oxenden-street, civil-engineer, for improvements in lamps and wicks. February 24.

Real Property.—A return has been obtained by order of Parliament, on the motion of Mr. Villiers, shewing the total annual value of real property in each county of England and Wales assessed to the property and income-tax for the year ending April, 1843, distinguishing that on land, houses, tithes, manors, fines, quarries, mines, ironworks, fisheries, canals, railways, &c. It hence appears that in England and Wales alone the grand total annual value of real assessed property amounts to the enormous sum of 85,802,735*l.*, thus subdivided, viz.,—lands, 40,167,088*l.* (or nearly one-half); houses, 35,556,399*l.*; tithes, 1,960,330*l.*; manors, 152,216*l.*; fines, 319,140*l.*; quarries, 207,009*l.*; mines, 1,903,794*l.*; iron works, 412,022*l.*; fisheries, 11,104*l.*; canals, 1,229,202*l.*; and railways, 2,417,609; other property not comprised in the foregoing, 1,466,815*l.* A similar return as to Scotland gives a grand total of 9,481,762*l.*, viz.,—lands, 5,586,527*l.*; houses, 2,919,338*l.*; fines, 901*l.*; quarries, 33,474*l.*; mines, 177,592*l.*; iron works, 147,412*l.*; fisheries, 47,809*l.*; canals, 77,891*l.*; and railways, 181,333*l.* The other property not included in the foregoing details amounts to 309,480*l.*

PARTY-WALLS, &c.—JURISDICTION OF OFFICIAL REFEREES.

Sir,—I regret that (having taken up the subject) I feel compelled to depart from my intention, expressed in your journal of the 15th instant, by discussing the question in a more extended form than I had contemplated. The cases placed in my hands, and the communication that I have had with the official referees, have induced an impression of what the powers intrusted to them and the district surveyors were by the Act intended to be; viz. that the district surveyors, as the appointed public officers, are bound in respect of their prescribed fee to advise parties about to commence operations within the control of the Act as to the mode to be pursued. This has been denied as the duty of the district surveyor, but assuming such to be his rational duty, I then hold in case of difference, arising from non-compliance with his instructions, the referees are an appellant court, intrusted with large powers to meet the difficulties of each case so brought before them; or in cases where the authority of the district surveyor has been set at naught; and it must be borne in mind that the express words of the Act thus clothing them with equitable powers, is clear and distinct in the intention to afford relief to the public by ameliorating and accommodating clauses, that would otherwise, taken in the strict letter, press hardly upon an individual. This opinion agrees with that of the sensible letter of your correspondent "Fairplay," in your journal of the 15th instant: it cannot be expected that every applicant upon any crotchet is to expect a decision. And I am free to confess that the standing and respect obtained with their professional brethren would induce the belief that, in the course I have assumed, broad and substantial justice would be done by the official referees, as practical men, deciding upon points peculiarly within their province. My ground of complaint is, that they have departed from such a principle, and, as respects operations in progress before the 1st January, have issued their decision as to the interpretation to be put upon certain permissive clauses. Whatever their authority may be as to the necessity of a hearing before them for any matter in difference arising after the 1st of January (and I am disposed to believe as a preliminary step such a hearing is necessary), I am inclined, with all deference, to deny their power of interpreting clauses relating to matters in progress before such period. The Act is a public one, and I contend that it is competent to myself and my professional brethren to read it, and, upon our conviction of such reading, to advise our employers where it interferes with no appointed duties of the referees.

It will be perceived from my letters in your journal, commencing 8th February, that I am at issue with the referees upon every point in their circular to the district surveyors. Upon some of these points I have obtained counsel's opinion which fully confirms my views. I have also obtained copies of awards from the records of the office, which, in my opinion, are at direct variance with the provisions of the Act. And in one award upon the question of commencement, which had progressed to a height of 6 feet (although by a plan attached to the award, as made by an architect expressly sent down by the referees, it is erroneously stated as being only 4 feet high), such "commencement" is condemned, and the party having so commenced, paid 15*l.* 11s. 8d. for the award. I am of opinion the award is insufficient for uncertainty, and if the party proceeds, another hearing at a similar cost must inevitably take place: it respects a question of which I have now many cases before me, except that these cases are still stronger, inasmuch as they are buildings of considerable extent, the walls erected, joists laid, breastsummers and story-posts up, and were completely roofed in last year. I was disposed to treat the notice as in error, or that it applied merely to the putting up the pilasters and entablature as coming within the operation of the Act, but such a vision was soon dispersed; upon writing to the district surveyor for full grounds of complaint, I received in reply the following statement:—"And being neither the portico of a public building, nor built of the materials allowed for projections from face-walls, nor a shop-front conformable with the statute, since it projects 7 or 8 feet from the face of a wall (see schedule E, paragraph 6)," it is also stated that it "is part of a projection added to a certain building 'already built' on a certain face of an external wall thereof extending beyond the general line of the front of the houses." All this is admitted, but it was completed in carcases last year, and claimed to be finished (under the term "already built," sec. 2) fit for occupation before January, 1846. The perversion of the term "already built" in the case referred to as having been decided upon, is more specifically defined by the referees as to be found in sec. 5. It must be recollected that sec. 1 merely declares the object of the Act, sec. 2 what is exempted and what is to be included in the future operation of the enactive clauses. Amongst which, sec. 5 declares that "the enlarging and altering of all buildings, so far as relates to building the same, and with regard to every such building either *already* or hereafter built," are to be controlled by the various enactments and schedules, and then says, "subject nevertheless to any rules and directions in this Act contained in the same behalf." How men of intelligence can so misread plain language, I am at a loss to imagine, the permissive sec. 2 clearly takes all works "commenced before the 1st of January" out of the operation of the Act. The decision of the referees, however, is, that these are "additions and alterations to a building already built," they are buildings erected before 1st January, over which no law then had any control; but imagining any shadow of plausibility of setting up such a position, I fall back upon permissive sec. 2, and quote from sec. 5, "subject, nevertheless, to any rules and directions in this Act contained in the same behalf." In a case reported as heard at Greenwich before Mr. Jeremy, the magistrate, he stated, "He must take the clauses in their literal interpretation, he knew nothing about the intention of the legislature. As to the 5th being the primary clause on the subject, it was a bundle of absurdities and full of incomprehensibility. There was no less than three exceptions embraced in one proviso as an instance."

Further details and extracts from the award I shall be better prepared to lay before your readers in a subsequent letter. And I am anxious to draw further attention to the question of party-walls and intermixed property, as commenced in my letter, in your number for March 8th, being the only matter that can affect the interests of two parties. In the case alluded to, I feel I have much personal ground of complaint in the mode pursued, and if persevered in, it will be of serious and costly damage to parties so circumstanced. It must be recollected my charge of illegal proceedings, as stated in my letter to the referees, was upon the ground that no consent had been asked for, and that we were consenting parties. I have since obtained the facts from the surveyor of the "building owner," thus:—He had copied from a form of notice in the Act, and waited on the district surveyor to know what course he should pursue, being merely desirous of legally putting himself in communication with us. The district surveyor told him a written notice would not suffice (although a verbatim copy of the form prescribed); he must get a printed form, and also serve two on the official referees; thus moving their office before, by sec. 20, consent of the "adjoining owner" had been sought, as before stated. When the district surveyor attended, neither of the surveyors took any part in the matter; the district surveyor proceeded with his survey, and we shortly received copies of his plan and statement, condemning the whole matter in question. I wrote to the referees and "building owner," as set out in your number for March 8th, stating we were consenting parties, and that the proceedings were altogether wrong. I was heard upon my allegations, but no decision given, but a power of appeal within seven days from receipt of the district surveyor's report; before, however, the expiration of this period, we received a summons to attend in Trafalgar-square for a confirmation by the referees of the district surveyor's report. We had intended to, and did appeal, stating our grounds to be, error in proceeding as if consent could not be obtained, and that the plan of the district surveyor was seriously erroneous; he had shewn the whole as one wall, whereas with the simple means I had of measuring the room belonging to the "building owner," inside and outside, he would have found there were two sound walls, one 14 inches, the other 18 inches, the question of party-wall, therefore, falling to the ground.

In obedience to the summons, all parties attended in Trafalgar-square, when we were told there was no meeting, in consequence of the appeal, the period for such appeal not having expired when the meeting for confirmation was appointed. We then (instead of being heard upon the merits of our appeal) received a notice that one of the official referees on an appointed day would meet all the parties himself to view the premises. As we meant nothing warlike, all parties began to be seriously alarmed, and without loss of time we concluded a negotiation for purchase, which had been nearly effected the first day we met, during the time the district surveyor was amusing himself (certainly not for our benefit) by taking a plan of the premises. We immediately drew up and forwarded a joint memorial, intreating proceedings might be stayed, which was attended to. Who is to pay the large costs that must have been incurred I know not. We protested against the legality of the proceedings, and the "building owner," against his wishes, was directed in the course pursued by the district surveyor. Being fearful I should get no decision upon my personal allegations of irregularity in the proceedings, I wrote and received an answer, and have since, at a cost of 4*l.* 3s. 8d., taken up the award. It may be well to mention that the necessity of endeavouring, as a preliminary step, to obtain consent, is recognized in Trafalgar-square, where in the table of fees, under the head "consents," it is thus stated:—"14. For every application for consent to be given on behalf of absent, unknown, or incapacitated parties; and, if inquiry be involved, such further fees as are payable on an award, 5s.

15. For every confirmation of the surveyor's certificate as to works to which the adjoining owner does not consent (sec. 24), 1*l.* 1s."

All the mass of papers received in the matter are headed "party-wall, party-arch, or party fence-wall in the absence of consent by the adjoining owner."

Having already trespassed to so great a length on your columns, I must defer setting out the details of the award—merely stating no heed has been paid to the ground of complaint. I am awarded to pay the 4*l.* 3s. 8d. and 1*l.* 1s. to the district surveyor, which I shall most decidedly resist, and take counsel's opinion whether I cannot recover 4*l.* 3s. 8d. of the district surveyor for his wrong-doing in the matter.

Greenway Robins.

Sewers in Liverpool.—The Commissioners of Paving, &c., have just determined upon constructing in the north district of the town sewers, 3,585 yards in length, the estimated cost of which, including branches, is 5,736*l.*; and in the south district, 3,665 yards, at the estimated cost of 5,864*l.* The quantity finished in the north district, under the contracts of 1844, is 2,559 yards main sewers, exclusive of 475 yards of branches, at a cost of about 3,958*l.* In the south district the quantity finished is 3,130½ yards main sewers, exclusive of 530½ yards of branches, at a cost of about 4,928*l.*

Fatal Accident through the giving way of a Floor.—On the 17th instant an accident of the most appalling nature occurred at the Female Penitentiary, Holloway-street, Exeter. Twenty-one of the inmates had retired for a short time to a small room but little frequented, for the purpose of allowing the committee to inspect the apartment they usually occupied, when the floor of the room instantly gave way, and twenty of the unfortunates were immersed in the pestilential contents of an ancient cess-pit underneath; the other supporting herself on a part of the floor still remaining. The cries and appeals for assistance soon brought to their aid the committee, who succeeded in releasing the woman sustaining herself on the broken part of the floor from her perilous situation, and dragging the others from the pit. In five of these, however, we regret to say, life was extinct. The other fifteen were bruised and very ill, but under proper care are now recovering.

Correspondence.

PORTLAND CEMENT.

SIR,—The basins in Trafalgar-square have been repaired with Roman cement: can you assign the reason they have not been repaired with Portland cement, that being the material the bottoms are laid with? If Portland cement is so superior to all other cements, how is it that they are not repaired with the same?

As this may tend to lower the estimation in which Portland cement is held, it would be well to learn the reason.—I am, Sir, &c.

Kensington. A PLASTERER.

MANUFACTURE OF BRICKS.

SIR,—If your correspondent "Mr. Lockwood" will inform us, young brickmakers, 1st. What are the proper quantities of each material contained in a brick of the best quality? Does it consist of one-third sand, one-third chalk, and one-third clay; or what? 2nd. How it may be known that the materials are properly mingled together? 3rd. The mode of packing them in the kiln so as to obtain the best result? then, I think, the art of brickmaking will be benefited by his labours. Will he also tell us what may be said in favour of mixing the ash with the clay at the commencement of the winter; whether by so doing the materials would become better amalgamated, or whether an objection would exist in the ash losing a portion of its burning quality.—I am, Sir, &c.,

AN EARLY SUBSCRIBER.

SIR,—I have been expecting some of your numerous correspondents would have replied to the query of "An Early Subscriber," in No. 105 of your valuable publication, who "is anxious to have an analysis of a good brick, shewing the exact proportion of each material used in its composition." I should also wish to see added to it, the nature of the compound for giving bricks or tiles a durable brown colour, and the manner of laying it on, which I believe is done before burning.

I am glad to see from your last number, the Royal Institute of British Architects have offered a premium for information on this important building material.—I am, Sir, &c.,

Isle of Wight. P. T.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

SIR,—Would you or some of your numerous correspondents have the goodness to inform me, through the medium of the pages of THE BUILDER, of the simple question at issue between the contending parties in the "British Archæological Society." As a member, I have been addressed by the supporters of each division, and from the apparently conflicting and almost confused statements made by each, am somewhat at a loss to understand the real merits of the respecsive claimants for my support, and consequently (if there is to be a division) to which party to attach myself.

The neutrality which you, Mr. Editor, have hitherto maintained I highly approve, but think that the matter is now assuming such a decided form, that you can with much advantage to both parties, and with real benefit to the cause of archæology, step forth, in order to explain the real position of the whole case. I may also add, that your acknowledged firmness in the discussion of all matters brought before your notice will add much weight to any remarks you may make.—Your insertion of this will much oblige your constant reader,

ARCHÆOLOGICUS.

[We will endeavour to comply with our correspondent's request next week. We desired to see the wound healed, not opened, and so have been silent.—ED.]

THE PORTLAND VASE.—We are glad to be able to state, that this valuable example of ancient art has been successfully restored and will shortly be re-exhibited to the public

VACANT DISTRICT SURVEYORSHIP.—The death of Mr. Mayhew has created a vacancy in the parish of St. James, Westminster. Mr. Charles Mayhew is a candidate for the office, and as it is known that for several years past he assisted his father in the duties of the office, it is to be hoped he will be unopposed by his professional brethren.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the supply of Rails and Chairs for the Eastern Counties Railway. March 31.

For the erection of a new Workhouse at Stratton, St. Margaret, about Midway between Swindon and Highworth, Wiltshire. April 2.

For certain repairs to Snake Bridge (over the River Alde), Suffolk. April 2.

For certain repairs to be done to the Church of St. James, Braithwell, Yorkshire. April 2.

For Lighting Camden-town, St. Pancras, with coal-gas for five years, from the 24th of June next. April 3.

For the erection of a Church in the parish of St. Thomas, Winchester. April 5.

For cutting, forming, and completing a new line of Private Carriage-road, one mile in length, from Whitehaven Castle, Cumberland, the seat of the Earl of Lonsdale, to the Turnpike-road, between Bransty toll-bar and Lonsdale-place, near the town of Whitehaven. April 7.

For constructing the fourth division of the Great Southern and Western Railway. April 8.

For about 250,000 Railway Sleepers not less than 9 feet long, for the Chester and Holyhead Railway. April 9.

For erecting at Alresford, Hants, between five and six thousand feet superficial of new Brickwork, to be either neat flat, joint-pointed with white mortar, or neatly tuck-pointed. The parties to find labour and the erection of scaffolding only. April 10.

For paving and repairing the foot-ways and carriage-way pavements of the parish of St. Clement Danes, for one year from Michaelmas next. April 10.

For the restoration of the Parish Church of Grays Thurrock, Essex. April 12.

For submitting a plan of a Tread-wheel, and constructing the same in the Common Gaol of Great Yarmouth, Norfolk. April 24.

For all the Works to be done in the erection and completion of the new cast-iron Bridge over the Haven of Great Yarmouth, including the finding of labour, certain materials, &c. April 26.

For the construction of the third and fourth divisions of the Chester and Holyhead Railway. April 28.

For the supply of 11,000 feet of 9-inch cast-iron Pipes for a new line of Aqueduct in the Island of Malta. April 30.

For laying out the Grounds of the Victoria-park Cemetery, and for draining the same, making the roads, paths, and finding all necessary trees, shrubs, materials, &c.

COMPETITIONS.

Plans, &c., for the erection of a Commercial Middle School in connection with the committee of the Manchester Church Education Society.

Plans and Estimates for a House of Assembly for the Diet of Hungary. December 1.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

March 31.—At 7, Store-street, Bedford-square: several thousand Yellow Deals, Pine and Spruce ditto, Battens, Planks, and Boards, Ash Felloes and Planks, and other seasoned Wood.

March 31.—At Down Hall, Bradwell, Essex; 310 Oak Timber Trees, standing with Top, Lop, and Bark; 213 Ash, 157 Elm, and 78 Beech Trees.

March 31.—In the Plantation adjoining Great Chiverell Common, Wiltshire: 3,000 Fir Poles, chiefly Spruce, with a few Lots of Larch. The Poles are large, and of superior quality.

The last week in March, or the first week in April next.—A large quantity of Oak and Elm Timber, of superior quality and large dimensions, principally growing in the woods on the Orchardleigh Estate, near Frome, Somerset.

By Private Contract, before the 1st of April next.—287 Oak Trees, of full growth and large dimensions, suitable for all purposes, now standing at Woodside, near Morland, Westmoreland.

April 1.—At Chelmsford, Essex; a very valuable, extensive, and well-assorted stock of Dry Wood in great variety, comprising fine Spanish and Honduras Mahogany, mostly cut between six and seven years; particulaly fine Zebra Wood, English Oak, Pencil Ceder, Birch, Beech, Elm, Rosewood, &c.

April 1.—At Gifford's Hall, Stoke by Nayland, Suffolk: 40 Oak Timber Trees and Standels; 100 Ash Timber Trees and Standels; 45 Elm Timber Trees; 34 Cherries; 20 Poplars, Firs, and Beeches.

April 2.—At the Golden Lion Inn, Ashburton, Devonshire: 1,022 Oak, and 103 Ash Trees. The Oak Timber is of very long lengths, large dimensions, and superior quality.

April 2.—At the Feoffee's Room, Bond's Hospital, Coventry: 144 Oak Trees, 86 Oak Poles, and 22 Cyphers, now growing in Birchley Heyes Wood, Old Fillougley.

April 3.—At Whitley, near Baythorne End, Suffolk: a large quantity of Fir Timber.

April 5.—At Bower Hall, Steeple Bumpstead, Essex: 400 Fir, Oak, and Elm Trees.

April 8.—At the Spulk House, in Dean Forest, Gloucestershire, by order of the Commissioners of her Majesty's Woods and Forests: 319 Oak Timber Trees.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, March 31.—*British Architects*, 16, Grosvenor-street, 8 P.M.; *Chemical* (Society of Arts), Adelphi, 8 P.M. (Anniversary Meeting); *Medical*, Bolt-court, Fleet-street, 8 P.M.

TUESDAY, April 1. — *Linnæum*, Soho-square, 8 P.M.; *Horticultural*, 21, Regent-street, 3 P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.

WEDNESDAY, 2.—*Society of Arts*, Adelphi, 8 P.M.; *Geological*, Somerset-house, 8½ P.M.

THURSDAY, 3. — *Royal*, Somerset-house, 8½ P.M.; *Antiquaries*, Somerset-house, 8 P.M.

FRIDAY, 4. — *Royal Institution*, Albermarle-street, 8½ P.M.; *Botanical*, 20, Bedford-street, Covent-garden, 8 P.M.

SATURDAY, 5. — *Asiatic*, 14, Grafton-street, 2 P.M.; *Westminster Medical*, 32, Sackville-street, 8 P.M.

TO CORRESPONDENTS.

"A Subscriber from No. I." *wishes to know the best place to obtain a communion cloth and carpet, kneeling cushions, &c. for a new chapel.*

"Brewer's Coolers."—*A correspondent wishes to be told the best method of making large coolers for a brewery, say from 30 to 40 feet long; the size of joists; thickness required for the floor; and the best and most effectual means of finishing them.*

"A Constant Reader."—*Collingham's "Henry the Seventh's Chapel." Howard*, 33, *Gray's-Inn-lane.*

"Another Competitor" (Sackville-street) *may see that the information he sends was in our last number.*

"G. S." (Tenterden), *who asks "a remedy for preventing damp affecting the paper of rooms the walls of which are rendered or plastered on the brickwork," should learn the cause of the damp: does it rise from the bottom or drive through from the back.*

"A Subscriber" *wishes to know where and at what price genuine Indian ink can be procured, believing that much which is sold by artists' colourmen is spurious.*

"W. J. S." *is thanked for his information.*

"Architectural Drawing Schools."—*Mr. W. J. Lea, of* 13, *Ebury-street, Eaton-square, states, in reply to inquiries in our journal, that he has conducted an architectural drawing school for several years past, and will give particulars to any who apply. Mr. F. Mulholland*, 8, *Great College-street, Westminster, also gives instruction.*

"E. B." (Dublin) — *The machine mentioned may be obtained at Messrs. Ackerman's, Reeve's, and Co.; Winsor and Newton's; or Newman's, Soho-square: price one guinea and upwards.*

"W. H. P." *is thanked: a copy has been sent to Earls-terrace. A notice of the progress of the works at Cologne Cathedral, present state of the churches, &c. there, will be acceptable.*

"Holloway New Chapel."—"W. J." *and all correspondents who favour us with their names in confidence, may feel assured that it will not be betrayed.*

"J. L." (Lille).—*We shall be glad to receive items of information.*

"Williams's Patent Slate Ridge" *shall be described next week.*

"F. M." *and* "E. M." (Pimlico) *next week.*

"W. R."—*The model has been received: we have not yet examined it.*

"N."—*Asphalted Felt does not seem to be allowable for roofs under the Buildings Act.* (*Schedule* G.)

"Herne Hill Church."—*Having given a statement from each of the parties at issue, we did not propose to carry the subject further in our pages. We will, however, reconsider the various letters which have been addressed to us upon it.*

"W. G. Oxford."—*In parts or numbers as may be desired.*

Received.—"*Additional facts, having reference to Grave Yard Management.*"

ADVERTISEMENTS.

TO BUILDERS AND CARPENTERS. — IRONMONGERY AT WOLVERHAMPTON PRICES.

CLUSE and BOSE respectfully inform the Building Trade that they have opened a Warehouse at 35, CITY-ROAD (corner of Tabernacle-row, and near Old-street-road), for the purpose of supplying EVERY DESCRIPTION OF IRONMONGERY at Wolverhampton prices.

ELLIPTIC and REGISTER STOVES, KITCHEN RANGES, &c., lower than any other house in the trade.

Lists of prices may be had at the Warehouse, or forwarded per post free.

TO BUILDERS AND OTHERS.

JAMES ELLIS, Brass Founder, 144, Houndsditch, London, Manufacturer of Pumps, Water-closets, Cocks, &c.

Sole Maker of Woodfield's Patent Water-closet, that requires neither Service Box, Ball Lever, Valve, Cranks, or Wires, admirably adapted for situations where the Cistern cannot be fixed near the Closet. Any number of Closets can be supplied from the same Cistern.

Brass Fittings for Slate Cisterns, Sinks, &c.; Plumbing and Steam Work in its various branches; Gas Light Furniture Manufacturer and Fitter.

Every article warranted and supplied on the lowest terms for Cash. Experienced Workmen sent to any part of Town or Country on the shortest notice and most reasonable Terms.

Pan Water-closet complete, 1*l.* 10*s.*

CAUTION TO LOCK MAKERS, Dealers, &c.—I, THOMAS DAVIS, at present a prisoner confined in Warwick Gaol, upon an execution at the suit of Messrs. Charles Chubb and Son, of St. Paul's Churchyard, London, Patent Lock Manufacturers, for damages and costs recovered against me for having put their names upon locks not of their manufacture, acknowledge that I have been justly imprisoned for such my offence, and the said Messrs. Chubb and Son having, in consideration of the distressed state of my wife and family, by reason of my imprisonment, consented to my discharge, I do hereby declare that I deeply regret having ever put their names on my locks, or having passed off locks of my make for articles of their manufacture; and I solemnly promise that I will never again, under any circumstances, commit the same offence. Dated 4th day of February, 1845.

THOMAS DAVIS.

Witness—Thomas Maycock, Turnkey.

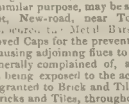
FENDERS, STOVES, and FIRE-IRONS. —The LARGEST ASSORTMENT of STOVES and FENDERS, as well as GENERAL IRONMONGERY, in the WORLD, is now on SALE at RIPPON and BURTON'S extensive warehouses, 99, Oxford-street, corner of Newman-street (just removed from Wells-street). Bright steel fenders, to 4 feet, from 30*s.* each; ditto ditto, with ormolu ornaments, from 60*s.*; rich bronzed scroll ditto, with steel bar, 10*s.* 6*d.*; iron fenders, 3 feet, 4*s.* 6*d.*; 4 feet, 6*s.*; ditto bronzed and fitted with standards, 3 feet, 9*s.*; 4 feet, 11*s.*; wrought-iron kitchen fenders, 3 feet, 4*s.* 6*d.*; 4 feet, 6*s.*; bright register stoves, with bronzed ornaments and two sets of bars, from 5 guineas, ditto ditto, with ormolu ornaments, from 9*l.* 5*s.*; back dining-room register stoves, 2 feet, 20*s.*; 3 feet, 30*s.*; bed-room register stoves, 2 feet, 16*s.*; 3 feet, 24*s.* The new economical Thermio stove, with fender and radiating hearth-plate, from 8*l.* 5*s.*; fire-irons for chambers, 1*s.* 9*d.* per set; handsome ditto, with cut heads, 6*s.* 6*d.*; newest pattern, with elegant bronzed heads, 11*s.* A variety of fire-irons, with ormolu and richly-cut heads, at proportionate prices. Any article in furnishing ironmongery, 30 per cent. under any other house, while the extent and variety of the stock is without any equal. The money returned for every article not approved of.—Detailed catalogues, with engravings, sent (per post) free. Established (in Wells-street) 1820.

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THE MANOR PARK, STREATHAM, near the CHURCH.—TO LET for the purposes of Brickmaking, the valuable Brick-earth upon a part of this Estate. The Clay, which is of a very superior quality and coloured with marl, lies immediately below the vegetable mould, and there is running water in great abundance crossing the Estate; besides other advantages, the Ground fronting on the main Croydon Road and on the Road leading from Streatham to Tooting, is now to be Let for Building purposes, and the disposal of the Bricks upon the Spot, when manufactured, will be found equally advantageous to the maker and Builders, saving the Cost of Cartage. If any Speculator is willing to take a large portion of the Ground for Building purposes, he would be allowed to make Bricks, the proprietors only reserving to themselves the right of a Small Royalty for the use of the Earth. Money to any amount will be advanced on the Buildings during their erection, upon Certificates given by the Architects to the Estate.

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Licences are granted to Brick and Tile Makers for manufacturing the Bricks and Tiles, throughout the United Kingdom, by application as above, or to Mr. ELIAS DORNING, 27, Cross-street, Manchester.

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MORTGAGE and ANNUITY OFFICE, No. 123, Chancery-lane.—Persons requiring LOANS by way of MORTGAGE, or otherwise, upon any available security, may at all times procure an advance to the extent of from 100*l.* to 200,000*l.*, or so much as the property will bear, by applying to Mr. BRAY, Surveyor, Land and Estate Agent, at the offices as above, where a Registry for the sale of Estates, Houses, Land, Life Interests, and Reversions, is kept for inspection. N.B.—To expedite the procuration, personal application at the office would in all cases be better, the party bringing with them the abstract of title, plans, &c.

All communications for Money are considered strictly confidential. Letters pre-paid.

EMBARRASSED CIRCUMSTANCES. —PERSONS IN DIFFICULTIES being desirous of availing themselves of the Benefit of LORD BROUGHAM'S HUMANE ACT, are requested to apply to MESSRS. GRAND AND CO., of 54, Coleman-street, City, where every information may be obtained, FREE OF EXPENSE, or arrangements can be made with Creditors, by which means the painful necessity of resorting to BANKRUPTCY or INSOLVENCY may in many cases be avoided.—N.B. Partnership accounts adjusted.

TO BUILDERS.—TO BE LET with possession at old Lady-day next, a neat and commodious DWELLING HOUSE with excellent Yard, Workshop, Saw-pit, and Sheds adjoining the same; situate in Double-street, in Spalding, in the county of Lincoln, now in the occupation of Mr. Wm. East, where a first-rate general business has been carried on for the last forty years. The Premises are contiguous to the River, and consequently well situated for Loading and Delivering Materials. For further Particulars and to treat, apply to Mr. R. Ellis, Builder, Fleet, near Holbeach.

Fleet, March, 1845.

TO BUILDERS, CARPENTERS, AND JOINERS.

TO be SOLD by Private Contract, or LET, with possesion at Old Lady-day next, all those Extensive Premises situate in Fleet, near Holbeach, in the county of Lincoln, comprising commodious and newly-built Dwelling-house and Offices, Carpenter's and Smith's Shop, Sawpit, Deal Sheds, Office and Stable, Large Yard, and well-planted Garden, now in the occupation of Mr. Robert Ellis, builder, by whom and his late father an excellent business has been carried on for upwards of half a century. For further particulars, apply to Mr. Ellis.

Fleet, March 17, 1845.

IMPORTANT TO INVENTORS AND PATENTEES.

PRACTICAL ASSISTANCE GIVEN to parties taking Letters Patent, by Mr. J. WILSON, Engineer and Patent Agent. Every description of business relating to or connected with Patents, Registration of Designs, Patent Agency, &c., conducted at his offices, 16, CHANCERY-LANE, opposite Carey-street. Negotiations entered into with parties wishing to dispose of or purchase patented or registered inventions. Every necessary information may be obtained at the offices as above, where also may be had printed instructions (gratis), to which Mr. W. begs particularly to draw the attention of parties about to take out patents

Mechanical drawings of every description, original designs for machinery, models, &c., executed with dispatch and economy.

HOLBORN AND FINSBURY SEWERS, MIDDLESEX.

THE COMMISSIONERS of SEWERS for the LIMITS give NOTICE, that their Office, Hatton Garden, is open daily between the hours of Ten and Four, where information can be obtained (gratis) by persons about to Purchase or Rent Houses or Property, or take Land for Building purposes, of the situation and level of the public Sewers, capable of affording sufficient Drainage, and which they recommend all such Persons to apply for at the above Office.

By the Court,

STABLE and LUSH, Clerks.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. (chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, or public way, or to any sewer intended hereafter to become a street, lane, or public way, or to carry off or drain off water from any house, building, yard, or ground, into any sewer under their management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewer or sewers shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, upon application being made at this office previous to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, whenever the lower floors or pavements of buildings shall have been laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings must in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners, will be cut off, and the parties making the same will subject themselves to a fine.

By order of the Court,

LEWIS C. HERTSLET, Clerk.

WESTERN LIFE ASSURANCE SOCIETY,

OFFICE, 49, PARLIAMENT-STREET, WESTMINSTER.

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The attention of the unassured portion of the community cannot be too pointedly drawn to the unusual advantages offered to the Public by *this Society* over those of many others, as it enables all classes to effect life assurances in the manner most convenient to themselves, and amongst other of its popular features that of allowing the Assured (by Table J, to lease BUT THE ANNUAL PREMIUMS unpaid for seven years, will not be found undeserving public attention.

Immediate and deferred ANNUITIES, and every description of Life Assurance business, undertaken by this Society.

Prospectuses and all other requisite information will be furnished on application to the Secretary, or the Country Agents of the Society.

EDWARD T. RICHARDSON, Secretary.

The Builder.

No. CXIII.

SATURDAY, APRIL 5, 1845.

FOR more than two years past a committee, appointed for the purpose of obtaining the restoration of the noble church of St. Mary Redcliffe, at Bristol, probably the finest parish church in England, have spared no pains to raise subscriptions, and to induce their fellow-citizens and the admirers of ecclesiastical architecture throughout the country, to assist them in the proposed undertaking.

From the estimates of the architects employed to survey the church, it appears that an outlay of 40,000*l.* is required to complete the restoration; but, after mature deliberation, the committee were of opinion they might with perfect prudence commence the work when 7,000*l.* should be subscribed; and it was accordingly resolved, in January last, that when such a sum was obtained, plans and estimates should be submitted to a meeting of the subscribers for their approval.

After all the efforts made, however, only 5,400*l.* have been raised; and expenses have been incurred which reduce the amount strictly applicable to the restoration to 4,600*l.* The committee found that the fabric was becoming daily worse and worse, and being anxious to induce the subscribers to allow the application of their subscriptions to the substantial repair of the fabric, a meeting was held on Friday, the 28th ult., when the Mayor, Mr. R. P. King, presided, and the following resolutions, amongst others, were carried unanimously:—

"That this meeting would see with deep regret the further decay, and perhaps irrecievable ruin, of St. Mary Redcliffe Church; and as more extensive dilapidation can only be averted by the application of the present subscriptions to the work of repair, this meeting earnestly hopes that all the subscribers will consent to an immediate payment of the residue of their subscriptions—to be applied under the direction and control of the committee, according to the recommendation contained in their report; and that the committee be requested to make early application to each of the subscribers not now present, or otherwise consenting, for their permission to apply the balance of his subscription forthwith to the same purpose."

The mayor was most anxious to aid the views of the committee, and urged that it would be a national disgrace if the beautiful structure were allowed to go further into decay. They could hardly hope at present to see the steeple restored and the church made perfect, but substantial repairs they were bound to attend to; and he hoped the subscribers would permit the amount already raised to be applied forthwith for that purpose. Mr. W. L. Clarke, in moving the first resolution, said, although they could not effect their whole object, the subscribers who assented would have the satisfaction of handing down the church in good repair to the next generation, to receive then that complete restoration, which they themselves had desired to obtain, but unfortunately could not.

Mr. James Gibbs rejoiced that the committee had resolved to begin the work; but deplored that, in a city of merchant-princes, whose revenues might be estimated not by thousands, but by hundreds of thousands, and even millions, there was any difficulty in raising the sum required. He trusted, however, as the work proceeded that additional aid would be given.

Mr. W. P. King saw no reason to despair of the ultimate restoration of their noble church; such works were not effected in one year or ten. The Cathedral of Cologne had been built bit by bit, and, in fact, had never been finished. But the present King of Prussia having interfered, a spirit had arisen, and in all Germany subscriptions were being raised for its completion. All the large cathedrals had taken many years in building, and the town of Wigan owed its name to the circumstance of such a building being so long in progress, that the expression of "We began" was so often used, that corrupted into Wigan, it became the name of the place. He thought they had only to begin, and they would go on progressing; their very scaffolding, and the knowledge that they were progressing with the work, would be their best advertisement, for they could not expect people to give large subscriptions to a work not yet begun; he did not fear but the youngest among them might live to see the restoration of that beautiful steeple, which had been thrown down by the thunder-storm.

Mr. Proctor felt himself unable to assign a reason for the want of funds. Here was a fine old church, admitted on all hands to be a credit to the city and nation at large, in the midst of a professedly Christian country, and surrounded by a population who were sending money all over the known world to build churches; yet that church was going to decay, and the means to prevent it could not be obtained. The amount already subscribed might appear large; but was not the object worthy of it? Large as it was, it was less than had been expended on one mile of railway within the vicinity of its walls. He could only assign as an excuse, that persons did not believe the church was in so dilapidated a state as was stated; but he assured them they would find it so. In many parts it was so dangerous, that it ought not to be approached; many of the pinnacles were tottering, and large pieces of stone were constantly falling; and the roof over the chancel was in so bad a state, as to deter any person from proceeding along it. The time was come to decide whether Redcliffe Church should exist a proof of their fidelity to the trust deputed to them by their fathers, or a monument of the neglect and parsimony of the present generation. He considered the credit of England was at stake, and hoped that none would relax in their exertions.

We echo Mr. Proctor's words—the credit of England *is* at stake; and we hope all who feel interested in our ancient ecclesiastical architecture will lend their aid to effect the restoration of the beautiful church of St. Mary Redcliffe. If it be allowed to fall into ruin, a disgrace will attach to Bristol, which will be hard to remove. Its beauty as a work of art, its antiquity, and its peculiar associations, render this church equal in interest to any structure in the kingdom. Well might the elegiast of Canynge, who built the greater part of the present church, and died in 1474, inscribe on his monument:—

"The buildings rare that here you may behold
To shrine his bones, deserve a tombe of gold:
The famous fabricke that he here hath donne,
Shines in its sphere as glorious as the sonne.
What needs more words, the future world he soughte,
And set ye pomp and pride of this at noughte:
Heaven was his aime, let heaven be still his station,
That leaves such works for others imitation."

The committee have acted wisely in determining to commence the repairs forthwith, and there is every reason to believe that when they begin in earnest, additional funds will be forthcoming. We give them "God speed ye" in the good work, and shall report progress from time to time. Such monuments are the property of the nation, and should be the care of the nation. If we cannot build such now-a-days (or at least, *do* not, which is the same in effect), at all events let us religiously preserve those our forefathers have left us.

BURIAL-GROUND PRACTICES.

The revolting occurrences in the Spafields burying-ground, to which we assisted to direct public attention, have produced so strong an impression generally, that, whatever may be the immediate result of Mr. Mackinnon's long-expected motion for preventing interments in large towns, we may expect considerable mitigation of the evil before long. A true bill has been found against two managers and the lessees of the burying-ground in question, and the audacity of Mr. Bird in writing the letter which we admitted into our columns, is fully shewn.

At St. Saviour's, Southwark, on Easter Tuesday, the parishioners in vestry assembled, resolved to discontinue burying the dead in the grave-yard of that parish, in consequence of its over-crowded state. And it is to be hoped that the inhabitants of several parishes in the city which we could name, will forthwith determine that no more shall be added to the mass of corruption engendering disease, over which they sit some hours every week.

It will scarcely be believed that an analysis of a gallon of water from the pump in Spafields ground, lately made, shewed that it contained 160 grains of human matter.

Throughout the discussion of the subject, which has recently taken place, we have not observed that sufficient allusion has been made to the gentleman by whose exertions, almost unaided, and at considerable expense to himself, the fatal evils of the system generally, and the atrocities committed in the Spafields ground in particular, have been made known to the public. Mr. G. A. Walker has applied himself for several years past to point out the evils attendant on burying in towns, and to the reformation of abuses of the practice known to exist, and it is to be hoped that some public acknowledgment of his services in this respect will be made. It is too often the case that those who have really fought the battle are forgotten in the moment of victory.

ENCROACHMENT ON HYDE PARK.

We view with extreme jealousy any steps tending to contract the few open spaces set apart for the enjoyment and healthful recreation of the people. The parks are the Londoners' privileges, the Londoners' salvation; they are properly called the lungs of the metropolis, and as we all know what an important part of the body the lungs are, should be guarded with the greatest care, and preserved intact at any cost. We are led to make this remark by the preparations which are in progress, apparently to enclose a portion of Hyde Park, between Albert-gate and Hyde Park Corner, and call loudly on those who have power, to lend their aid to prevent this encroachment. If the intention be persisted in, a public meeting should be called, and a memorial therefrom presented to the Metropolitan Improvement Commissioners, and the Health of Towns Commissioners, soliciting their interference. No time should be lost.

"The true danger," says Burke, if we remember rightly, "is when liberty is *nibbled* away for expedients and by parts;" and so it is with our parks. If we quietly permit this fresh slice to be taken off (as was done a few years since next Park-lane), we shall have the precedent followed all round its confines, even if it stop there; and afterwards the same authority which encloses, may please to plant villas and cottages in the pleasant parterres thus created.

YORK MINSTER; ITS FIRES AND RESTORATIONS.

BY JAMES WYLSON.

In attempting to give an account of the present condition of York Minster, we naturally turn to take a retrospect of those memorable calamities which led to the extensive operations that have been carried on of late years in that magnificent fabric. Premising, then, that, in pursuance of a survey and report thereof, made by Mr. Carr, a York architect, in 1770, the minster was put into a general state of repair by 1778; that from funds realized from minster properties, the Dean and Chapter afterwards maintained a steady counteraction to the insidious influence of time, expending therein, say 1,000*l.* a year, it will be understood that only the occurrence of such destructive events as those to which we refer rendered necessary those public appeals, and the exercise of that munificent co-operation, by which this noble structure has been preserved from becoming a crumbling ruin.

About seven o'clock in the morning of Monday, the 2nd of February, 1829, a boy named Swinbank, one of the choristers, while passing through the minster-yard, accidentally stepped upon a piece of ice, and was thrown on his back; before he could recover his footing, he saw, in his upward view, smoke issuing from the roof of the minster. On his giving an alarm, and the doors being opened, it was found that the elaborate and beautiful carved oak fitments on the south side of the choir were in flames: from this the fire spread rapidly, and by half-past eleven o'clock the rich woodwork (cathedra, pulpit, prebendal stalls, misericordia, pews, and organ, with their exquisite canopies, tracery, and tabernacle-work), as well as the choir-roof, about 222 feet in length, was entirely consumed, the fire having been communicated to the latter from the organ. Happily, the gorgeous stone rood-screen, containing statues of our monarchs from William the Conqueror to Henry the Sixth, and which sustained the organ, occupying the lower part of the great arch between the transept and choir, and serving thus as one of the confines to the vast furnace which raged within, sustained but little injury, as may be also said of the east window, which, from its beautiful glazing and noble dimensions, has been distinguished as "the glory of the cathedral," and "the finest window in the world;" the splendid sepulchral shrine of Archbishop Bowet, and other monuments were demolished, or considerably injured, as were the clustered piers of magnesian limestone, carrying the great side arches.

Upon an investigation taking place, a suspicion was found to attach so strongly to one Jonathan Martin, that a reward was offered for his apprehension. This man was a native of Hexham, in Northumberland, was a brother of the celebrated painter of the same name, had been apprenticed to a tanner, was subsequently a sailor, and, about the time of his committing the act by which he acquired so much notoriety, obtained a livelihood by hawking about a pamphlet containing a narrative of his life. He was taken on the Friday following, at the residence of a relation, named Kell, at Coldlaw-hill, about three miles from Hexham, was brought to York on the Monday, examined, and committed to the city gaol; on the 31st of March, true bills for arson and felony having been found against him, he was tried at the Castle, before Mr. Baron Hullock, and, after nine hours' careful investigation, acquitted on the ground of insanity, caused by religious fanaticism. Accordingly, in pursuance of that wise regulation by which persons convicted of serious offences whilst labouring under alienation of the mind are placed beyond the power of committing any further mischief through the mania which influences them, he was removed to London, and confined in Bethlem Hospital, where he died on the 3rd of June, 1838. It appeared that Martin, having provided himself with some tinder, matches, a penny candle, and a razor, in lieu of steel, attended evening prayers on the Sunday; then concealing himself behind Archbishop Grenfeld's tomb in the north transept, kept still until the ringers, who were in the belfry in the evening, had left the Cathedral. Proceeding to the belfry, he struck a light, lit his candle, cut about 90 feet from the rope of the prayer-bell, converted it into a ladder by tying knots in it at intervals, and having retraced his steps, obtained by means of the rope access to the choir; here he cut away the gold-fringe ornaments from the pulpit, and the velvet from the Archbishop's throne, and Dean and Precentor's seats, then piled all the cushions, surplices, and books in two heaps —one near the Archbishop's throne, the other near the organ,—and set fire to them. His candle burnt out before he had completed his arrangements, but he procured a wax one which had been used during the service in the afternoon: it was about the middle of the night that he set about his "pious work," as he called it; he lit the fire about half-past two, stayed half an hour to watch its progress, and left the Cathedral about three in the morning, taking with him the gold-fringe, velvet, and a small bible, for the purpose, as he said, of their serving to identify him with the act. He made his escape by breaking one of the windows of the north transept, which he reached by the aid of the travelling scaffold used for cleaning the Minster, whence he looked back with great pleasure "on the merry blaze which began to shoot up." The opinions which he entertained on religion were of an absurd and fanatical kind, the main objects of his vituperation being the church clergy, whom he designated as "blind guides, who led the higher ranks of society astray." The writer of this article saw and conversed with him at Bethlem in 1837: on entering the day-room, he found him seated at the end of a long dining-table, reading intently in a large quarto volume; passing round to his shoulder, and perceiving that the work which so closely engaged his attention was Fox's "Book of Martyrs," he accordingly saluted him thus:—"Good morning, Mr. Martin, that is a very interesting work you have got." "Ay, Sir," said Martin, launching into the topic which seemed ever uppermost in his thoughts, and expressing himself nearly thus: "these were the men that suffered for conscience' sake; when I set fire to York Minster I did wrong, and I deserved to be hanged for being guilty of trying to destroy so noble a fabric, for it was against the men and not the house that I should have directed my vengeance." When first placed there, he used to amuse himself with drawing, but his conceptions being generally of the devilish order (according to the report of his keeper), the governors thought it best to deprive him of the means of exercising his talent in that way. There was a degree of wild and fervid enthusiasm in his manner, but still there seemed a seasoning of "as much rogue as fool" in his composition. He alleged that he was prompted to set fire to the minster by two dreams.

Addresses of condolence having been voted to the Dean and Chapter by the Lord Mayor and Corporation, and by the citizens, evincing the deep sympathy which was felt by all classes, a public, or rather national subscription was opened to defray the expenses of the restoration, which was intrusted to the professional experience of Sir Robert Smirke, and whose estimate of the damage done amounted to 60,000*l.* In two months 48,000*l.* were collected in the county; Government gave 5,000*l.* worth of teak from the stores of well-seasoned timber in the dock-yards; Sir E. M. Vavasour, of Hazlewood-hall, gave the stone, in noble imitation of his ancestor, Robert de Vavasour, who gave that of which the nave was built; his Grace, the Archbishop, presented the communion-plate; and the Hon. and Rev. John Lumley Saville, afterwards Earl of Shrewsbury, gave the organ. From the receipts of the fourth grand musical festival also, which was held in the Minster on the 7th of September, 1835, the sum of 1,794*l.* 4s. 5d. was apportioned to the restoration fund. In consequence of a deficiency, the Dean and Chapter were obliged to borrow 8,000*l.*, being the commencement of a mortgage on the fabric funds.

In effecting the restoration, the architect's first object was to give security to the fabric; to do this efficiently, he found it necessary to rebuild the portion of the side walls above the arches, and restore the cornice and battlements, and external screen-work on the north side. The roof he constructed entirely of teak, the extraordinary strength and durability of which, even where oak has failed, has been proved by experience; the arched ribs forming the groined vaulting he also constructed of the same wood, following in every respect the plan of the old work: but he wisely had the interior moulded portion wrought separate, in a light American wood, a method which affords comparative facility for removing and replacing parts should circumstances render it necessary, as well as for executing the various complex curves with greater accuracy and superior finish. In the restoration of the stall-work, he availed himself of the services of Messrs. Mackenzie and Wild, who had fortunately made on former occasions accurate admeasurements of the most interesting features of the Cathedral, well-seasoned oak was collected for the purpose in Holland, and the elaborate portion of the work was executed in London. The pulpit and throne are allowed to be far preferable to their predecessors; the former is two feet lower than the old one, and projects further into the choir: some say, that whereas the old tabernacle-work, while rough in execution, was substantial and richly clustered: the new, though sharp and richly tooled, is slight and thin, and the finials at variance with it. Exception is also taken to the knots in the groining of the roof, which before presented an endless variety, but now exhibits a repetition of the same foliage. However these things may be, it is undeniable that the restoration was well carried out, and what with the drawings that existed, and the fragments found in the ruins, it was effected generally with a satisfactory adherence to its prototype. The new stone altar-screen and altar-rails are admirably finished; this screen and the oak ones which extend on either side from the pulpit and throne to meet it, have their openings filled with plate-glass, which gives at once lightness and comfort, and affords a view beyond. In August, 1830, some workmen engaged in removing the rubbish and paving inside the organ-screen, came upon some masonry, the appearance of which induced a further excavation; pursuing this interesting discovery, the remains of a former choir upon a lower level, or, perhaps more properly, of a former crypt, were developed, presenting portions, as much as 7 feet in height, of massive Norman main piers, 7 feet or more in diameter, their various spiral and chequered flush-roll patterns and bases perfect; also the remains of other minor pillars, and in the foundations of the present structure, many pieces of Norman carving randomly disposed amongst the rubble masonry. These remains, which prove the former choir to have been narrower, and to have run farther westward than the present one, were arched over with brickwork to carry the paving of the choir, and are thus open for the inspection of visitors, in whom they invariably excite a deep interest: the vaults thus formed are entered from the west side of those previously known as the crypt, and descend a few steps from that level. These excavations were considered to afford confirmation of the old tradition that the Minster was founded on the site of a Roman temple, some walls apparently of Roman structure, with herring-bone brickwork, being found to intersect the foundations. The bases of the massive Norman piers are curious, as being purely attic, the upper fillet of the scotia projecting under the upper torus. In the spring of 1832 the restoration was completed, having, with incidental expenses, amounted nearly to the estimate. On the 6th of May the choir was again opened for divine service.

On the evening of the 20th of May, 1840, the satisfaction which the inhabitants had for eight years enjoyed in their restored Minster was again doomed to be disturbed, and by a similar catastrophe. About half-past seven o'clock the alarm was given that a fire had broken out in the south-west tower, in which were the peal of ten bells, and the clock. The tower being much crowded with timber, the work of destruction progressed rapidly; by nine, the peal of bells had fallen—with crashes resembling discharges of artillery; the same fate had attended the clock, and the devouring element now raged through the whole height of the tower with the fury of a furnace draught—the flames issuing at every opening; by ten o'clock the fire reached the main roof of the nave, along which it extended rapidly, and by twelve the whole of it had fallen in, and lay in the long aisle "like a sea of fire." The west doors being now nearly burnt through, a barricade of planks was raised against them, to prevent the rush of air which, if ensuing, might carry destruction to the organ and choir: by this precaution, and a well-managed

direction of the water to prevent the fire bursting through the west window, not only was that saved, but the fire was confined to the nave, and by one o'clock all danger of further damage was over—the south-west tower and great aisle of the nave being left mere shells.

On an investigation being instituted as to the cause of this calamity, it came out that it originated in the carelessness of an individual named Groves, from Leeds, who had been engaged for some time cobbling at the clock, and had left a candle burning, a spark of which ignited the building. This worthy, on the recent completion of the tower, and hanging of the new bells, had the effrontery to ask permission to take a part in ringing the opening peal—doubtless, intending thereby to attach another laurel to his wreath, which, we believe, he wears very jauntily—regarding the men of York as in no small degree beholden to him for the superior condition to which (through his stupidity) he has been the cause of bringing the Minster.

Shortly after the disastrous event, a meeting took place in London of those interested in the county of York, and at which a subscription was commenced. On the 7th of August, a public meeting was held in York; meetings also took place there on the 31st of March and 6th of October, 1842, all of them fraught with matter of importance to the fate of the Minster. On the 25th of June, 1840, Sir Robert Smirke had reported on the damage done, and furnished an estimate of the probable cost of its reparation. On the 17th of March, 1842, Mr. Sydney Smirke, his brother, to whom the work of restoration had been intrusted, reported *on the works done, and those further necessary*, and, on the 29th following, *on the general state of the fabric*. In the former report, in reference to the work done, Mr. Smirke stated that in the interior of the tower, and there only, the fire had been more destructive than was at first supposed, much of the masonry being found to be deeply injured, and stones which appeared only discoloured, pit through their whole depth; this was substantially reinstated. The tower had been permanently expanded, and seriously rent through on all sides by the intense heat,—the old cracks both in it and the west end of the nave being much increased in width: to remedy this injury it was bound together, and firmly united to the other parts composing the west front by four strong iron ties, two of them extending from its south side across the west front to the further side of the north tower, the two others, or cross ties, connecting these on its own north and south sides; the decked stones were cut out and new sound ones inserted; by these means stability was given to the south-west tower and west wall. The newel stair at the south-west angle having been in two places completely broken through, and thus rendered impassable, was restored, as were also the battlements on top where damaged. The four windows on the clerestory level, as also those of belfry, had received entirely new tracery, and many new jamb-stones. The latter were filled with half-inch Welsh slate louvres in lieu of the former weather-boards; in the former the glazing was in course of completion, and the perforated battlements outside were on the south and west reinstated where injured, while that on the north, looking into the nave, which previous to the fire was bricked up, was now opened—new fire-proof floors occupied the places of the timber ones destroyed, those to clock and ringers' chambers consisted of 5-inch York landings on cast-iron girders, that to bell-chamber consisting of nine arches springing from similar bearers, with a floor of thick oak planking to receive the bell-framing. A new roof, constructed of iron and covered with lead, was also fixed on the tower: in the execution of these works about 670 tons of Huddlestone stone, and 218 tons Gazeby stone, had been worked up, the latter being used where the utmost possible length was required; the mortar was made of calcined Huddlestone stone, which affords one of the best quality; stone dowels and iron or copper internal cramps were used, internal cramps being avoided as much as possible; over the nave was constructed a new internal roof of Memel oak, clad with 2-inch deal planks, and covered with thick cast lead; the parapet-gutters of lead, laid on a bed of mastic, in lieu of boarding, which is very liable to decay; the surface of the masonry under the roof, including the wall-ribs, forming part of the vaulting yet to be done, were in progress of restoration. The work further required comprised the reinstatement of timber ribs and vaulting to nave; a portion of roof of south aisle burnt at west end; lower parts of stone piers calcined, and otherwise injured; carved masonry against walls, under windows of south aisle, mutilated at south-west angle by heat and falling of burning timbers; interior carved masonry about principal western entrance similarly injured; doors for said entrance, and for that under south-west tower; many black and white flags forming pavement of nave broken by falling in of roof and vaulting; and stained glass in clerestory of nave damaged.

The report on the general condition of the Minster Mr. Smirke classed under three different heads, viz.:—The repairs that were urgently required for the safety of the building; those of works fallen into decay, but which were not in immediate danger; and those which, however desirable for the dignity and character of this great national monument, might, nevertheless, be regarded only as ornamental restorations. The first would comprise an entirely new roof over the *centre aisle of the north transept*, and reinstating in a vertical position, as far as practicable, the masonry of the western triforium there which overhung towards the west, and was the more dangerous from the whole of that side of the transept inclining also to the north; it would include also, the entire reinstatement of tracery to the southernmost window of *vestibule to chapter-house*, and of three pinnacles to buttresses on the south-west of *choir*, with the parapets connecting them; the second referred to cracks in main walls of *centre tower*, to be tied with iron; decayed ends of main girders supporting roof of same, to have cast-iron shoes; the defective lead covering to be recast and laid on new oak boarding, and the gutters laid on a bed of mastic; gutters of *south transept* defective and to be relaid; exterior masonry of *choir* (besides the pinnacles and parapet above-mentioned) requiring repair, repointing and cramping in many parts, including the other pinnacles on both sides, and the external screen-work on the north; lead-work of roof to *north aisle of nave* requiring considerable repair, and gutters relaying on mastic or slate; parapet also and heads of buttresses wanting a thorough repair. Roof of *south aisle* still more dilapidated, carpentry ill constructed, no tie-beams, braces thrusting injuriously against south wall, above triforium, some of timbers decayed, wants early and entire re-construction; tracery of six out of seven of *south clerestory* windows much mutilated, should be restored with Huddlestone stone externally, the Tadcaster having proved very inferior; some considerable fractures in *north west tower*, should be repaired in like manner with the central tower; lead and boarding of roof much decayed, the latter should be renewed, of oak, and the former recast and relayed, the gutters to be laid on slate or mastic; louvre-boarding requiring repair, new slate louvres desirable, as adopted in south-west tower; original floors entirely gone, a stone floor with cast-iron girders, introduced near middle, would add much to the future security of the tower; upper part of south-east angle buttress of *south-west tower* separated from main wall and inclining forward, wanting replacing and cramping; in *chapter-house* and *vestibule*, the parapets of former nearly ruinous, wants partial renewing and careful pointing; pinnacles all more or less defective, two ought to be entirely rebuilt; tracery of north window of vestibule falling into equally as bad a state as that of south one. The third class referred to evidences of decay in exterior of east wall of *choir*—north pier of great east window, with its buttresses and perforated battlements in a state of general decay, requiring restoration with new work, as before done in south portion—spire of north-east pinnacle, now wanting, should be restored—most part of the four pinnacles at south front of *south transept* in a very bad state of repair; but being of modern workmanship, out of unison with the ancient work, should be replaced by others in appropriate taste. [These pinnacles, and a variety of other *morceaux* about the Minster, speaking a tale of sixty years since, are the emanations of Alderman Carr's studio, and are quite *à la Langley*.] The pinnacles of the three angle buttresses at northern extremity of *north transept* wholly wanting, and their restoration greatly to be desired. In the interior, the ornamental arcade under windows of *nave*, especially towards the west, much impaired; being near the eye, the reinstatement of this masonry very desirable.

From the report of the Restoration Committee, read previously to those of Mr. Smirke, it appeared that the state of their accounts and funds was as follows:—

Disbursements ..	£13,959	6	7
Liabilities ..	532	10	0
	£14,491	16	7
Receipts:—			
Subscriptions	£13,545	7	8
Sale of stone fragments ..	35	0	0
,, Old lead	318	16	0
,, Bell metal	437	19	4
	£14,337	3	0
Subscriptions due	91	13	4
Deficit	63	0	3
	£14,491	16	7

The sum above stated for disbursements includes 347*l.* 9*s.* for the great tenor bell; that for liabilities includes 80*l.* 10*s.* for the bell-frame, which was ordered of such construction as to be available for the complete peal, without any alteration or removal; also 175*l.* for clock, and 55*l.* for fixing same.

The estimate which Mr. Smirke formed of the works above specified is as follows:—

To complete the restoration, about	£9,000	0	0
Remainder of peal	1,200	0	0
General repairs, 1st class ..	6,200	0	0
Ditto 2nd class ..	12,500	0	0
Ditto 3rd class ..	9,500	0	0
	£38,400	0	0

Mr. Smirke reported also, at the same time, on the practicability of making *an efficient provision against future accidents by fire*, an outline of which is as follows:—Four slate tanks capable of holding, say 1000 gallons each, to be placed in the triforium of the nave—one at each end on each side; four similar tanks and similarly disposed in the triforium of choir, and two in gallery under windows of great central tower; the tanks in the triforia to be supplied by two-inch iron service-pipes, discharging themselves by ball-cocks, or in case of fire, by engines below; the two in great tower, by two common force-pumps attached to two of the former. To make use of this supply of water, a small portable engine to be kept in each triforium and one in the gallery of tower, each with an adequate length of hose. In addition to this provision, two screw fire-cocks communicating with the Water Company's main to be disposed in the choir, at the level of the pavement, that part of the Minster being more than any other exposed to danger. The cost, Mr. Smirke estimated at from 700*l.* to 800*l.*—for the ten tanks, seven partable engines, four hundred feet of hose, and the requisite iron service-pipes—supposing the water company, at their own cost, to lay down the necessary main as far as the south wall of the Minster.

The remainder of this paper will be given next week.

Consideration due to Literary Men and Artists.—A fortnight ago Sir Robert Peel entertained at dinner, in a kind and friendly manner, Dr. Buckland, Professor Owen, Sir Henry de la Beche, Dr. Playfair, Mr. Pickersgill, Mr. Eastlake, Mr. Wheatstone, and other *savans* and artists. Lady Peel and Lord and Lady Villiers were present. This is as it should be; and it is lamentable to find occurrences of this sort so rare in our country as they are. One might almost imagine that the Premier feels ashamed of the course pursued at the palace, the want of even an appearance of sympathy there with genius and ability, and desires, so far as he is able, to supply the deficiency. His kindness lately to poor Hood, though the pension may be from the public purse,—the friendly letter which he wrote to him, will be remembered when many of his acts as a politician are forgotten. Mr. Pickersgill has just now completed a portrait of Professor Owen for the Premier's gallery, and a very fine work it is, worthy alike of the painter and the subject.

ON CEMENTS, ARTIFICIAL STONE, AND PLASTIC COMPOSITIONS.

Sir,—Having seen much in your useful journal for and against compositions of various kinds, and as the advertisement of an article is not always to be depended on, I, as a practical man, wish to give an opinion of the merits of such materials, for much that has been said is prejudiced, far from being practical, and tends to injure a very numerous body of men. Such materials are inexpensive, compared with stone and wood; and in very many parts of a building, both for exterior and interior, in mouldings, carvings, &c., give an appearance which otherwise could not be attained in buildings generally with limited means; without them, we should have streets of brick-fronted houses void of any architectural embellishment. But most cements, especially exterior, require great care in using them, and good sand, which is often neglected in the modern use, and hence compo may be too often classed, as one of your correspondents says, with dishonest materials; it is, and has been of late years, most shamefully ill-used by builders of *crack* houses, capitalists, and taskmasters, even in some of the finest streets of London, as Regent-street,—what a state that is in! Much of the cement is sold and used at a price which prevents it from being properly done, so that it cannot possibly endure the weather long; but when of good quality, it may be warranted to endure for a century. The way to do it is, pay the fair value, and make a tradesman responsible for the work he does; then may be obtained good work, and it will then become an honest material; but some has failed, owing to the carelessness and inexperience of workmen, as there are very many plasterers who do not understand using it in a proper manner (not even Roman cement, much more other cements). Compare some that has been done well,—for instance, many country mansions done by Bernasconi, forty or fifty years since,—with some of the soft stones, of which much has been justly said in The Builder. I do not say it is better than stone, but it is better than bad stone; and where expense is no object, I do not recommend cement, but good stone, such as can be warranted to endure uninjured by the weather for a century.

It has been inferred that the ancients possessed the art of making a superior cement; but many of our cements, I think, are equal in hardness and durability, and harden by time—such as the Roman Cement, Atkinson's Cement, Pulham's Portland Stone Cement or Artificial Stone, and Metallic Cement. My object in writing this is to expose the abuse of cements, and to contradict erroneous and injurious statements; for to do away with cements would be a severe check to architectural embellishment, as very little would be done in stone, owing to the expense; and also to shew the utility of cements to those who are unacquainted with them.

Roman Cement has been in use about fifty years, and where good and properly used, remains uninjured by the weather, and is excellent for water-works and the best for general purposes: it has been in very general use, and much done by Bernasconi has had the best test of its durability on many country mansions; but this cement is the most abused, being used for cheapness' sake, so that it cannot possibly endure long, and is open to fraud, in consequence of the various prices and quality; its colour is the only objection to it for stucco, as it requires frequent colouring; but if used as a rough coat and finished with a light-coloured cement, it answers the purpose better than any other. Many have the idea that it is not so good as it used to be, but that is wrong, as the best may be had by paying the price.

Atkinson's or Mulgrave Cement, is a superior kind of Roman cement, made from a lighter-coloured stone on the estate of Lord Normanby, and is better adapted for stucco, mouldings, and ornaments; for the latter purpose, it is the best cement; but if plenty of sand is not used, it is liable to crack. Its colour is that of dark Bath stone; it was a very expensive material and not in very general use; but the price is considerably reduced lately by the agents, Messrs. Wyatt, Parker, and Co., and as it will take a greater quantity of sand than any other, it is now tolerably reasonable.

Pulham's Portland Stone Cement, or artificial stone, is so called from its near resemblance to Portland stone in colour, hardness, and durability; its natural colour is that of Portland stone, and therefore it requires no artificial colouring. It has stood the test of twenty-four years' use, and remains perfect; it has even deceived the trade, the imitation is so complete; it is excellent both for exterior and interior purposes of stucco and mouldings, and for fountains, vases, and even floors, &c.; is capable of being trowelled to a very smooth face like marble, and hardens by the influence of the atmosphere. Simple water washing is sufficient to clean it when dirty, and it does not vegetate so much as stone. It is an excellent finishing for Roman cement; its use has been allowed by the Church Building Commissioners for the exterior of a new church at West Hyde, in Hertfordshire.

Much might be done in restoring our ancient edifices and dilapidated stone-work generally in buildings; for where a stone is only decayed on the face, an inch thick of cement would answer the purpose instead of cutting out the stone; and where a stone is too much decayed it may be cut out and replaced with bricks laid in cement and covered to imitate the stone in any colour. Many of our beautiful structures are going to destruction in consequence of the great expense of restoring with stone, and it may be done to advantage at one-third or fourth the expense of stone, and answer every purpose. Much that has been done in restoring with cement has failed, owing to the incautious manner in which it has been used; nothing requires more care, especially on clunch and limestone, of which many churches are built; but I will return to my subject, although I could say much more on this point.

Metallic Cement, or sand, a mixture of blue lias lime and metallic powder, has been in use about ten years, and is an excellent material for exterior and interior stucco mouldings, &c. It is very hard, and promises to endure for a great length of time. Its colour is that of dark stone, and it is very suitable for water-works and other purposes. It is almost impossible to separate stones and bricks joined with it, and is excellent for concrete. It may be used to advantage with chalk-lime for interior purposes of stucco, increases the hardness, and may be trowelled to a very smooth surface for painting on. The metallic substance improves the hardness of other limes and cements, but is best with lias lime.

Mastic or Oil Cement, has been in use about forty years, and is a material well adapted for interior purposes of stucco and plain mouldings for painting on, especially where expedition is required, as it may be painted on the next day after it has been laid on. Its tenacity is so great as to adhere to the smoothest substance, even to glass, but it will not answer for exterior purposes where exposed to the heat of the sun, as the oil is drawn out and it becomes soft and peels off. It is very expensive when properly executed, and requires to be often painted.

Keene's Cement, manufactured by J. B. White and Sons, of Milbank-street, has been in extensive use four or five years, and is an excellent material for internal purposes, where hardness is required, being as hard as stone or marble, as for dados, panelling, architraves, inlaid paving, chimney-pieces, skirtings, balustrades for staircase, &c., and for hall floors, scagliola, and many purposes of wood, it is superior; and I think it is as hard as the cement of the ancients, but requires to be worked with great care, as it has failed in places from being improperly used, especially from being put on wet brickwork. A great quantity has been used at the Hall of Commerce, Threadneedle-street, and many other public buildings. The office of the patentee is paved with it, and is difficult to discriminate from Portland stone. It will not endure the weather, nor is it good for damp situations.

Martin's Cement is very similar and will answer the same purposes as Keene's Cement for interior work: it stands well.

Red Cement has been in very limited use several years, and is not much known: it is an excellent material for making ornamental chimney-shafts, ornamental ridges in the Tudor style, especially ridging for the ornamental or Tudor tiles and mouldings in imitation of brick, of which it is a complete imitation when pointed: it may be made at comparatively little expense. When done well, it may be warranted for a great length of time.

Maude's Portland Cement has not been i
use sufficient time to test its merits, but appear
to stand well for stucco and mouldings, and
of a superior colour to Roman cement:
good specimen of it may be seen in Thread
needle-street.

John's Patent Stucco Paint Cement is a kin
of oil cement superior to mastic; it has n
been in use sufficient time to test its merit
but appears to stand well and to answer th
purpose of stucco. It will adhere to mo
substances, even to glass, and may be use
throughout the winter, which other cement
cannot be: its colour is like dark Bath ston
The stucco paint appears to be very good fo
painting cement.

Blue Lias Lime Cement is an excelle
material for building purposes where it ca
get dry, but will not do for stucco or outsid
plastering, as it is very crumbly under th
surface and liable to crack. The lime slacke
has the same fault, but will stand for stucco i
a dry situation.

Interior Plastering generally.—In writin
about cements, &c., I cannot forbear saying
little in reply to an article in The Builde
by a correspondent, "J. W.," who calls an o
namented ceiling a palpable falsity, and says th
it contains noxious vapours, not knowing,
suppose, that there are simple means of vent
lation. I should be glad to know in what re
spect it is a palpable falsity, and if it is, wh
has so much been done in that way in almos
every house that is built, noble or simple: an
most of which could not be accomplished wit
other materials than plastic composition
some sort. I certainly admire wood-carving
&c. in their place, and where expense is n
object; but even then, why increase the mate
rials for fire? I should be glad to see som
of his (as he says) more honest and ingen
ously and equally elaborated timber soffits by th
side of an ordinary plaster enrichment, such as
used in good buildings; it is impossible it coul
vie with it, let alone expense, which in wood
carving is immense. There is no material i
existence that can be wrought with such relie
facility, and perfection, as plaster for decoratio
of buildings; and if great hardness is require
use Keene's or Martin's Cement. What ca
there be dishonest in a plaster ceiling? It is n
intended generally to deceive or to appear t
be any thing other than what it is (althoug
mouldings and ceilings may be, and ar
grained to imitate oak in the old English
Tudor style, as for beams, ribs, &c.); and ca
any other material be made so available, an
answer the purpose so well, as plastic com
positions, and at so trifling a cost? and wha
has rendered our modern public, as well a
private buildings so beautiful? Plastering en
dures after timber has failed, as is a well-know
fact, proved in many of our ancient mansion
when plastering was very inferior, and mate
rials such as we now have unknown. As t
safety, I should like to know in what way
is unsafe, and to have proof of it where re
spectable tradesmen have been employed,
an architect. It is more enduring and equall
safe as wood; but the abuse of the material
both in quality and workmanship, may we
bring disgrace upon it; the manner in whic
some of it is done, chiefly by builders of crack
houses, capitalists, and plasterers, is scarcel
to be credited (London mud to wit); for whe
finished, it is like a man who has on a goo
outside or great coat,—you cannot see wha
is underneath. There is, I think, no trade ope
to more fraud than the plasterer's; where a ma
cares not for character or reputation, he can d
work at half the price of a respectable man wh
warrants his work; but it is sure to be detecte
in a little time. The price being cut dow
causes bad work; but as I said with respect
cement, pay fair value and employ respectabl
tradesmen who understand the nature of th
materials and workmanship, and then goo
work may be obtained. Work done badly ofte
looks for a little time to a common observe
little inferior to the other; but make ever
tradesman responsible for his work and th
material he uses, and we shall see what plaste
work will be. This would enable a respectabl
tradesman to improve in his art: but I mu
not trespass more on your space.

I am, Sir, &c.

Hoddesdon. James Pulham.

*** We do not pledge ourselves to th
opinions of our correspondent, but give the
place as those of a practical man.—Ed.

WORKS IN PROGRESS.

At Bridlington, a general restoration has been determined upon of those parts of the parish church which have suffered, either from the lapse of time, or through the injudicious mode in which occasional repairs have been managed; with this view, a survey was made a few months since by Mr. Edmund Sharpe. This church is one of the most interesting buildings, of the thirteenth century, in the kingdom; it is the Priory Church, and valuable to all who feel an interest in the history of the progress of church architecture — as a building supplying the loss that the destruction of St. Mary's, at York, would have otherwise occasioned, and as affording an instance of transition from early English to decorated work of unusual character. The west end and south side are in the most dilapidated condition, and it is proposed that their restoration should be proceeded with in the first instance, particularly the west end, and the opening out of the great west window.

At Oxford, some delay has arisen in the commencement of the new Grammar School at Magdalen College, from a doubt as to the best method of carrying out the full intentions of the founder. The plans of Mr. Derrick, the successful competitor, were exhibited at a late meeting of the Oxford Society for the Promotion of the Study of Gothic Architecture. The building will be in the style of the fifteenth century, harmonising with the college, and Pugin's new Gothic entrance gateway. Many of the admirers of this splendid college will be pleased to hear that it is in contemplation to replace the present chapel windows by others in stained glass, which will add greatly to the richness of the already fine effect of the chapel.

The Queen Dowager has recently subscribed the sum of 20*l.* towards the building fund of the intended district church at Malvern Link, Worcestershire.

The Government has purchased the lands of Broomhill, to the north of the city of Glasgow, for the erection of cavalry and infantry barracks. The price paid for the property is said to amount to nearly 30,000*l.*

The new terrace-pier at Gravesend, which is constructed entirely of iron, forms an important feature in the increasing improvements in Gravesend and Milton; the entrance is in a direct line with Harmer-street. It was opened for the first time on Easter Monday.

The breaking-up of the weather has placed the operations for the commencement of the Victoria Park in full activity, and a great many hands have been put on to commence digging for the formation of the plantations. A new and straight line of road, which will nearly reach the park, has been constructed from Grove-street, Hackney, to Old Ford, and the entrance-road across Bonner's-fields has been formed, the old erection of Bonner's Hall having been pulled down. From here the entrance to the park will be by a handsome iron suspension-bridge across the Regent's Canal.

There is every prospect of the old Tower ditch being added to the list of public walks at the east end of the town during the summer, and considerable activity is being displayed in gravelling it, a solid foundation having been laid, and the drainage made perfect. It will not be attempted to form a plantation, for which the nature of the sub-soil quite unfits it, and the vegetation will be confined to a few flower-beds. The foundations for the new barracks in the interior have made but little progress, although, in addition to the ordinary labourers, 100 soldiers are daily employed on the works, for which they receive an extra payment of 10d. per day.

At Scarborough, a large number of workmen are being employed in digging and laying out the foundations for the building of the railway station, which, agreeable to the contract, is to be completed by the 25th of next month.

On Tuesday, March 25th, the foundation-stone of a new Catholic church was laid at Crosby, near Liverpool, by the Rev. Doctor Brown; Messrs. Weightman and Hadfield, of Sheffield, are the architects; and Mr. B. Hollins, of the same place, is the builder. The same architects and builder are employed in the erection of the monster Catholic church at Manchester. Mr. Hollins is likewise erecting a new Protestant church at Manchester; Mr. Derick, of Oxford, is the architect.

Very extensive alterations and improvements are in progress at Poltimore-house, the seat of Lord Poltimore, in Devonshire. His lordship returned to this country the week before last, from Florence, to inspect the progress already made, and to give instructions respecting his newly-purchased estates in the same county. Considerable improvements are to be made on this property forthwith.

It is stated that, for internal decoration and embellishment, the Earl of Pembroke's mansion, on Carlton-terrace, will excel in splendour and taste any town residence of our aristocracy. Notwithstanding the length of time it has been in the occupation of the various artists and operatives, it will not be completed before the spring of next year.

Mr. George Baker, of London, who has taken the contract for re-forming and building additional slips and enlarging Chatham Yard, at a cost of 102,000*l.* (45,000*l.* of which sum is to be expended in the course of this year), commenced the undertaking on the 13th ult., by driving a number of piles with steam-engines. Workmen have commenced forming the ground on the opposite shore of Chatham Dockyard, and also clearing the mud in the harbour. The cost is estimated at about 3,000*l.*

Messrs. Brassey, Mackenzie, and Stephenson are said to be the contractors for the Caledonian, Scottish Central, and Midland Junction lines.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At an ordinary meeting of the institute held on Monday, the 31st ultimo., Mr. J. B. Papworth in the chair, Mr. John Burrell was elected fellow, and Mr. Alan Bailey, and Mr. G. S. Clarke, associates.

Mr. Donaldson presented from Mr. W. Hamilton, F.R.S., part of a wooden pin, which formerly held together, as a dowell, the *frusta* of one of the columns of an Athenian temple. It was at first said to be from the Parthenon, but Mr. Geering, who had been written to on the subject, said there were no wooden pins in this latter building, and that it was probably from the Propylæum. A letter was read from Monr. L. Serrure, of Antwerp, announcing the death of his father, who was a corresponding member, and offering his services to such members of the institute as might visit Antwerp. The late M. Serrure is best known in this country by a drawing of the Antwerp Spire on a very large scale, which is engraved.

Mr. Foxhall, the excellent district surveyor of St. George's, Hanover-square, read a communication from Mr. Thomas Cubitt, illustrated by a model, descriptive of the chimney recently erected on Mr. Cubitt's premises at Thames Bank, and some observations on the expansion of the brickwork by heat. A description of the chimney will be found in page 62 of our present volume. The paper led to an interesting conversation. Mr. Godwin reminded the meeting that pure clay, the staple of bricks, was understood to be the exception to the general rule that heat expands all bodies, and was contracted by heat, so that he was much puzzled to find this shaft expanded when the fire was in operation, $\frac{1}{8}$ths of an inch.

Mr. Hosking and Mr. Donaldson considered that when clay was made brick its properties were changed, and that it became amenable to the general law. Mr. Hosking remarked that the stone coping of Waterloo-bridge was expanded and contracted by change of temperature so considerably, as constantly to require pointing. Relative to brickwork, Mr. Scoles said, coke-ovens expanded considerably by heat.

Mr. Edward I'Anson, jun., then read a paper "On the Architecture of the Renaissance, in France," in the course of which he described at considerable length the Chateau of Fontainbleau, that "*rendezvous* of palaces," as it has been termed, and traced the progress of the style from the commencement to the end.

Stone Altar Case. — The costs in the case have been taxed at 100*l.* 11s. 10d. in the Arches Court.

INSTITUTION OF CIVIL ENGINEERS.

April 1st, 1845.—Sir John Rennie, president, in the chair.

The paper read was by Mr. A. A. Croll, Assoc. Inst. C.E., "On the construction and use of Gas Meters." It first noticed the necessity for a means of accurately measuring the consumption of gas, in order that the honest consumer might not be obliged to pay for the frauds of the dishonest, as was actually the case at present, for the gas companies were obliged to charge such a price for their produce as should cover all contingencies. Then after relating many flagrant instances of frauds on the gas companies and the methods by which they were practised, the author attributed the loss of 30 per cent. of the gas produced, which was not accounted for in the consumption, rather to the fraudulent consumption than to the leakage, either from bad joints or through the pores of the iron pipes, as had been sought to be established in a former discussion. The author's own practical observations induced him to limit the amount of leakage to under 5 per cent. If from the 2,700,000 cubic feet of gas which was distributed daily from the works of the Chartered Gas Company alone, there was a leakage of 30 per cent., 810,000 cubic feet of carburetted hydrogen gas would be let free daily in a comparatively limited district of the streets of London, which would render the atmosphere unbearable. This calculation was exclusive of the nine other large companies whose pipes pervaded the other districts. The paper also contended that the theory of the decomposition of the gas in the earth was inadmissible, as in that case the hydrogen would be converted into water, and the carbon, which would amount to nearly 3,000 tons annually, would be deposited in the soil.

The author then described the water-meter, as invented by Clegg and improved by Crossley, shewing its defects and liability to be tampered with in dishonest hands, and the facility with which it could be made subservient to fraud. He then shewed the various obsolete meters of the dry-meter company, and of Sullivan, and then explained the action of Defrie's three-chambered meter, which has obtained such extensive employment, a good specimen of which, working very steadily, was on the table before the meeting. The paper closed with a description and illustration of Croll and Richards' dry-meter, which, in the opinion of the author, possessed superior qualities, being more accurate in its measurement, on account of the chambers opening by the direct action of the discs, there being no action upon the diaphragm, and each chamber being completely filled and emptied at each interval.

In the discussion, these merits were contended for by the advocates of Croll and Richards' meters; while the partisans of Defrie's meters argued that his possessed every requisite quality, and that they had been in use for upwards of seven years with increasing reputation. It was admitted that the use of the leather in both meters was objectionable, but hitherto no better material had been discovered, and the attention of the makers had chiefly been directed towards diminishing the extent of leather exposed to the action of the gas; that either of them were preferable to the water-meter in its present state, and it was desirable both for the consumer and the gas-maker that accurate meters should be used, to prevent the present flagrant system of fraudulent measurement.

SONNET ON STONE HENGE.

I stood beside the blue Tyrrhenian sea,
And saw three wondrous monuments uprear
Their column'd aisles 'mid desolation drear,
For some forgotten cult's strange ministry—
Type of man's wants and God's high majesty.
Years pass'd. And now, more wondrous far, appear
The mighty unhewn stones that circle here
On the lone down 'mid countless tumuli.
Whence came these stones? What unknown power has riven
And mov'd and rais'd them? Was it love or dread
Of God they testify? Reply, ye dead!
They do: and still the same response is given:
For ages have Stone Henge and Pæstum said,
"Man's noblest works are consecrate to heaven."

Dolman's Magazine.

DOORWAY FROM FOULSHURST, CHESHIRE.



DOORWAY FROM FOULSHURST, CHESHIRE.

The ancient seat of the Foulshursts, formerly standing at Crewe, in Cheshire, was purchased by Sir Christopher Hatton in 1578, who was one of the most considerable patrons of architecture of the time, as is proved by the beautiful structures of Kirby (still standing), Holdenby, Stoke Poggis, &c. He added to or adorned the old structure of the Foulshursts; and in 1610 he sold the estate to Sir Randulph Crewe, who was anxious to settle himself on the spot (being a descendant or connection of the Foulshursts) during the erection of his splendid structure of Crewe Hall, which was considered at the time, as it certainly remains, the model building of the style of James I. The old manor-house of Foulshurst remained standing, and was probably occupied by Sir Randulph. In King's Vale Royal of the County Palatine of Cheshire a plate is given of Crewe Hall, shewing Foulshurst old manor-house in the distance. Several of the ornamental portions of the old building were removed by Sir Randulph to his new structure, among them the entrance doorway, represented above, which he placed leading into the carved parlour; but during the recent alterations it has been removed, and is now in the great hall, or dining-room, near the staircase a small portion of which is seen in the sketch.



Fig. 2.

Fig. 2 represents the ornament at foot of jamb, enlarged; and fig. 3 gives the plan of the jamb.



Fig. 3.

A close resemblance between this doorway and those of the cinque-cento architecture of Italy, and the Renaissance of France, may be observed.

The fire-place seen through the opening forms part of the reparations made to Crewe Hall at the Restoration, the building having sustained two severe assaults during the civil wars.

C. J. Richardson.

PROPOSED RESTORATION OF ST. JOHN'S GATE, CLERKENWELL.

Our readers are aware of the dangerous state into which this remnant of old London has fallen, and of the appointment of a committee to effect its restoration, if possible. With this end in view, the committee are about to issue the following appeal to all who are interested in preserving the arts and monuments of the middle ages:—

"Architecture has its political use, public buildings being the ornament of a country; it establishes a nation; draws people and commerce; makes the people love their native country, which passion is the origin of all great actions in a commonwealth."—Wren.

On the first of January last, the New Metropolitan Buildings Act came into operation; and in accordance with clause 40 (which requires that the district surveyor shall apply forthwith to the official referees to authorise a survey to be made of all buildings within the limits of the Act, which through neglect or other causes are in so ruinous a condition that passengers are endangered thereby), a survey was made, and a notice given to the owner of St. John's Gate to repair it. The decomposition of the stone-casing to the several sides of the building has rendered it dangerous to passers-by; and it appears that the substantial repairs alone are of so expensive a character as to prevent the present occupant from devoting any attention to a careful reparation of the exterior; in fact, the covering of the gateway with *compo* has been suggested. The knowledge of these facts was laid before the Freemasons of the Church, a society for the recovery, maintenance, and furtherance of the true principles and practice of architecture, when a committee was immediately appointed to prevent the spoliation of the building by cement, and to adopt measures for its careful reparation. This committee consists of the Rev. Hugh Hughes, B.D., rector of St. John's, Clerkenwell; the Rev. G. Pocock, LL.B.; Messrs. Thomas Dighton (Architectural Modeller to Prince Albert); C. H. Smith (one of the examiners of the stone for the new Houses of Parliament); W. G. Rogers; James Finn; and W. P. Griffith, F.S.A., honorary secretary. Several meetings have been held, and a design prepared for the restoration of the gate.

The committee trust that all those who feel a pleasure in preserving so interesting a remnant of former times, associated as it is with so many pleasing literary remembrances, will come forward and aid them by contributing their mite, however small, and thereby save the mortification of seeing the *old gate compoed*, if not ultimately destroyed. Perhaps a few words, by way of refreshing the memories of those who through the cares of mercantile and other pursuits may have forgotten its existence, as well as its claims upon us for our support, will not be thrown away.

St. John's Gate stands at the southern entrance of St. John's-square, and is the only ancient portal now remaining of those monastic buildings once so numerous in the metropolis and its vicinity; it formed the grand south entrance to the Hospital or Priory

f St John of Jerusalem,* and was completed y Prior Docwra in 1504. This prior was the mmediate predecessor of the last superior of he house, Sir William Weston, and retained is office from 1502 to 1523. In 1661 a view f the gate was taken by Hollar, shewing to dvantage the effect produced by the battle-nents, then complete, but now entirely gone. n the reign of James I. it was inhabited y Sir Roger Wilbraham; but it has ac-uired much greater celebrity from having een the residence of Edward Cave, the rinter, to whom the literary and antiquarian vorld owes so many obligations, and here manated from the press the favourite and one f the oldest and most respectable of our nonthly periodicals, the "Gentleman's Maga-ine," *which was born in the gate* in January, 731, and is still flourishing. Among the nu-nerous visitors at that time were Goldsmith nd Dr. Samuel Johnson (Cave being his riend and early patron). Dr. Johnson's pen vas continually at work, and his pamphlets, refaces, epitaphs, essays, and biographical nemoirs were continually published in the old ate, either by themselves or in the "Gen-leman's Magazine." In 1740, and for more han two years afterwards, he wrote the Parlia-nentary speeches in the same magazine, and hese were followed by his "Life of Savage," English Dictionary," "The Vanity of Hu-nan Wishes," the "Rambler," and many ther popular literary productions.

St. John's Gate has been in a *state of decline* or years: unfortunately, the disease has now ssumed a *serious aspect*, but the committee est assured that the public taste will never llow it to be disfigured or destroyed; that they ill come forward and promote its recovery, not to so good a state of health as formerly, ill, to give it a respectable appearance of old ge, and, for once, to nullify the old saying—

" —— Thus 'tis ever; what's within our ken,
Owl-like, we blink at, and direct our search
To furthest Inde in quest of novelties;
Whilst here, at home, upon our very thresholds,
Ten thousand objects hurtle into view,
Of interest wonderful."

The subscriptions will be devoted to the re-aration of the decorative portions of the Gate, ich as tapping or testing each stone in the orth and south fronts, carefully rubbing those iat are sound, and replacing those which are o much decomposed with new stone, not uared, but inserted so as to conform with the resent appearance of the building. The com-ittee recommend carrying up the embattle-ents in stone in front of the angular turrets id parapets to their original height, inserting ew labels to the doors and windows, string-ourses and bands around, new and proper ullions, with cinque-foil heads to the large indows in the north and south fronts, and moving the unsightly Roman doorway and iop-window on the south side, and placing a ew window and doorway in keeping with the d gate; and to point up the sides of the uilding with stone or slate set in good mortar, ished with blue ash mortar, to preserve an iiform colour.

A design shewing the restoration of the gate ill be presented to the subscribers to the re-airs, a list of whom will be printed, as well as detailed statement of every expenditure, hich it is presumed will require from 500*l.* to 00*l.*; in case of an overplus, a meeting of the bscribers will decide in what manner it is to o appropriated.

Subscriptions may be paid to Mr. W. P. riffith, 9, St. John's-square, Clerkenwell, on. sec., and at the office of THE BUILDER, York-street, Covent-garden.

IRON BEAMS.—Some of the largest plates iat were ever made in Scotland were rolled at e Dundyvan Iron Works a short time ago. he weight of the slab from which each plate as rolled was 1,700 lbs., and when finished, easured 16 feet in length, 3 feet two inches width, and nearly an inch thick; the weight each plate varying from 13½ to 14 cwt. or is the weight and dimensions of these iates their greatest novelty, for they are in-nded to be used as walking-beams, and eing lighter and more durable, will, it is icely, soon supersede the necessity of the resent unwieldly cast-iron beams.

* Founded in 1100; church dedicated in 1185; destroyed 1361; and rebuilt about 1504.

GOTHIC ORNAMENTS FROM THE CATHEDRAL CHURCH OF YORK.



Fig. 9.



Fig. 10.

GOTHIC ORNAMENTS
FROM THE CATHEDRAL CHURCH OF YORK.*

ON each side of the windows in the aisles of the nave an ornamented compartment is formed on the wall. Fig. 9 represents the pediment of one of these in the north aisle. The height of it from the springing of the arch to the top of the finial, as stated by Halfpenny, is 8 feet 3 inches; from the floor to the top of it is 34 feet. The width is 3 feet 10 inches. There are fourteen of these compartments in the north aisle, fourteen in the south aisle; the figures of each are different.

* See page 139 *ante*.

Fig. 10 shews one of the capitals of the pillars in the choir, from which spring the groins of the roof. The arrangement of these capitals is peculiar and elegant; they are 2 feet 6 inches high, and 62 feet from the ground. They belong to the end of the fourteenth, or beginning of the fifteenth century.

In connection with these illustrations of York Minster we have given in a previous page the commencement of an article on the fires which have occurred there, and the recent restorations; and hereafter shall present to our readers accurate drawings of the new doors, designed by Mr. Sydney Smirke.

TESTIMONIAL TO MR. JONES, R.A.

On Saturday last, the room usually allotted to sculpture in the exhibitions of the Royal Academy was crowded by the concourse of former and actual students of that institution, on the occasion of the presentation (by the hands of Mr. A. D. Cooper, on the part of the 100 subscribers) of a large silver Etruscan tazza, inscribed

TO GEORGE JONES, ESQ., R.A.,
KEEPER OF THE ROYAL ACADEMY,
FROM THE STUDENTS OF THAT INSTITUTION,
MARCH, 1845,

and offered in grateful remembrance of his kindly attention to their wishes, and his affectionate regard for their success and interests. Behaving as artists, the subscribers did not seek for something already manufactured, which they might purchase, but selected an antique and unusual though very excellent form; which, slightly modified, is much more ornamental, as well as useful, than the upright vase, the ordinary presentation cup.

Mr. Jones's annual farewell to the students (this being the last night of the season) was displaced by a forcible and affecting speech, in which he mentioned that his anxiety to fulfil the duties of his post had always been so fully met by the assiduity and gentlemanlike conduct of the students, that the gratification thence arising rendered the present token as unexpected as any support from the members of the Academy had been unnecessary. He mentioned that Mr. Mulready, who with Mr. Etty accompanied him, had been his earliest friend in that, "the antique school," and had been his competitor for the honourable office he now filled. He also expressed in words the interest he felt for the students, as brothers in the arts, and with great emotion proclaimed his hope that his senses might at the last still enable him to recall this manifestation of the feeling of the students that he had endeavoured to fulfil, and, indeed, had done his duty.

The presence of Mr. Mulready on this occasion, so creditable to his own feelings and gratifying to his friend, was marked with extreme applause by an audience much affected by the address of Mr. Jones.

REVENUE FROM BRICKS AND GLASS.

An Account of the net Receipt of the Duties of Excise on Bricks and Glass during the last Ten Years.

		England.	Scotland.	Ireland.	Total.
		£.	£.	£.	£.
1835*	Bricks	391,213	8,561	. .	399,774
	Glass	611,716	20,161	14,754	646,636
1836	Bricks	465,189	9,732	.	474 921
	Glass	593,777	28,268	10,934	612 979
1837	Bricks	423,881	9,454	.	433,264
	Glass	575,452	35,847	10,060	619,349
1838	Bricks	410,824	7,512	.	418,336
	Glass	619,026	38,137	9,829	666,992
1839†	Bricks	450,427	12,999	. .	463,426
	Glass	647,701	34,917	10,341	691,021
1840‡	Bricks	564,681	18,498	. .	583,379
	Glass	668,143	46 108	9,886	724,137
1841	Bricks	431,256	11,762	. .	443,018
	Glass	641,582	49,727	8,250	699 559
1842	Bricks	383,700	9,459	.	393,159
	Glass	532,829	34,297	7,765	574,891
1843	Bricks	348,177	7,104	.	355 281
	Glass	544,106	29 953	5 748	579,812
1844§	Bricks	429,163	10,092	.	439 975
	Glass	606,238	35,185	6,250	647,673

INSTITUTION OF BUILDERS' FOREMEN.—We have received the rules of this Institution, established for mutual assistance in cases of emergency, and have read them with gratification. Its object is to maintain the respectability of the foremen in their different branches, to provide against accidents, and to obtain an asylum for decayed members. It seems to us that the masters would do well by encouraging such institutions, as tending to induce habits of prudence and forethought, and to increase the respectability of those engaged by them. By subscribing one guinea per annum they become "honorary members," and take part in the government of the Institution.

* Flint glass reduced, 10th October, 1835, from 6d. to 2d. per lb.

† Bricks, the duty on all bricks, except common, reduced from various rates to 10s. per 1000, from 22nd August, 1839.

‡ Bread glass, duty increased 15th August, 1840, from 1l. 10s. to 3l. 13s. 6d. per cwt.

§ Flint glass, duty reduced 5th July, 1844, from 2d. to 1d. per lb.

CAUTION TO RAILWAY SURVEYORS.

LORD HARBOROUGH AND THE PETERBOROUGH RAILWAY SURVEYORS, &c.

These causes all came on for hearing before Lord Chief Justice Tindal and common juries, at Leicester, last Tuesday week.

Mr. Whitehurst, Q.C., Mr. Mellor, and Mr. Flowers appeared for the prosecution; and Mr. Hill, Q.C., and Mr. Macaulay for the defendants. It appeared that after two previous unsuccessful attempts had been made to survey Lord Harborough's park for the railroad from Syston to Peterborough, early on a Saturday in November last, the defendants, with seventy or eighty people, came before daylight to the park with measuring chains flag-staves, &c., and distinguished by white badges, with the evident determination to proceed with their survey. They were resisted by a considerable number of Lord Harborough's people, and after a severe struggle and fight, were compelled to retreat.

The Lord Chief Justice summed up with great clearness, to the effect that parties so assembling in the manner and under circumstances given in evidence, were clearly guilty of a riot, and were of right resisted by Lord Harborough's people, who were justified in using the necessary force to turn them out of the park.

Mr. Hill addressed the jury, who, without much deliberation, returned a verdict against all of *Guilty* of an assault, and they were respectively sentenced to be imprisoned for one month, and to pay a fine of 1s.

WARD V. LORD HARBOROUGH AND OTHERS.

This was an action for trespass and false imprisonment, and damaging a theodolite.

Mr. Hill and Mr. Macauley appeared for the plaintiff, and Mr. Mellor and Mr. Flowers for the defendants. This action arose out of the attempts to survey the park of Lord Harborough on a previous day. The servants of Lord Harborough, without any violence, after warning the plaintiff and his followers off the towing-path of the canal running through the park, took him into custody. They permitted the plaintiff to go away in his own carriage, and used no violence; but the theodolite was pitched out of a cart and broken.

Mr. Mellor addressed the jury, admitting that there must be a verdict against all the defendants, except Lord Harborough, as to whom the Lord Chief Justice had already intimated that there was no evidence; but he contended that it had been proved by the witnesses for the plaintiff that the damage to the theodolite might be repaired at an expense of from 7*l.* to 12*l.*, and that, as for damages beyond, a half-farthing would be enough.

The jury found a verdict for the plaintiff, with 8*l.* damages.

LORD HARBOROUGH V. WARD AND COPE.

This action was for a trespass on the occasion of the riot; and after Mr. Mellor had addressed the jury for the plaintiff, the Lord Chief Justice suggested that a juror should be withdrawn, which was immediately consented to by Mr. Mellor on Lord Harborough's part.

The Lord Chief Justice then sentenced the defendants on the conviction for an assault, and stated his regret that persons of their education and profession should have permitted themselves to be engaged in a transaction which was quite unjustifiable in law, and which it was his bounden duty to visit with punishment. The sentence was, as before stated, that they and each of them should be imprisoned for one calendar month in her Majesty's gaol, but should be placed in ward No. I, and subjected to no unnecessary hardship, and should be each fined one shilling.

SOCIETY OF BRITISH ARTISTS.—The 22nd exhibition of this society, now open to the public, cannot be regarded as satisfactory. Pyne, Holland, Allen, Woolmer, Baxter, Herring, Clint, and some others, have each one or more charming pictures; but the majority of the works are, we grieve to say it, of very indifferent character.

DISTRICT SURVEYORS' FEES.—A correspondent informs us that a builder about to put in some putlogs, in order to point the front of a house in Lewisham, was required by the district surveyor to give him notice, and to agree to pay him a fee, on the ground that the builder was about to *cut into* an external wall!!

PROJECTING BUILDINGS—Pparty WALLS.

JURISDICTION OF OFFICIAL REFEREES.

SIR,—I would close my remarks upon th Building Act by stating, it appears to m that the referees in their official capacit become public property, and that their acts expressed through the medium of the authorit with which they are clothed, may be cour teously open to animadversion and comment Perchance the Act itself is not explicit; if s held, my opinions would be against the com plexity of the Act, and not against the mode o carrying it into effect. Leaving, therefore this issue to be settled, I regret to state, fron what has come to my knowledge, that a mor oppressive, vexatious, and arbitrary piece o legislation never emanated from our House of Parliament. All will agree that the portion respecting the comforts of the humbler class as to light, air, and accommodation to dwelling in densely-populated neighbourhoods, is un exceptionable. The remaining broad feature for public benefit was protection (as by the former Act) against accidents by fire. In the large suburban district where I live I recolleo no fire in a private house for the last twenty years, and but very rarely in shops; yet now ever in rural districts within the operation of the Ac (except in the case of isolated buildings) adieu to ornamental barge-boards, decorated eaves, Italian roofs, &c., we must now al assume the rigidity of parapets and projecting party-walls, except by adopting the prescribed regulations that all such projections shall be o the same material as the walls.

In fulfilment of my promise, I will set out some portions of the award in the case alluded to in my last letter, respecting a building commenced before 1st January, and carried up 6 feet, and this doctrine is held to be good even with such buildings roofed in. "Now we, the said official referees, do hereby find, determine, and award, that the said works are a rebuilding, enlarging, and altering of a building within the meaning of the terms of an 'already built' building, as mentioned in the said Act, and that on and from 1st January, 1845, the same came within and were subject to the suspervision of the said ——, the surveyor of the said district, and that he was and is bound to see the rules and directions of the said Act strictly observed with respect thereto; and that the said works or building, if carried up on the line of the external wall now building, would be beyond the general line of the buildings on that side of such road." It then directs, "that the said —— do pay the sum of 15*l.* 11s. 8d., as and for the fees of office," being the costs for seeking an explanation of an obscure clause; my objections to the interpretation of which will be found in the subjoined letter sent to the registrar.

My reason for suggesting in the last letter that the award is "insufficient for uncertainty" is, that instead of the referees exercising their authority by ordering the alleged nuisance to be abated, it is merely referred back to the district surveyor. Should the party be contumacious and proceed (which I hold he is quite justified in doing), the district surveyor must then commence new proceedings, and from another portion of the award he will find himself in a difficulty. This "commencement" is to a house at the corner of a street, which partaking (as relates to the road in front) of a circular form, the houses beyond such street assume another "general line," the architect sent down by the referees has by a dotted line elongated each of these "general lines," intersecting each other on the building in progress,—the result being, that if one line is adopted it would condemn only about one moiety in extent to what the other would; and the referees are silent in the instructions to the district surveyor which is to be deemed the "general line." It may also be well to mention that the house to which this addition has been made, recedes from the general line 22 feet, the new building being 28 feet deep; it consequently is only 6 feet, or 3 feet (as the above dotted lines may be adopted), that is sought to be condemned.

With respect to the decision in the case of "want of consent" as to party-walls, I would refer to the subjoined letter, having expunged such portions as were touched upon in my last letter, and referring your readers to my pre-

vious letters to the referees thereon in your journal of the 8th of March.

To Arthur Symonds, Esq.
Registrar of Metropolitan Buildings.

Sir,—I beg leave to address you, and through you the official referees, upon the subject of the award as to alleged irregularities in the case of "——— and Trustees of — ——— Chapel," in respect of which I feel I have just ground of complaint, not on my own account but on behalf of the public; as it is quite clear I was not bound to seek your decision, but having taken up the subject *con amore*, and being in that way a *rara avis*, willing to devote time and cost to develope the truth in any large question of public rights, I was anxious to argue upon facts. I feel, that perhaps I have no right to intrude on you, after having come to a solemn decision upon a case heard before you, nor am I at all desirous to excite a discussion in the shape of a correspondence, as (I say it not ironically, but in sober sadness) I cannot afford to write letters to be received and read at a cost of 5*s.* each, which leads me to the discussion of what I had imagined to be the intention of public officers, liberally remunerated through the medium of a county-rate collected from each inhabitant householder of the districts within the jurisdiction of the Act, *viz.*: It being an Act expressly for the protection of public rights and benefits, I imagined the court thus appointed to be paid by popular contribution, was intended as an easy mode of carrying out its operations without in costs pressing hardly upon an individual who is in doubt as to the mode of proceeding under a complicated Act and was compelled to appeal for advice to this court. That the contrary is the fact, I would appeal to the costs in my own case of 5*l.* 4*s.*8*d.* for literally reading three letters and a conference of one hour and a half. To the award itself I object, upon these grounds, and also to the whole proceedings. In your award, you set out the positions in which consent could not be obtained, and then you say, "or that the adjoining owner to whom notice had been given, was not only able to consent, but willing, and did, in fact, consent, or that in fact there was no differences between the parties concerned;" your decision being, "Then it will be the duty of the district surveyor to offer either to proceed to the survey in the presence of the parties, if they be present, without prejudice to the matter in question; or to defer making such survey until such matters shall have been determined by the official referees on a reference thereof, according to the provisions of the Metropolitan Buildings Act in that behalf." In your award, you also state, "Yet the district surveyor was not bound to inquire into such matters, but on receipt of the notice of the building owner, he was bound to proceed ministerially so far as the said Metropolitan Buildings Act has specifically prescribed on that behalf." This at once raises the question whether the district surveyor is, or is not, under the direction of the official referees, or if for any, for all purposes. The notice of survey was served late on the Saturday afternoon, to meet on the Tuesday following at twelve. On the Monday, I served notices on the referees, the district surveyor, and the building owner, that we had been, and were consenting parties. We met on the Tuesday, and my reasoning sufficed to restrain the "building owner" and his surveyor from taking any part in the matter; the district surveyor remarking that, whatever his views of my arguments were, he was bound to proceed in obedience to the directions of the official referees. In lieu of exercising the discretion pointed out in your award, he forwards plans and statements of facts (professedly, but so erroneous that a tyro would have disowned them) with knowledge of alleged irregularity. Copies of these are transmitted from you to us, headed "in absence of consent of the adjoining owner, sec. 24."

I distinctly hold that the district surveyor, as our appointed public officer in respect of the fee to be received for superintending the work, is bound to see the Act fairly carried out, and to advise as to the mode. In this particular case it appears to me he was the sole cause of all the ultimate difficulty. I contend it is his duty before sanctioning process to insist upon a declaration that "consent of adjoining owner" cannot be obtained. Thus, your office was moved by the express direction of the district surveyor, and progressed with railroad speed in the face of our objections, distinctly stating we were consenting parties; and, I presume, in accordance with your table of fees, liable to the fee for "supplying want of consent of owners," all the mass of papers received being so headed.

The point for the public to ascertain, therefore, is, upon ground of complaint, whether the referees have any authority over the district surveyors in this case upon my ground of complaint of the short notice given of the meeting. The district surveyor denied your authority to control him; but an authority has been assumed over them in the circular issued as to the course to be taken in respect of matters commenced before the 1st of January, to which authority, with all respect and submission, I demur; as I cannot find even by implication one word in the Act permitting any one to control me in reading a public Act in its common sense; and I quite agree with Mr. Jeremy, the magistrate, that if he had built a mansion before the 1st of January, but had not commenced detached out-buildings and stables necessary to complete for occupation, he would insist upon building them irrespective of the new Act. The frivolous and vexatious cases I now have in hand upon notices from district surveyors, I have advised the parties to resist, and take them into a court of law, most of them being founded on the perversion of the reading of sec. 5, a section that by the greatest ingenuity cannot be strained to apply to works commenced (being buildings erected before the general line of houses, but roofed and covered in) before 1st January. The reason assigned by the district surveyors in the cases alluded to (and as, I understand, sanctioned by your authority) is that sec. 5 states "with regard to every such building hereafter to be built, so far as relates to building the same, and with regard to every such building, either already or hereafter built, so far as relates to the rebuilding or altering the same:—" this can apply only to any such operations commenced after 1st January, as what is termed "enlarging or altering" was a building commenced before 1st January, restrained by no existing law.

If the permissive sec. 2, is ont to be taken as defining what is "already built," I would quote another portion of sec. 5, as against the above reading "subject, nevertheless, to any other rules and directions in this Act, contained in the same behalf." And it must be borne in mind that sec. 5 is merely declaratory; the enactments in each case being referred to the various schedules, when it will be found that such terms as "enlarging or altering" are nowhere to be met with. Every such erection to an existing building (which in common *parlance* would be termed "enlarging or altering)," is treated of in the Act as a building *per se*, regulated in its construction according to its rate by area and height; if such an erection be therefore for the future deemed a building, it follows that a similar erection commenced before 1st January must also be a "building already built," protected by sec. 2.

I have the honour to be, &c.,
GREENWAY ROBINS.

[Relative to the sum of 15*l.* 11*s.* 8*d.* charged by the referees for an award, referred to by our correspondent, we felt bound to make inquiries, and are in a position to state, that the largeness of the amount in this case was caused by the proceedings of the parties themselves. The referees profess themselves to be, and we believe them, anxious to keep down the expense of application to them.

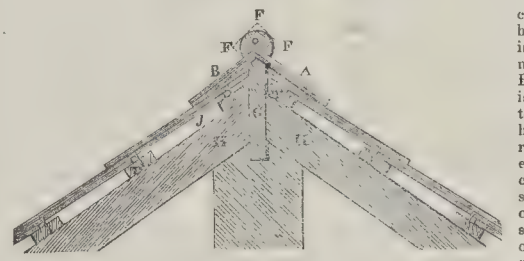
We have already (page 133) stated our opinion at some length, that necessary parts of buildings commenced before the 1st of last January, such as shop-fronts, bows, porches, being part of the original design, although these may be still undone, are not within the control of the Act, and do not authorize the demand of a notice by the district surveyor, if completed before January next. In a case now before us professionally, the district surveyor has called on the builder of a house which was roofed in before last January, to give him notice (in other words a fee), *before he completes the porch*, although this is as much a part of the original design as the chimney-stacks, and, in the eyes of the law, as we said of shop-fronts, is *already up*,—part of it indeed actually was carried up with the front wall of the house last year. The demand is so preposterous, that we cannot think it will be persevered in: if it be, we shall of course resist it to the utmost, and have no doubt as to the result.—ED.]

WILLIAMS'S PATENT SLATE RIDGES AND HIPS.

THE annexed engravings will serve to explain the construction of a very efficient slate ridge, the cost of which will be found in our advertizing columns.

In order to put on the patent ridge properly, the wood ridge piece should be kept up about an inch clear of the slating, and bevelled off on each side, so that the upper edge of the under part of the slate-ridge should bear solid on the bevel of the wood-ridge, the lower end will then bear tight on the slating when screwed on. The part of the slate-ridge which has the roll should be bedded on the other in oil cement.

The roll part is secured by a small copper bolt, placed into a hole in the end of the roll made for that purpose. But when the ridge is small, it is necessary to screw the part that has the roll to the wood-ridge, as a bolt in the end would not be sufficient. The screw-holes should be filled with oil cement first, then screwed, and the head of the screw filled up with the oil cement.



Perspective View of the Ridge.



Section of the reparate parts of the Ridge.

A. Ridge side with roller.
B. Do. loose, to fit under do.
C. Pin-hole in the end of the roller.
D. Screw-hole to fasten the under piece to the ridge.
EE. Rabbet-joints.
FF. The dotted part shews the form of the square top.

ABSTRACTION AND SALE OF A FONT COVER.—A report having been generally circulated throughout the parish of St. Martin's-in-the-fields, that the curiously carved mahogany cover of the font, which had been for some time missed from the edifice, had been traced to a broker's shop in Drury lane, where it was exposed for sale for 30*s.*, an investigation took place, when, at a vestry meeting held a few days since, one of the churchwardens admitted that he had sold it, as he considered it to be a piece of useless lumber, which had been lying for years in the vaults of the church, and its use unknown or disregarded until it had been seen at the broker's to whom it had been sold.

Correspondence.

MISTAKES IN ESTIMATES —HERNE HILL CHURCH.

SIR,—As one of your numerous readers, allow me to express my satisfaction as regards the talented manner in which your various correspondents are treating the question of architectural competition, with the view of purifying future decisions, so that real merit may ultimately find its proper level. However desirable this object may be to accomplish, it should be borne in mind there are serious mismanagements in building competitions, which appear to me to have equal claim on the pages of THE BUILDER, and, in support of my assertion, I refer you to that unfortunate affair at Herne-hill Church.

We take for granted the matter went through a business form, and the quantities were supposed to be taken out by competent persons; of course the builders, satisfied of the abilities of the parties so employed, proceed to prize the various items in full confidence that all are correct. Imagine the contractor's surprise when he finds out that the actual quantity of stone required for the completion of his works exceeds the quantities furnished, by some 2,000 cubic feet or upwards. Then comes the question, what is to be done? Not allowed to throw up his contract, he is told he can fall back on the parties who supplied the quantities to make up his loss. We then have the name of Mr. Broomfield introduced to us as the person who made so serious an error. Mr. Broomfield then tells us he did not take out the quantities at all, as the time allowed was too short, but that he copied them by permission of the architect from his private quantities. The architect next introduces himself, and very politely gives Mr. Broomfield the lie direct. The principal clerk next approaches the arena of discord, and after quoting a precedent in point of allowing an inspection of private quantities on the Great Western Railway, admits that on the second application of Mr. Broomfield he was allowed to copy the private quantities of the architect, but at the same time was cautioned they could not be depended on as correct.

Thus it appears, if this statement be true, Mr. Broomfield supplied copies he was informed could not be depended on, and the architect allowed builders to tender for building this church, from quantities he knew were copies of his own, which he could not say were correct.

Yet after all these statements, we are still in the same position as regards being informed where the blame lies: neither seems inclined to own the fault, but makes vain attempts to throw it back from one to the other.

I trust, Sir, you will consider this Herne-hill Church affair to be of a serious character, as affecting builders generally, and that it demands a further notice in the columns of your journal, as the architect and builders' organ, for it is self-evident, if the truth is before us, that Mr. Sugden has encountered a heavy loss by such a system of conducting competition, and it may prevent respectable builders in future from engaging in competition from quantities furnished in such a loose, and, to say the least, disgraceful manner. I am, Sir, &c.,

Lambeth, March 25th. W. A.

[We have carefully considered a number of letters forwarded to us on this subject, including one from Mr. Broomfield, and one (accidentally) unsigned, purporting to be from Mr. Sugden. None of them, however, seem to disprove the statement made by Mr. Alexander's clerk (p. 130, *ante*), that when he allowed Mr. Broomfield to inspect the abstracts and dimension books, Mr. B. was distinctly told that Mr. Alexander would not be responsible for their correctness; further, that a duplicate specification was lodged with the Church Commissioners, and would serve to prove that no alteration was made in it after the estimates were prepared. The architect's estimate was probably what architects' estimates often are (and are required only to be), namely, a *general* one to get at the probable cost: and the mistake seems to have been, adopting the quantities, taken out perhaps roughly for that purpose, without comparing them with his specifications and drawings. We trust what has been said on this occurrence may have the effect of inducing greater caution in future on the part of those deputed to take out the quantities for builders, and may prevent architects from allowing their quantities to be seen, unless they are quite satisfied that they are correct.—ED.]

HOLLOWAY CONGREGATIONAL CHAPEL.

SIR,—Your correspondent of last week who desires some information respecting the late competition for a new Independent Chapel at Holloway, appears (like many others) to be surprised at the mystery with which the whole affair was conducted. Secrecy in such matters never looks well, and generally defeats its own intentions, since it arouses suspicion, and, as in the present instance, prompts inquiries.

From hints unwittingly dropped in different quarters (and those versed in architectural competitions know too well how to put such together), I was led to conclude that the studied reserve, which your correspondent has also noticed, was not casual, but a matter of prudence, inasmuch as the Holloway Independent Chapel Committee had not shewn themselves proof against the influence of party interest.

But now for more tangible evidence:—when I had received back my drawings, I naturally wished to know who was the fortunate candidate, and was informed Messrs. Emmett and Chadwick, and, on further inquiry, learnt that Mr. E. was "*one of the congregation.*" This looked very doubtful. It has since got whispered about that the above parties have not adhered to the conditions of the furnished instructions, and that the committee have winked at the discrepancies.

That a portion of the required accommodation is provided in a *gallery* notwithstanding the express direction "*No galleries to be erected at present,*" a gross unfairness towards the other competitors, who, I doubt not, to a man, obeyed its obvious meaning.

That before any of the unsuccessful drawings were returned, it was decided entirely to alter the character of the APPROVED elevation and — That before the business was finally achieved, to make assurance certain, the plan was revised, and no time lost in setting it out on the ground.

Now, Sir, there is an old saying, that truth will out, and if corroborated rumours become facts, these charges must be true; at any rate, I see no reason for disbelieving them till they are *severally* and *officially* contradicted. I am not going to quarrel with the committee for wishing "one of the congregation," in the first instance a committee-man himself, to build their chapel if they can trust to his taste and abilities, but I *do* complain, that in consequence of a public advertisement so many architects have been induced to expend time and labour in preparing designs, with the hope that their respective merits would be honestly weighed, when the result (if what is above stated be correct) seems to force upon us the not very palatable notion, that the *real design* after all was to collect a few suggestions gratis, and then make such use of them as might be convenient in the improvement of a "cut and dried" plan. I am, Sir, &c.,

FAIRPLAY.

P.S.—I quite fall in with the idea of exhibiting the different designs, and am ready to contribute mine.

THE FOUNTAINS IN TRAFALGAR-SQUARE.—Several experimental trials have lately been made to test these works, which at last have been pronounced to be complete, and ready for constant use. The fountains will be put in daily operation as soon as the basins are repaired, they having got out of order, and the cement being cracked in many places from imperfect workmanship. The fountains are to play for ten hours each day, such being the contract with the engineers of the works. The cistern from which they are supplied at the top of the engine-house in Orange-street holds 37,000 gallons of water, and the higher main at the top of the tower for the supply of the Government-offices about 20,000 gallons. The water will ascend to a height of 40 feet; but at the recent trials the jets were only suffered to play to a height of from 6 to 8 feet, as with a greater ascent the water is liable to be driven by the wind to a considerable distance across the square.

Miscellanea.

GLASS FOR OPTICAL PURPOSES.—At a recent meeting of the Society of Arts, M. Claudet submitted a communication on the improvements recently introduced into the manufacture of glass for optical purposes. The importance of this invention will be clearly understood if we reflect that upon the perfection of glass depends entirely the power and utility of the telescope, and hitherto the manufacture of a material possessing the requisite properties in a sufficiently high degree has been a matter of infinite difficulty and uncertainty. The defects most injurious to glass employed in the construction of philosophical instruments were, the numerous filaments and lines, called by opticians "striæ," and also the spots produced by the bubbles of confined air. These defects arose from the almost impossibility of obtaining an intimate mixture during the fusion of the different materials composing the glass. A means has, however, been discovered by M. Bontemps, a French gentleman, founded upon an old process invented by a Swiss, of the name of Guinand, and it is this invention that formed the subject of Mr. Claudet's communication. By an ingenious contrivance a complete mixture of the materials, when molten, is obtained, so as to produce perfect homogeneousness and the entire destruction of all the defects in the glass. Lenses, with scarcely any blemishes, may be made of two or even three feet in diameter; and it was stated in Mr. Claudet's paper that the inventor has undertaken to furnish to the Royal Observatory at Paris the lenses for an achromatic object glass of a *metre* (about 40 inches) in diameter.

DECORATIVE ART SOCIETY.—On Wednesday, 26th ult., a paper "On the physiology of timber trees, considered with reference to manufacturing purposes" (second notice) was read by Mr. Vicary. He passed in review various theories concerning the growth and formation of pith, annular rings, medullary rays, bark, &c., the influence of soil, light, winds, and pruning; and also the evidences of health and maturity in the living tree. The tubular construction of timber, its medullary rays, &c., were illustrated by the oxy-hydrogen microscope, with transverse, oblique, and longitudinal sections of various woods prepared for this occasion. Sir W. Symonds, in the course of his observations, expressed his willingness to afford to inquirers the facility and advantage of examining the Government collection of woods, &c., at present under his control. Papers "On stained glass," and "On the application of colours to manufactures," were announced to be read at the next meeting of the society.

INSTITUTE OF THE FINE ARTS.—The monthly meeting of this body was held on Saturday evening last in the great room of the Society of Arts, Adelphi. The chair was taken by Mr. Wyse, M.P. A great number of members and their friends was present, the room being literally filled. The chairman addressed the meeting in a very eloquent speech, in which he took a view of the rise and progress of art, and its present state and prospects. He insisted on the necessity which called upon the artists of this country to become the teachers of the principles of art to the people generally, and to cultivate and direct properly the taste of their fellow-countrymen. Mr. James Foggo then read a paper, in which he set forth the advantages which would accrue to the fine arts if a national exhibition of engravings were established, and proposed that the government should be called upon to establish a gallery for that purpose. Mr. Park read a paper on modern sculpture, in which he made some severe strictures on the statue of the Duke of Wellington lately erected at Glasgow: after which a vote of thanks was passed to the chairman, and the meeting broke up.

BRISTOL ACADEMY OF THE FINE ARTS.—The first annual exhibition of works of living artists will be opened on or about the 14th instant. In aid of the fund now collecting for the establishment of the academy, a bazaar has been proposed, to which many who are unable to give money may be disposed to send prints, drawings, duplicate copies of books, &c. It is thought that a large sum might thus be raised.

Novel Locomotive Power.—A very in-nious application of the screw principle to e common locomotive has been suggested by American. It professes to overcome in-ned planes of any steepness, even though e greatest load be attached, with perfect ease d certainty. By a very simple apparatus e driving-wheels are lifted from the track on proaching the plane. A cogged-wheel of all diameter is attached to, and derives otion from, the axle. This wheel plays into other cogged-wheel of greater diameter, d that in its turn gives motion to an ever-sting screw placed longitudinally beneath the gine. Along the centre of the track, on the clined plane, a series of strong wheels, oving freely on their pivots, and inclined to e horizon at the same angle with the plane, e so placed that they correspond with the reads of the everlasting screw beneath the gine. When the engine reaches the plane, otion is given to the screw from the engine elf; and its power is capable of being in-eased to any point by increasing the ratio of e diameter of the cogged-wheels, turning the rew to the diameter of the wheel deriving otion from the driving axle of the engine. ie inventor anticipates very great advantages om this adaptation: among others, a great ving in expense, additional safety to pas-ngers, and facilities of constructing lines in sitions hitherto considered wholly unadapted r such purposes.

Improved Manufacture of Cast Steel.—The solution of the problem of producing st-steel direct from cast-iron, without in-rring the enormous expense hitherto in-parable from the old process, has engaged e attention of scientific men, since the time Reaumur, whose work appeared nearly a ntury ago, to the present time, without having oduced any result of the least value. At ngth, however, this object is announced as ving been accomplished by a gentleman, o states the apparent paradox, that he able to produce cast-steel at a cost not ceeding that of pig-iron, of a quality suitable r the manufacture of steel. Of the import-ce of such a discovery, supposing it brought to practical operation, some opinion may be med, from considering that steel made in is manner may be sold at half the present ling price of that of medium quality, mad the usual way, at a profit of 100 per cent.; d that the quality of it, according to the tement of the discoverer of the process, will equal to that now made from the most pensive foreign iron; it is also stated that e steel is suitable for every purpose for hich steel is now used—from coach-springs surgical instruments—and that, conse-ently, this process must entirely supersede those at present in use for making the rious descriptions of steel now used in the s.

Railway Restaurant.—A plan has been omulgated which promises to administer gely to the luxury and comfort of those ho are compelled to undertake long journeys railway. It consists in the construction of me newly-formed carriages, so as to consti-te a sort of travelling café, or railway res-rant, to be placed in the rear of the other rriages, which are to be so constructed as to en into one another, thereby enabling waiters travel along the train *ad libitum*. A bill of re, shewing what the refectory contains, is to posted in each carriage. Bells are to be at e command of the passengers to announce eir wants to the waiter, who will travel to em along a narrow passage alongside the in-rior of the carriages constructed for the rpose.

Restoration of St. Mary's Church, bry St. Edmunds.—A detailed account of e receipts and payments connected with this storation has just been published. It appears at the receipts up to the present time mount to 2,056*l.* 4s. 7d., and the payments 3,417*l.* 6s. 8d., shewing a deficiency of 361*l.* 2s. 1d. A public appeal for further nations has been made by the minister and urchwardens, who, for the present, have paid e deficiency. It may be mentioned, in con-ction with this restoration, that in addition the very handsome subscriptions of Henry mes Porteus Oakes, Esq., and John Fitz-rald, Esq., the former gentleman presented tained window at the east end of the nave, d the latter, a new font.

Progress of Railways.—Railways are messengers of civilization, peaceful locks tending to bind countries in ties of closer intercourse; as a guarantee of peace they protect from war. They are now covering the Continent—extending across the Desert—about to span India from Calcutta to Bombay. Where will they stop? There is a railway now on its way from St. Petersburg towards Moscow—will it stop there? The direction of that line, if prolonged, leads to China. Between St. Petersburg and Pekin, there is scarcely a hill; Moscow is, therefore, but a first-class station on the way to Pekin. We will not speculate on the date of completion of such a line yet, but return to what is imminent and in sight. From London to Southampton there is now an electric telegraph. Mr. Wheatstone is on his way to Paris for the arrangement of a telegraph in France. It may soon be completed from Havre to Paris; from Paris to Marseilles there will be a continuous line of railway, and a telegraph on it; thus we reach the Mediterranean; thence Egypt, across the Desert, and so to Bombay and Calcutta. We may cross to Belgium, where an electric telegraph already exists. We shall soon have one continuous line to Venice; and then across the Desert, and finally from Calcutta to Bombay as before. Does such a prospect, so clear, so certain of bringing so near home our many friends and brothers now in the other hemisphere, not bring home to our hearts the conviction that we are just entering a career of social improvement, based on scientific discovery, the beneficial effects of which it is difficult to foretel, but impossible to over-estimate?—*Athenæum.*

A Court in the Great Metropolis.—Orchard-place is a broad court leading out of Orchard-street, Oxford-street, and close to Portman-square, Manchester-square, Grosvenor-square, and some of the first streets in the metropolis. Including two nooks, Orchard-place is less than 45 yards long and 8 broad, and contains twenty-seven houses. Its inhabitants amount to 882 persons, of whom 582 are about fouteen years of age!! The population of a large village or small town is here compressed into one court. Amongst these are found 222 adults who could not read; whilst most of the other adults could only read imperfectly. Only seventeen persons had copies of the Scriptures. Ten persons professed to attend Protestant worship; while the great mass of those who attend Romish worship only did so early on the morning of the Lord's-day. The parties employed in taking the statistics of the place witnessed two fights, and one woman was nearly beaten to death. The court was once supplied with copies of the Scriptures, but such was the desperate character of the inhabitants, that every copy was destroyed. Such is a brief outline of one of the heathen spots which stud the metropolis of Christian England.

On Fixing Blowing Sands.—I have had occasion to try experiments upon the practibility of fixing blowing sands on the sea coast, by planting grasses and trees upon them. The experiments were made upon a tract of blowing sand of between 500 and 600 acres, on the sea coast, upon my property in the county of Sligo, in Ireland, and with great success; and if you should wish for any detailed information on the subject, you would obtain it by addressing my local managing agent, Mr. Lynch, Rundale Cottage, Chiffony, Sligo. I found a small quantity of bent growing upon the sands; and by transplanting annually, for many years past, a sufficient quantity of the younger plants, I have covered with a close coating of bent the whole surface of the formerly blowing, but now fixed and stationary sand; and the result is, that the bent affords shelter and food for young cattle, while trefoil begins to grow spontaneously on the sand between the tussocks of the bent. I have for the last three or four years sown seeds of the pinus maritima, from Bordeaux, among the bent on some portion of the sand, and the young plants are growing well, though hitherto they have been more occupied in striking their roots deep into the sand than in throwing shoots upwards. I have also tried young oaks in the sand, and they seem as yet to thrive in it even better than the pine. The sand is the broken down ruck of the old or lower sand-stone formation.—Palmerston, *Carlton-terrace, Feb.* 17. [This mode is adopted to a considerable extent in Holland, where the soundness of the dykes is a matter of vital importance.—Ed.]

Nails in 1281.—The following entry from a Roll, dated the ninth year of Edward I. (quoted by the Rev. Charles Hartshorne in the *Archæological Journal* for January), furnishes the price and names of the different sorts of nails that were then used. "For ten thousand of lath nails (*lathe nayle*), bought at Nottingham, 7s. 1d., namely, 8½d. a thousand. For two thousand and a half of board nails (*bord nayle*), bought at the same place, 1*l.* 17s. 6d., namely, 1s. 6d. a hundred. For a thousand great spike nails (*magnis spikingg*), bought at the same place, 3s. 4d., namely, at 2½d. a hundred (*sic.*) For two hundred and a half of *wyt nayle*, bought at the same place, 2s. 3d., namely, at 6d. a hundred (*sic.*) For four hundred of clout nails (*clut nayl*), bought at the same place, for the fastenings and bars (*ad cynties et barres*), 4d., namely, a hundred for a penny."

Tenders.

Tenders delivered for erecting Gothic Cottage at Finchley.—F. E. Fowler, Esq., Architect, Sackville-street, Piccadilly.

Chapple and White	£1,840
Cooper	1,683
Plaskett and Skelton	1,672
Stevenson	1,633
Burton and Son	1,568
Gerry	1,509
Elston and Co.	1,392
Simmonds	1,390

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For cutting, forming, and completing a new line of Private Carriage-road, one mile in length, from Whitehaven Castle, Cumberland, the seat of the Earl of Lonsdale, to the Turnpike-road, between Bransty toll-bar and Lonsdale-place, near the town of Whitehaven. April 7.

For constructing the fourth division of the Great Southern and Western Railway. April 8.

For supplying the Gaol, now in the course of erection at Aylesbury, Bucks, with gas-pipes, fittings, shades, and burners; locks, and other fittings; iron tanks, pumps, and piping necessary for the supply of water. April 8.

For about 250,000 Railway Sleepers not less than 9 feet long, for the Chester and Holyhead Railway. April 9.

For erecting at Alresford, Hants, between five and six thousand feet superficial of new Brickwork, to be either neat flat, joint-pointed with white mortar, or neatly tuck-pointed. The parties to find labour and the erection of scaffolding only. April 10.

For the restoration of the Parish Church of Grays Thurrock, Essex. April 12.

For the erection of a Church in the parish of St. Thomas, Winchester. April 12.

For the erection and building of a Farm-house, Barn, Stable, and other offices, at Hepworth, Suffolk. April 16.

For keeping Battle-bridge and Holloway-road in repair for one or more years. April 17.

For submitting a plan of a Tread-wheel, and constructing the same in the Common Gaol of Great Yarmouth, Norfolk. April 24.

For all the Works to be done in the erection and completion of the new cast-iron Bridge over the Haven of Great Yarmouth, including the finding of labour, certain materials, &c. April 26.

For the construction of the third and fourth divisions of the Chester and Holyhead Railway. April 28.

For laying out the Grounds of the Victoria-park Cemetery, and for draining the same, making the roads, paths, and finding all necessary trees, shrubs, materials, &c.

For performing the several works in building a new Workhouse at Tenterden. May 2.

For the formation and completion of a new Drain, being about eleven miles long, twenty yards wide, and five yards deep, for the Middle Level Drainage Commissioners. Also for the erection of a Staunch, several Bridges of wood with brick abutments, together with the necessary culverts, and other works. May 8.

COMPETITIONS.

Plans, sections, and elevations for a Terminus, and other requisite accompanying offices, for the Great Southern and Western Railway, Ireland.

Plans for a Church to be erected within the Borough of Kingston-upon-Hull. May 8.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

April 2.—At the Spulk House, in Dean Forest, Gloucestershire, by order of the Commissioners of her Majesty's Woods and Forests: 319 Oak Timber Trees.

April 5.—At Bower Hall, Steeple Bumpstead, Essex: 400 Fir, Oak, and Elm Trees.

April 7.—At the Swan Inn, Alton, Hants: 270 fine Oak Timber Trees, now standing in Shaldenpark Coppice. The timber is of good size, and the greater part of unusual length and straightness.

April 8.—On the Glemham House Estate, Suffolk: upwards of thirty loads of Ash, Elm, and Poplar Timber, of good quality. Also 200 Oak Stands, and a considerable quantity of Pollard Trees, &c.

April 9.—At the Lamb Inn, Rainton, near Topcliffe, Yorkshire: 254 Oak Trees and 217 Ash, now standing at Rainton. The Wood is of large dimensions.

April 10.—At the Devonshire Arms Inn, Martin-le-Moor, near Ripon, Yorkshire: 276 Oak Trees and 12 Cyphers, now standing at Martin-le-Moor. Also 786 Oak Trees and 173 Cyphers, all standing in Martin-le-Moor Old Wood. Many of the outstanding Trees are of large size.

April 11.—On the Hoo Hall Estate, near Framlingham, Suffolk: a quantity of Ash and Oak Timbers; ditto Fir, Oak, and Ash Stands; ditto Pollards; all recently felled.

April 11.—At Wingerworth, Derbyshire: a large quantity of Oak, Ash, Beech, Alder, Elm, and Walnut Trees; in all 716 Trees and 911 Poles.

April 11.—At the Congreve Arms Inn, Aldermeston, Berks: 180 capital Oak Trees, now standing in Wasing-wood; also 50 capital Oak Trees, standing in Hart's-hill Coppice. They are all sound plank Timber of large metings and of the very best quality,

April 15.—At the Three Ashes, crossing near Witham, Essex: 1185 Oak Trees, now growing in the woods and fields of Lanhams, and Crossing Lodge Farms. Many of the Trees are of large dimensions.

April 18.—At the George Inn, Frome: 310 fine grown Oak Trees, now standing on the Orchardleigh Estate, near Frome. They are of large dimensions, great length, and of very superior quality.

Some time during the present month.—A large quantity of full-grown Coppice and Hedgerow Timber, now standing at Denby's, Derbyshire.

TO CORRESPONDENTS.

"J. P."—*We shall be glad to see the sketches offered.*

"Constant Reader and Purchaser" *is thanked. Estimates of that sort do not require notice.*

"W. W.," *as a competing architect, offers his thanks to Mr. Allom, and Messrs. Lahee and Mabin, for their letters in our last number.*

"A Subscriber" (Nottingham) *wishes to know which is the best machine for crushing lime in large quantities for concreting. The ordinary crushing mill, a cylindrical stone made to revolve round a fixed point, by horse or other power, on a grating fixed over a receptacle for the pounded material, answers perfectly well, we believe.*

"A Country Carpenter" *wishes to be told of a good* stain *to make deal look like old oak. Asphaltum ground in copal varnish produces a good appearance, but is not properly a stain.*

"F. M."—*There does not seem to be anything to prevent him* "butting *a timber erection against the gable end of a brick building," if the timber erection was up before the 1st of last January The erection of such a shed as he speaks of would not be permitted now.*

"W. Rowland."—*The "canaliculated acqueduct" for preventing effluvia from sewers through the street gratings, does not seem to have any advantage over the ordinary "trap" in use. The objection to trapping is, that by preventing the escape of the gases the sewers are rendered dangerous. The model is left at the office in York-street for inspection.*

"E. M." (Pimlico).—*The average (of last seven years) annual produce of the duty of 8d. per ton on coals is 87,801l. 7s. 5d.*

"The Reading Competition."—"Architectus non Competitor" *offers praise to Mr. Blandy for the course he pursued, and considers with a little alteration in the details, it might be generally adopted with much advantage.*

"A Young Subscriber" *will not find any* one *book to give him the knowledge he requires; it must be obtained from various sources.—Gwilt's Edition of Chambers; Stuart's Athens; Parker's Glossary, &c. Shaw's Encyclopædia of Ornament would be useful to him.*

"A Young Builder" (Dublin).—"*The Students, Builders', and Architects' Instructor in the Art and Practice of Measuring Artificers' Work," published by Weale, High Holborn, would probably answer his purpose.*

"J. R. Croft." "E. H.," "H.W. Portsea." and "W. J. S."—*Next week.*

"Messrs. Poulton and Bland" *are thanked for the information respecting Holloway Congregational Chapel. They will find another letter on the subject in our present number.*

"Lavinia" *states that the old church at Wilton will be removed when the new structure is completed, and offers to send some sketches of those parts which are worth preserving. We shall be very glad to receive them. We don't know the character of the old building, and hope it will be examined by qualified persons before it is taken down.*

Received.—"*A Series of Letters on Agricultural Improvement," by J. J. Mechi* (Longman)—"*Old England," part* 16 (*Knight*), *containing various architectural notices to which we shall refer shortly; and "The Pictorial Gallery of Arts," part* 3.—*Archi—Bricks and Brickmaking—G. M.*

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, April 7.—*Entomological*, 17, Old Bond-street, 8 P.M.; *United Service Institution*, Whitehall-yard, 9 P.M.; *Chemical* (Society of Arts), Adelphi, 8 P.M.; *Medical*, Bolt-court, Fleet-street, 8 P.M.

TUESDAY, 8.—*Medical and Chirurgical*, 53, Berners-street, 8½ P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.; *Zoological*, Hanover-square, 8½ P.M.

WEDNESDAY, 9.—*Society of Arts*, Adelphi, 8 P.M.; *London Institution*, Finsbury-circus, 7 P.M.; *Graphic*, Thatched-house Tavern, 8 P.M.; *Pharmaceutical*, 17, Bloomsbury-square, 9 P.M.

THURSDAY, 10. — *Royal*, Somerset-house, 8½ P.M.; *Antiquaries*, Somerset-house, 8 P.M.; *Royal Society of Literature*, 4, St. Martin's-place, 4 P.M.; *Medico Botanical*, 32, Sackville-street, 8 P.M.

FRIDAY, 11.—*Astronomical*, Somerset-house, 8 P.M.; *Royal Institution*, Albermarle-street, 8½ P.M.; *Philological*, 49, Pall Mall, 8 P.M.

SATURDAY, 12.—*Royal Botanic*, Regent's-park, 4 P.M.; *Westminster Medical*, 32, Sackville-street, 8 P.M.

ADVERTISEMENTS.

EMBARRASSED CIRCUMSTANCES. —PERSONS IN DIFFICULTIES being desirous of availing themselves of the Benefit of LORD BROUGHAM'S RUMANE ACT, are requested to apply to MESSRS. GRAND AND CO., of 54, Coleman-street, City, where every information may be obtained, FREE OF EXPENSE, or arrangements can be made with Creditors, by which means the painful necessity of resorting to BANKRUPTCY or INSOLVENCY may in many cases be avoided.—N.B. Partnership accounts adjusted.

TO BUILDERS and Others.—A cheap substitute for high priced bricks, well worthy the attention of speculative gentlemen, and other capitalists who intend building this season. This article is stone, which may be worked with great advantage. It is in pieces from 3 to 5 inches in thickness, and averaging from 14 to 20 pounds in weight; it is about the same weight as bricks, and will be sold in London at 12s. 6d. per ton. Any quantity may be had from 100 to 200 tons per week; not more would be guaranteed per week, as it will come by railway. A fair sample of 10 or 12 tons may be seen at the proprietor's at any time.—Address, JAMES PERREN, 1, Victoria-place, Surrey-square, Walworth.

HIP TILES to suit slate roofs in colour; Ridges, with plain or rebated joints, roll tops, and vertical ornaments; drains, many sizes, with plain or socket joints; paving in squares, hexagons, octagons, &c., different colours; roofing, in Grecian or Italian styles, other devices also, or plain; conduits, which do not injure pure water; fire-bricks and tiles; clinkers, and out-door paving; sundry wall-coping, garden-borders, chimney-tops; also tubular and other flues of peculiar material. No agent, but a depôt at WHITEFRIARS, and 22, WATER-LANE, FLEET-STREET, LONDON, under Mr. PEAKE'S personal care, to supply genuine TERRO-METALLIC goods at fair prices as per quality.

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LUARD and BEEDHAM have a quantity of the above stone, of the best quality, direct from their Quarries at Allemange, which may be inspected at the Norway Sufferance Wharf, Greenwich.—Further particulars at Mr. G. GATES', 18, SOUTHWARK-SQUARE, SOUTHWARK.

BEST FARLEIGH DOWN FREE STONE, CHEAPER THAN EVER, at the Wharf of Mr. Hanson, Kensington; Messrs. Druce, Chelsea; Mr. Rogerson, Pimlico; Mr. Foot, Westminster; Messrs. Brown and Ruspy, Bank-side; and Mr. Searle, Wapping. General Agent, T. E. Weiler, Steel-yard Wharf (late Drewe's), Thames-street.

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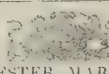
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The best Cement	11s. 0d. per cask.
Plaster of Paris	42s. 0d. per ton.

Address the Proprietor, JOHN KNOWLES, Jun.

POLONCEAU'S BITUMEN PAVEMENT for paving Foot-walks, Terraces, Garden walks, Stables, Coach Houses, Granaries, Corn Stores, and Sale Warehouses. For the exclusion of Damp and Vermin in Basements it is particularly adapted, and for Roofing Dwelling Houses, Porticos, Balconies, and Sheds.

Price 3s. 6d. per square yard.

BITUMEN for covering the Arches of Bridges, Culverts, &c. &c. on Railways and other places (with instructions for laying it down), may be had at the rate of 45s. per ton by applying to JOHN PILKINGTON, 15, Wharf-road, City-road.

BASTENNE ASPHALTE and BITUMEN COMPANY, Offices, 31, Poultry. The Directors of this Company beg leave to call the attention of ARCHITECTS, BUILDERS, and others, to the very beneficial results attendant on the use of BITUMEN in the erection of buildings, &c. Its application as a FLOORING will be found eminently useful. It is also valuable for numerous other purposes, more particularly where the object sought for is the EXCLUSION OF DAMP AND VERMIN. The Directors beg to refer to the works in Trafalgar-square, which have given general satisfaction. Scale of prices per foot square:—1 inch thick 8d.; 2 inch thick, 7d.; ¾ inch thick, 6d. Works not measuring 400 feet, 1d. per foot extra. Roofing executed at 6d. and 7d. per foot square. Concrete is charged in addition according to the thickness when required. Carriage and men's time are charged extra when works are executed beyond three miles from the General Post-office. Bitumen £6 per ton, without grit. Bitumen £8 per ton, with grit.

CHARLES F. TILSTONE, Sec.

TO ARCHITECTS.

IN consequence of many complaints having been made to the Company, by Architects, of a spurious material having been used in the execution of Works where the SEYSSEL ASPHALTE had been specified for, the Directors with a view to ensure the fulfilment of any such specification have authorized CERTIFICATES to be granted to Builders where the

SEYSSEL ASPHALTE

has been used. For the purpose of securing the use of the Genuine Article, Architects and others are recommended to insert in their specifications the "Seyssel Alphalte, Claridge's Patent," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used gas-tar and other worthless and offensive compositions have been introduced. I. FARRELL, Secretary.

Stangate, near Westminster Seyssel Asphalte Company Bridge, Jan., 1845.

Books of Instructions for Use may be had at the Office of "The Builder," and of all Booksellers in Town and Country, price 1s.

*** In proof of the necessity of the above advertisement it may be mentioned, that it has come to the knowledge of the Directors, that in certain works which have been executed by Messrs. Curtis, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

NOTICE TO INVENTORS.—OFFICE for PATENTS of INVENTIONS and REGISTRATION of DESIGNS, 20, Half-moon-street, Piccadilly. Patents obtained for the United Kingdom and Foreign Countries; Designs registered; printed instructions, containing the charges, forwarded gratis; and every information given by application, if by letter pre-paid, to Mr. M. Joseph Cooke, 20, Half-moon-street, Piccadilly.

The Builder.

No. CXIV.

SATURDAY, APRIL 12, 1845.

IN the present Number we have the pleasure to lay before our readers a view of the Hungerford suspension bridge for foot passengers, constructed under the direction of Mr. I. K. Brunel, which will be opened publicly on Friday, the 18th of this month. The engraving shews the bridge as it appears seen from the Middlesex side, a little to the west of the market, and gives an accurate notion of its general arrangement and form. It consists of three arches; the span of the centre is 676 feet 6 inches, and that of each of the side arches 333 feet. The height of the roadway from high-water mark at the abutments, is 22 feet 6 inches; at the piers, 28 feet, and in the centre, 32 feet; so that it cambers in the whole, 9 feet 6 inches. The clear width of the roadway is 14 feet, and the height of the two towers, or piers, which carry the chains, is 58 feet above the road. These towers, which are 22 feet square, consist each of four solid piers of brickwork in cement, 7 feet 6 inches square, connected by inverted arches at the bottom, and are built on the natural bed of the river without piles. They are Italian in style, and were designed by Mr. Bunning to accord with buildings appertaining to the market.

For the foundation of the abutments, piles 26 feet long were driven in an inclined direction. On the south side this was effected with much difficulty, the soil being formed by accidental causes into concrete of very great hardness. The platform, or roadway, is carried by four chains, in two lines, with single suspension-rods on each side, 12 feet apart. The chains pass over rollers in the upper part of the towers, so as to equalise the strain, and are secured in tunnels at the abutments to two iron girders, 44 feet long and 5 feet deep, solidly imbedded in a mass of brickwork in cement, further strengthened and backed up with concrete. It is hardly necessary to say, that this is a most important part of the construction, and demanded the greatest care.

The suspension-rods carry two longitudinal bearers of fir, 9 by 9, running from end to end on each side of the roadway, one above the other, and between these are placed the ends of cross-beams, which beams receive a flooring of three-inch deal. The cross-beams are double every 12 feet, that is, at the point where the suspension-rod comes through; (each of the two pieces is 11 by 3, and side by side): the intermediate beams, two in each space, are 11 by 5½. There is a third longitudinal bearer under the cross-beams, down the centre, 10 by 6, and the whole is trussed diagonally, from side to side, with iron. To prevent undulation is of the most importance in the construction of suspension bridges, as they are peculiarly liable to damage from this cause; and it has been thought that the injuries to which suspension bridges are exposed from wind arise chiefly from its action beneath the platform: to stiffen this is therefore most essential.

General Pasley urges, in a paper published in the "Transactions of the Institution of Civil Engineers" (Vol. III.), that if the platform, which presents a large surface to the wind acting from below, be kept from undulating, it can scarcely be supposed that the utmost force of the wind could move the chains at all, having comparatively so very little surface to oppose to it, and which must be held down by the great weight of the roadway, so long as *that* remains at rest. The trussing adopted at Hungerford bridge by Mr. Brunel will have the effect of stiffening the platform considerably, and will be further assisted by the cast-iron railing on each side of the roadway. The appearance of the under side of the roadway, viewed at one end, is very curious, from its narrowness, great length, and the effect of the trussing: it resembles, in some degree, the back bones of a fish, and exemplifies in a striking manner the theory of vanishing lines.

The span of the main arch of this bridge is much larger than any other in this country. The greatest span of Hammersmith suspension bridge is 422 feet; of the Union bridge across the Tweed, near Berwick, 449 feet, and of the Menai bridge, Beaumaris, 560 feet.* It is only second to the suspension bridge at Fribourg, in Switzerland, the span of which, from pier to pier, is nearly 900 feet.

The first stone of the Hungerford bridge was laid in 1841. The total cost, including the purchase of property, parliamentary, law, and other expenses, is 110,000*l.* The approaches on the south side of the river require improving, and for this purpose a Bill is now before Parliament. It is proposed to obtain a direct communication with the York-road. On the Hungerford side the platform joins the centre of the terraced roof of the colonnade between the two taverns, whence the traffic will pass through the galleries over the colonnades of the fish-market, by the level of the general market, to Hungerford-street and the Strand. The toll is to be a halfpenny each person, and it was originally estimated that the annual return would be—ordinary traffic 8,000*l.*, traffic from Lambeth to Hungerford Market, 260*l.*; for the sight of matches on the river, 250*l.*; traffic to and from steam-boats, 300*l.*; rent of unappropriated property, 200*l.*; total 9,010*l.* As a point for embarking or debarking, there is a commodious flight of stairs in each pier, which will probably supersede the unsightly wood-piers now in use.

Mr. P. P. Baly, the author of the selected design for the London Baths and Washhouses, was the resident engineer; Mr. W. Chadwick the contractor for the brickwork, and Messrs. Sandys, Carne, and Vivian (Cornwall), the contractors for the ironwork.

When we view the comparative slightness of the piers, the great length and tenuity of the roadway, and the single suspension-rods, so wide apart, and remember the effect of a gale of wind even in the Thames, it is hardly possible to avoid a doubt as to the stability of the new bridge during any long period of time; the skill and high attainments of Mr. Brunel, however, forbid the entertainment of this doubt, and we willingly waive it, with perfect faith in his reputation.

We should have mentioned, that all the wood employed in the construction is Paynized, and that the quantity of iron consumed is between 10,000 and 11,000 tons.

The suspension bridge at Fribourg, to which we alluded, is, as most of our readers know, a wire bridge, and has been appealed to in support of the arguments of those who advocate the employment of wire for this purpose in preference to iron bars. The length of Fribourg bridge is, as we said, nearly 900 feet; the height from the water, 175 feet, and the breadth 22 feet; that is, 16 feet for the carriage way, and 3 feet each for the footpaths. The versed sine is 65 feet; the length of the perpendicular suspension wires nearest the pier is about 57 feet, each one diminishing towards the centre of the bridge, where the shortest is only 12 inches. These perpendiculars are 4 feet 8 inches apart, and sustain the extremities of the beams which support the platform. Each of the four cables which form the arch consists of 1120 wires, and it is estimated that the four could sustain 2,678 tons! It was completed in two years and a half, and cost 24,000*l.*†

Although the use of wire offers some advantages, especially superior strength, bulk for bulk compared with bars, general opinion is not in favour of its adoption, on account of the impossibility, nearly, of adjusting the length of the wires, so that when the cable has assumed its proper curvature, each wire may bear its due proportion of strain, and because of the increased liability to oxidate, in consequence of the increased surface offered by wires to the action of the atmosphere. It has been proposed that each wire should be passed through a vessel of varnish immediately after the process of drawing, and that, after forming the wires into bundles of fifty or sixty each, they should be passed through a concave vessel of the oleaginous matter at a high temperature. By this process it is supposed every particle of moisture would be driven off in vapour, and its place occupied by the oleaginous substance in the interior of the cable, where it would be retained by its adhesive property, while it would harden over the exterior, and prevent oxidation, by removing the possibility of moisture coming into contact with the wire.

A suspension bridge of considerable importance is in progress at Clifton, near Bristol, but proceeds slowly; and one of very large size (three main arches of 1,200 feet span each) has been suggested to connect Liverpool with the Cheshire shore, by crossing the Mersey, but is at present "in the air."

* The Trinity suspension pier at Newhaven has three spans of 209 feet each; Brighton chain-pier has four spans of 255 feet each. The bridge over the South Esk, at Montrose, has a span of 432 feet.

† It was opened October 1834.

SHOP-FRONTS, BOWS, AND OTHER PROJECTIONS TO HOUSES COMMENCED BEFORE LAST JANUARY.

IMPORTANT DECISIONS.

In our leading article of March 22nd (p. 133), and elsewhere since, we asserted (in opposition to instructions said to have been forwarded to the district surveyors from the referees, and proceedings by certain of the district surveyors in consequence) that intended shop-fronts, bows, and other projections, forming a necessary part of buildings duly commenced before the 1st of January last, did not come within the control of the new Act, although still unfinished, and that no notice to the district surveyor before completing such was necessary. Last week we mentioned a case in point, then before us professionally, where the district surveyor had called on the builder of a house, which was roofed in last year, to give him notice before he completed the porch, although that was as much part of the original design as the chimney-stacks; and we stated that we should, of course, resist to the utmost such a preposterous demand.

It is with much gratification we now inform our readers, that our view of the law has been fully confirmed by several awards made since the date of the article in which we argued it; and that if the instructions issued by the official referees did direct the district surveyors that all such projections, if not *completed* before the 1st of last January, must be conformable to the Metropolitan Buildings Act, they having very properly given due consideration to what has been since advanced, have now arrived at another conclusion.

We believe we may with confidence take some little credit to ourselves for the result, but in doing so we would carefully avoid throwing the slightest discredit on the official referees, even should their instructions go the length asserted; we rather praise them for their uprightness in avowing a change in opinion, when time and more lengthened consideration had altered their views.

The first award by which this question is set at rest relates to certain new houses in Cranbourne-street, Leicester-square, now in course of completion. The district surveyor objected that a continuous line of entablature had been put up without the interposition of incombustible material, as required by the Act. The builder replied that the houses were commenced last year, and that the plans and elevations approved of at that time, shewed they were designed for shops. The award, dated April 4th, was, "that inasmuch as before the 1st day of January, 1845, the houses to which the shop-fronts in question belong were commenced, and such shop-fronts formed part of the original design for the said houses, the provisions of the said Act which relate to wooden shop-fronts do not apply to the shop-fronts in question." With regard to the costs, 4*l.* 11s., they considered "that as the case was one of reasonable doubt," the same should be paid by the district surveyor and builder jointly..

In another case, as to ten shops in the Norland-road, Shepherd's Bush, projected from the front wall, the district surveyor objected that the party-walls to the projections were built of bricknogging, and were not carried up above the lead flat; that the cornices and other woodwork had not the required incombustible materials between each house, and that the water dripped from the flat on to the public way. The builder shewed that the houses were formerly private; that plans to convert them into shops, bringing out the fronts to the line of other buildings, were made in the autumn of last year; that the framework was put up before the 1st of January, and that the cornice and other parts were prepared although not fixed. In this case the referees would make no award except to the effect that the shop-fronts must be supplied with gutters and pipes, to prevent the water from dripping on the public way, and that the costs, 4*l.* 6s. 8d., and 2*l.* 2s. to the district surveyor, should be paid by the builder.

Then again, as to a bow-window in Lyndhurst-road, St. Giles's, Camberwell, commenced before the Act came into operation. It was formed of wood, and though not fixed before the 1st of January, was intended and prepared for. The award was, "that inasmuch as the bow-window in question is an addition to a house newly built, or now building, but 'already built,' within the meaning of the said Act, and forms part of the original design thereof, the said bow-window does not fall within the provisions of the said Act, as regards the original erection or building thereof." And in this case they did not call for any costs from either party.

We need say no more on this subject.

IMPROVEMENTS AT THE COVE OF CORK.

We are glad to hear that great improvements are contemplated at Cove by Lord Middleton, under the direction of Mr. Decimus Burton. The execution of them will be intrusted to Sir Thomas Deane and Mr. Kearne Deane, and could not be in better hands. We are glad that Lord Middleton has determined to take advantage of the talents of gentlemen who have been engaged in so many undertakings of importance, to employ artisans and labourers, enhance the worth of his own property, and impart additional attractions to the place.

The work, according to Mr. Burton's plan, will consist of an esplanade 2,000 feet in length, on a new quay in continuation of Mr. Smith Barry's, divided from a new road by chains, &c.—a crescent and several ranges to be laid out for new buildings, with provision for terraces, hotels, baths, and all that can contribute to comfort or convenience.

We hope this example may be followed by other proprietors similarly circumstanced. Rumour says his lordship intends to spend 40,000*l.* in the improvements.

THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

IMPARTIAL STATEMENT OF FACTS.

All who are interested in antiquarian pursuits, who desire to prevent the injuries with which our ancient national monuments may be threatened, to spread abroad a correct taste for archæology and a just appreciation of monuments of ancient art, so as to secure a general interest in their preservation, must be grieved to learn that the dissensions in the association are in no way healed. There are two central committees, two societies, and two journals; and if it be true that a house divided against itself cannot stand, the Archæological Association seems doomed to fall.

There are, unquestionably, faults on both sides; great faults: the original cause of quarrel is trumpery in the extreme, and it is not just, it is not creditable,—that an association likely to effect much good, a large body of individuals bound together to advance an important object which is not at all implicated in the squabble, should be wrecked on such a wind-bag, overset by a sputter, raised entirely by the officers in command, and to meet which they have actually steered the vessel out of the right way.

Mr. Wright, the founder of the association, and one of the sub-committee appointed to edit the society's "Journal," produced, in his own name and irrespective of the association, a work called the "Archæological Album," which was to consist of six parts, and to be published at intervals of two months. This act of Mr. Wright was objected to in the committee by some members, on the ground that Mr. Wright's connection with the journal being known, and from the similarity of the title, the public would be led to consider the album also authorized by the society; further, Mr. Wright being *in reality* the editor of the society's journal, although his name did not so appear, it was thought he would be likely to use the best communications for his own work, and would give more of his time to it than to theirs, for which he received nothing, not even the credit of being the editor, and so that the journal would suffer. And it was therefore suggested, that notice should be given, that no publication but the journal was authorized by the society. When it was shewn on the other side, however (by those who thought the committee had no right to interfere), that this album was to be written wholly by Mr. Wright himself, and would, in reality, assist in advancing the objects of the association, by inducing a taste for the study of antiquities in many who before had not engaged in them, a resolution moved on the subject was withdrawn, and the matter dropped.

A few days afterwards, however, the subject was brought up in the Printing committee, at which meeting five out of the six members constituting it were present, including Mr. Wright and Mr. C. R. Smith, one of the honorary secretaries, when the two latter resigned, and a notice in the *name of the central committee* was ultimately sent to all the members by the remaining three, containing an intimation that the journal was "the only publication issued under the authority of the central committee."

Now to this intimation, if the committee had really resolved to issue it, no reasonable objection could be taken; it was a perfectly legitimate notification, indeed seemed to be called for. But that it should be made by a sub-committee of three in the name of the central committee, who had decided, virtually, that it should *not* be made, afforded very reasonable ground of complaint to those who agreed in that decision, and dissension was of course the result.

Mr. Wright and Mr. Smith had been induced to withdraw their resignations as members of the Printing sub-committee, and had taken their places, when a resolution was moved in the central committee and passed, calling on the former gentleman again to resign. This it seems he at once expressed his willingness to do, but ill feeling had been engendered, unanimity could not be obtained, the president, Lord Albert Conyngham, resigned solely from a sense of what his lordship considered "the extreme injustice done to Mr. Wright;" and, to make a long story short (for doubtless many of our readers have watched all the proceedings, and have already said, "a plague on *both* your houses"), various members of the association out of the committee, aware that the real business of the society was virtually at a standstill, and not well informed of the exact state of things, addressed a requisition to Mr. Pettigrew, the treasurer, calling on him to summon a general meeting of the association. Without submitting the requisition to the central committee (and this was a great mistake), the treasurer prepared to comply with it, and caused the meeting to be advertised in the public prints.

In the meantime a special meeting of the central committee, called by Mr. Albert Way, the other honorary secretary, was held, and a resolution passed, denying the authority of the treasurer, or any other officer of the association, to call this general meeting, and declaring any proceedings of such meeting null and invalid. This was assented to by thirteen members of the committee out of twenty-two, and the association generally then first saw that the *majority* of the committee were opposed to Mr. Wright and his friends.

Notwithstanding this protest, however, very short notice, and an inclement night, 150 members or more met, in pursuance of the treasurer's summons, on the 5th of March; and by resolutions (passed unanimously in five cases, and with five dissentients in one), reorganized the association, and appointed a fresh committee, including a certain number of the old committee, and who have since received a considerable number of subscriptions.

The other section of the old committee have elected new members, making in the whole twenty-one, have issued an abstract of proposed rules and regulations, "under which the association will hereafter be conducted," and have announced that the next annual congress will be held at Winchester in the ensuing September.

We have thus laid before our readers a brief statement of the principal facts without favour or reserve, leaving them to exercise their own judgment upon them. To establish the right of a minority of a committee to throw themselves at any time on the general body, would tend to embarrass the government of most societies. And it is probable, even in this case, that several who signed the requisition for the general meeting, would have refrained from doing so had they been aware there was a clear majority of the committee in favour of one course. Still the present is not an ordinary case, since we find the two founders of the association, one of them the honorary secretary, the president to whom so much was owing at Canterbury, the treasurer, and the most active members of the committee, in the minority.

We have the pleasure of knowing the majority of both committees, and are able to assert, that more honourable men could not be found, but at the same time we know from the constitution of some of them, that unless there be interference from without, no junction will be effected, and the great objects of the association will greatly suffer. Already, as we understand, some of the authorities at Winchester have refused their assistance at the contemplated meeting, and many persons who were warm supporters of the *one* association now hold back because there are two. What we would advise, is, that some influential members of the society who have taken no part in the past proceedings, should at once bestir themselves, and by conference with the two committees, endeavour to remove asperities and effect a junction. We are disposed to think they would succeed, for the greater number of both parties must by this time be heartily ashamed of the cause of quarrel. Never was such a tangled web hung on a more trumpery peg.

Cathedral of New Brunswick.—Consequent upon the erection of New Brunswick into an independent bishopric, under the new episcopal superintendence of the Right Rev. Dr. Medley, the bishop elect, a cathedral is to be forthwith commenced at St. John's, the architectural preparations for which have been intrusted to Mr. Frank Wills, of Exeter. The cathedral will pretend to nothing more than a large parish church. The plan has been adopted from the church of St. Mary, Snettesham, Norfolk, which is a specimen of the present decorated architecture.

THE PRESERVATION OF NATIONAL ANTIQUITIES.

"For Time hath not rebuilt them, but uprear'd
Barbaric dwellings on their shatter'd site."

THE study of medieval art has increased roughout Europe so much during late years, at there is reason to hope, with the vigorous forts of societies and individuals, we may be e day spared the wanton destruction of na-nal monuments, such as now too often curs. The antiquarian world has expanded d extended its influence; no longer con-ed to the mere acquiring possession of the l and singular, it rightly estimates the lue of its researches, as capable of influenc-g the future and the present, unfolding the eceptive truths of history, and resulting in increased admiration of the beautiful and e good. For as the general tendency of an is towards the intellectual and the virtu-s, and as his mental efforts are not forwarded the continued existence of doubt and un-rtainty, it seems that the gradual removal of e veil of ages must be attended with advan-ges, highly conducive to his moral and mental ll-being. Let it, therefore, be understood at the antiquary rupudiates the unphiloso-ical pursuit which has no outlet from the easure of possession; he claims for the result his researches into the condition of the past, at standing as a science, which an age dis-ctively marked for its consideration of the ture has already awarded. Now, associa-ns are formed for the preservation of ar-itectural remains, and money is readily bscribed for the re-edifying of fabrics. ill, though we have gained much, it is only e intelligent half of men who are thoroughly wake to the value of such national memo-ls; the other portion remain enveloped in a ep, from which our present efforts are not le to awake them. The false economy nich allows no consideration to prevent the struction, for some immediate end, of an tiquarian relic, is still in full influence, nilst buildings are patched up with insuffi-nt materials, or are entirely left to the in-ads of the wind and weather, from which very small annual outlay would have pre-rved them. We will not speak of the re-pring of Henry the Seventh's Chapel with mbling stone, or the west front of Litchfield thedral with cement, because those were not ings of our day; but what interesting fabrics ve we allowed to disappear, and what de-uction still goes on, almost unwitnessed, nongst the village and parish churches of ngland. The senseless demolition, too, of the ve of St. Saviour's, Southwark, is a thing of sterday, and for which disgrace must always ach to us, and the inhabitants of the parish, whose hands it more immediately was. ad a Burlington lived, and been imbued with e love of Gothic architecture, he would have nsported the very stones of St. Katherine's, ower Hill, to some more secure resting place r re-erection.* The buildings destroyed thout reason, some of which may be seen in e works of Carter, and in the *Gentleman's agazine*, would stock a kingdom. The ires of Lincoln entirely taken away, the adye Chapel at St. Alban's separated from e church and converted into a school-room, e destruction not many years since of a autiful chapel on the south side of the Tem-e Church, and the injury done to the tombs Westminster at coronations, are instances what has been allowed to go on unnoticed, d uncared for. There is hardly a church, at does not contain paintings and panels om the rood-screen, inserted in the mo-rn pewing. The interesting half-timbered uses of the northern and midland counties e lessening in number every year, encaus-e tiles and monumental brasses are stolen, d stained glass left to drop out, for want of shilling's-worth of repairs; whilst many of our churches, as in the case of Old Fairlight Church, are menaced with instant destruction.

Ely Chapel, Austin Friars Church, and nearly all the Gothic churches remaining in the city of London, are in a rapid state of decay, or crowded with modern excrescences: the crypt of the first mentioned was a short time since occupied by a cooper. In another style of architecture, we have to lament the complete destruction of Wansted-house and Carlton-house; the former, one of the most beautiful examples of Italian architecture in England, and the portico of the latter, a principal ornament of the metropolis. The pedestal of the statue at Charing Cross, of very beautiful design, is now beyond reach of restoration. We trust that when the remaining portion of the old Treasury in Whitehall is pulled down, the doorway will be preserved, and re-erected in one of the parks, or in some other locality. Such antiquities have often been left to stock the yard of a dealer in old materials, when their value as examples should have preserved them.

The aid afforded to the student of heraldry and costume by stained glass and monumental brasses, should induce their careful preservation, and cases have occurred in which the title to considerable property has been determined by their evidence; but, for want of the timely driving in of a couple of nails, a brass frequently becomes detached from the pavement, which is almost always followed by its entire disappearance. The same may be said of stained glass, with this addition, that the rather greater value set upon it has, in order to get one complete window, often led to the union of portions of different design in a manner most puzzling to the antiquary.

The traceried windows in the cloisters of Westminster Abbey are in such a state of decay, that it will shortly be impossible to restore them accurately; and the iron-work round the tombs, which all who have seen it agree in considering of great value, is not to be met with.† The fact that our modern metal-work is deficient in that freedom of design which appears in old specimens of the middle ages, and even down to a period as late as the commencement of the last century, is evident, and has been sufficiently set forth in previous numbers of this paper. (*V. ante* p. 97 and p. 102). At Hampton-court, and in the neighbourhood of the older squares, portions are remaining, worked by hand, more beautiful than any amongst the miles of spears and javelins cast by the modern mechanic. If all the old railings from the abbey have not been long since melted down into such weapons, why, we would ask, are they not immediately replaced? But there is great difficulty in getting at the truth; nobody seems to know if any, or what railings are in existence. The imperfect restoration of the screen, by Quentin Matsys, in St. George's Chapel, has been commented upon in THE BUILDER (p. 97 *ante*), and no circumstance could so well shew the slight value set upon works of art, by those who unfortunately have the control of them. In all instances of restoration, every line and mark of the original should be copied, *with no deviation whatever;* non-existing portions should be replaced with work produced *in the spirit of the original*, and imitated from coëval examples; one step short of this, and we would rather see the hand of Time work its own course, than that a delusion on the beholder should usurp the place of the beautiful work so falsified and destroyed. An architect well-versed in the particular style should be consulted in every step; he must not be a *designing* man, but must make originality subservient to exact reproduction. The greatest destruction goes on "remote from towns," where a village churchwarden is the *arbiter elegantiarum*. The nearest mason is the only other person whose opinion is thought of. Thus battlement gives place to plain coping, and cusps and window-tracery to plain mullion and transom, till, little by little, every feature of the old building is annihilated. The best restoration is scarcely so valuable as the original, though time-worn and despoiled: the former, though perhaps beautiful as a work of art, is comparatively valueless as an authority; while, if the preservation of the fabric be diligently attended to, the decay is seldom sufficiently rapid and complete to obliterate the old features from those who are qualified to examine. Not that we would be inferred to say, that restoration is never desirable; but, looking at the mischief perpetrated by unskilful meddlers, and at the fact, that in so many cases the progress of decay might, with proper attention, have been arrested at the outset at a nominal expense, we do say, that any work having the character of an original document, and valuable accordingly, should not be interfered with in the slightest measure, until the very last moment, and then should be treated with extreme care by properly qualified persons. Many accomplished men, who were ranked as Gothic architects only ten years ago, would now be ready to confess they had been comparatively ill-fitted for a work of restoration, and when we think how much progress we are making in the knowledge of Gothic architecture, through the aid of system in the study of it, we must say, that we are all only learners in a style, which, perhaps, presents more "matter to be learned" than any that has ever prevailed. Who would not rather that all the fury of the elements had been exerted against our cathedrals, than that they should have been submitted to the hand of one James Wyatt? On such grounds we are inclined to deprecate the talked-of restoration of Caernarvon Castle, now an edifice unrivalled in interest, and in an excellent state of repair, compared with many cathedrals and churches, not so generally styled ruins. For every antiquarian purpose, the existing portion amply suffices, and we trust, that any extensive scheme of restoration will be carefully considered, or confined to the renewing of such parts as may absolutely require it. From what we have observed, at some of our churches, where the new portions are generally thought quite equal to the old, we fear that the original ornament is often greatly departed from. In such cases, either the ornament is pared down for a new surface, thus becoming at least smaller, or, a new stone being inserted, the mason works without cast or drawing, and can only consult any other portion of similar design, which there may happen to be at some distance. Of course this can hardly take place where an able architect is concerned, but the greater number of repairs are executed without his advice.

Churches are covered with stucco, and mouldings mended with cement; oak is replaced with deal; and whitewashing, whether of the exterior or the interior, of the masonry, the ceiling, the rood-screen, or the font, is an annual occurrence. The restoration of York Cathedral is rather an exception to the general fate of our antiquities, than an evidence against any thing we have said. The feeling, almost amounting to affection, which every Yorkshireman has for that matchless pile, has nothing comparable with it in other parts of the kingdom. The new Houses of Parliament, though a great work for this or any age, does not reconcile us to the destruction of St. Stephen's Chapel, which might have been restored to form a portion of the new buildings. To the antiquary, and the lover of the beautiful in art, there can be no more melancholy reflection than that "improvement" and destruction march with equal steps; one by one the most admired relics of former days are annihilated, and often under the very eye of the educated and the refined. Bit by bit our national monuments are altered and destroyed, and the change is not perceived till the mischief is irremediable. Thus, we find that the beautiful cloisters of St. Stephen's Chapel are not to be preserved in their original state, as it has been reported, but are to be intersected by walls, and divided into separate rooms, for the purposes of the legislature. We should be happy to find ourselves in error, but an inspection of the plan is too convincing of the intention. The fragments of St. Stephen's Chapel should be preserved, and freely open to inspection.*

But to free the original fabric from accumulated excrescences can by no means be

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* Parts of these two churches are illustrated in Pugin's Specimens of Gothic Architecture," and in the "Gothic naments." Part of the pulpit, some stall-work, and a nb in the new church in the Regent's Park, were removed m the old building.

The gate designed by Inigo Jones, which Burlington re-ilt, having purchased the materials, is still remaining Chiswick Gardens, where we last year saw it inscribed th a record of its history. Its removal occasioned the lowing lines by Pope:—

"O, GATE, how camest thou here?
Gate.—I was brought from Chelsea last year,
Batter'd with wind and weather;
Inigo Jones put me together.
Sir Hans Sloane
Let me alone,—
Burlington brought me hither."

† *Vide* Report of Select Committee on National Monuments and Works of Art, June, 1841, in which is most important evidence as to the state of this building, and the preservation of national monuments generally. It was stated that some of the more beautiful portions were then in the possession of the person who first purchased them. No exertion should be spared to recover them, if any where in existence. The grave-stones, which were also removed, should be carefully preserved. They are said to have elegant devices carved upon them.

* It is to be hoped that the improvements in the neighbourhood of Westminster Abbey will not interfere with the old conventual buildings.

objected to, and will often be rewarded by the discovery of most interesting paintings and decorations, which have been thus preserved from other injury. Many a fine brass or pavement is concealed by modern pewing, and many a timbered roof by a lath and plaster ceiling. In page 39 *ante*, we took occasion to argue against the use of paint and whitewash on stone, still too prevalent. Much of the beauty, we are able to obtain by well-executed masonry, results from the well-defined forms of the mouldings, and the sharpness of the arrises. The effect of Time is rather to chip out at intervals the soft parts of the stone, than to wear the whole away at an equable ratio: the general tendency of the lines is unbroken in the perspective, and the decay rather adds to the impression which results. But the brush of the whitewasher mars all that it passes over: for fillets are substituted rounds, and for mouldings and indents plain faces, while bosses, and similar ornaments become very much like door-handles. To the paint-brush is to be attributed the unsatisfactory result of our modern cement and stucco, scarcely less inferior to well-executed brickwork than to stone, and having for its inevitable consequence a feeling of unsatisfaction at its pretension, and the attempt to deceive. The speedy removal of the whitewash, from which hardly two of our churches are free, is much to be desired, and the work is so easy and inexpensive, and the result, with proper care, likely to prove so very satisfactory, that it ought to be every where proceeded with. The superintendence may, in the greater number of cases, be very safely left to those among the clergy who have attended to the subject of ecclesiastical architecture, and we cannot do better than quote from the "Few Words to Churchwardens," of the Cambridge Camden Society, on the subject. Speaking of the removing of whitewash, it says:—

"This may be most easily done by scraping away the outer surface, and then moistening the part by means of a brush with a mixture composed of one part of sulphuric acid (oil of vitriol), and eight or ten of water, and washing it over with water after every second or third time you put it on, till you see the stone or wood appear. If, however, you wish to remove the whitewash from the remains of a painting on a wall, use soft soap with hot water, and a brush not too hard. This done carefully will not hurt the painting. Paint is harder to get rid of; it may, however, be effectually done with strong soap-maker's lye, or, what is quite as good, the following liquid: put one pound of potash or pearlash with half a pound of unslaked lime into a jar, and pour over it one gallon of boiling hot rain-water; wash this repeatedly over the surface, scrubbing off the paint as it becomes softened. Or you may try this way: take a quarter of a pound of soda, boil it with a little soap in three pints of water till it comes to a paste, then lay it on what you want to clean pretty thick; two days after lay it on again, without washing the old away; do this four times, and then scrub the whole off, the paint will come off too. This does either for stone or wood."

We suspect that the cleaning of paintings is not quite so simple a matter as it is described above, and it would be better in such points to have competent advice. At North Walsham, Norfolk, a solution of potash and quicklime, in the proportions of one pound of the former and half a pound of the latter to a gallon of boiling water, was used with satisfactory results. The solution, being extremely caustic, should be used with care, and if the external coating of paint which it may be desirable to remove, be thin, diluted with water; and in all cases the solution should be tried upon a small portion of the painted surface. (*Vide* Archæological Journal, vol. I., part 3). Mr. J. G. Waller, in giving his opinion, that the paintings found on the walls of churches, and usually called "fresco," are in reality nothing more than distemper, suggests the use of vinegar for cleaning. It should be carefully applied with a brush, alternately with water. (Archæological Journal, vol. I., p. 161).

But we cannot but commend the same useful publication of the Cambridge Camden Society, on the subject of DAMP, and the injury, which it causes to the walls, and the stability of the fabric. The numerous interments in the same small patch of ground during a long period, have raised the earth round the walls of the church considerably above the floor-line, and no remedy is attainable, short of the absolute removal of the nuisance, which is often greatly increased by the drippings from the roof, consequent on the want of proper water-spouts. These should be fixed without delay, and proper drains provided round the whole building. The green mould, which has collected on the inner surface, can then be removed by scraping and washing; and to prevent its reappearance, "mop the walls once or twice well over with a mixture made of one ounce of corrosive sublimate dissolved in a quart of water." To return to the subject of whitewash, we have seen it accumulated so thickly in crevices of ornaments and capitals, that it had to be chiselled away; in such a case it might not be safe to leave the work without close superintendence; and we much fear, if we have to wait till architects are engaged at all our churches, the matter will be postponed longer than is desirable. In the continuation of these remarks, in next week's BUILDER, we shall be able to offer suggestions for the accomplishment of the object.

E. H.

MR. EWART'S BILL TO ESTABLISH MUSEUMS OF ART.

WE mentioned some time ago that Mr. Ewart had obtained leave to bring in a bill to enable town-councils to establish museums of art in corporate towns. The following is a copy of the bill, which was introduced accordingly, and has been read a second time:—

"*Preamble.—Town-councils may purchase lands, &c.*—Whereas it is expedient to promote the establishment and extension of museums of art in such municipal boroughs as may require the same, for the instruction and amusement of the inhabitants thereof; be it therefore enacted by the Queen's most excellent Majesty, by and with the advice and consent of the Lords spiritual and temporal, and Commons, in this present Parliament assembled, and by the authority of the same, that it shall be lawful for the council of any municipal borough to purchase lands, and to erect thereon buildings suitable for museums of art, and to maintain and keep the same in good repair; and to accept any gifts, grants, or devises of lands, tenements, or hereditaments (any statute of mortmain to the contrary notwithstanding), for the purpose of establishing, improving, or maintaining such museums of art; and that the costs and charges of such lands and buildings, and the keeping of the same in good repair, shall be chargeable upon and paid for out of the borough fund of such municipal boroughs: provided always, that for the purposes of this Act no rate greater than a rate of one halfpenny in the pound of the annual value of the rateable property assessed to the borough-rate, shall be levied in any one year.

And Borrow.—And be it enacted, that for the purchase of such lands, and for defraying the costs of such buildings as may be erected thereon, or keeping them in repair, it shall be lawful for the council of any such municipal borough as aforesaid, to borrow at interest the amount of money which may be required for the same, on the security of the said rate, to be levied as aforesaid.

And re-borrow Money.—And be it enacted, that in the event of the said monies so borrowed as aforesaid being repaid, and of funds being again required for carrying out the purposes of this Act, the said council for the time being may again borrow such sum or sums of money as may be so required, and again charge the said rate with the repayment thereof, in manner as aforesaid.

Adjacent Municipal Boroughs may unite for the purposes of the Act.—And be it enacted, that where municipal boroughs shall be adjacent to each other, the councils of such municipals boroughs may unite for the purposes of this Act, and contribute in proportion to their respective assessments, or on such terms and conditions as may be mutually agreed upon by the said councils.

Lands, &c., vested in town-councils.—And be it enacted, that the lands and buildings so purchased or erected as aforesaid, and also all specimens of art or science, and articles of every description which may be purchased for or presented to such museums, and accepted by such councils as aforesaid, shall be vested in and held upon trust for ever by the corporations of the said municipal boroughs in which such museums shall be situated, and shall be kept in fit and proper order for the benefit of the public.

Rates of admission to public; and regulations for preserving contents, &c.—And be it enacted that the council or united councils of any such municipal borough or boroughs may, from time to time, fix such rates of payment for admission to the said museums, as they may think necessary for meeting the cost of their support; provided that such rates of payment shall not exceed the sum of *one penny* for each person admitted; and that they may also make such regulations for the preservation of the contents of such museums, and for the maintenance of order and decorum within them, as may to themselves seem expedient."

Great praise is due to Mr. Ewart for calling the attention of the legislature to matters of this description. His Bill, if efficiently carried out, will produce most important results, both in a mercantile and moral point of view. Much, however, will depend on the towns themselves, and we shall hope to see corporations bestirring themselves on the subject the moment it becomes an Act.

The *Art-Union* for the present month very properly remarks:—

"We trust that these museums will have departments for local manufactures, so as in the course of time to present important records of their gradual development and improvement. Such a collection exists in the Potteries, the property of a private individual; we hope that it will be acquired for the public before an accident leads to its dispersion. We wish that a similar collection could be made of the designs in calico-printing: some of those produced by the older printers, which we have had an opportunity of examining, are superior to any that are brought out in the present day. This leads us to notice the importance of connecting such museums with schools of design: we must shew the pupils what they are to avoid, as well as what they are to follow. We are the more anxious to direct attention to this subject, because museums have been too often regarded as mere objects of curiosity, destitute of practical value, and only affording opportunities of whiling away idle hours in innocent amusement. Though we are strongly impressed with the necessity of affording opportunities for unobjectionable relaxation to the working classes, we at the same wish the public to know and feel that museums must have a higher and farther effect; they must and they will be, as instructive as they are entertaining; for there is no branch of British industry that may not be profited by the suggestions which collections of works of art afford.

We may also notice the facilities which local museums afford for the collection and preservation of monuments, records, and other memorials connected with local antiquities. The loss to British archæology, by the destruction of articles affording valuable illustrations of local habits and customs, as well as of local events connected with general history, is incalculable. This destruction has been caused in some instances, by carelessness, and in others by ignorance; collections, made with great care and expense, have too frequently been dispersed when they fell into the hands of heirs who could not appreciate their worth, or who had no taste for antiquarian pursuits. Local museums will not only afford opportunities for making a collection of such valuable materials for history, but will also induce private collectors to form a proper estimate of their value, and bestow some care on their preservation. Those who have visited the collection of Norman antiquities at Rouen must have felt anxious that similar care should be bestowed on the collection and preservation of provincial antiquities in Great Britain."

SALISBURY CATHEDRAL.

As many days as in one year there be,
So many windows in this church we see;
As many marble pillars here appear
As there are hours throughout the fleeting year:
As many gates as moons one year does view,
Strange tale to tell, yet not more strange than true.

Dr. Heylin.

THE IRON TRADE.

The usual monthly meeting of Scottish ironmasters was held at Glasgow a fortnight ago, when the price of pig-iron was nominally fixed at 5*l.* 10s. per ton. This is an advance of 1*l.* 5s. since the previous meeting, and exactly double the price at which iron was selling at the beginning of December. Although this price was named as the rate under which none would sell, transactions took place as high as 5*l.* per ton; and, notwithstanding this advanced price, buyers were more numerous and more urgent than sellers. An impression generally prevailed that prices would rise still higher when the present contracts of the ironmasters were completed. For bars the maker's price is 10*l.*, but sales have been made at 9*l.* 10s. cash. Superior bars realize 11*l.* 10s. At these prices customers were supplied, and considerable business transacted during the week. Boiler-plates are quoted at 13*l.* 10s. At Manchester there has been a pause in the demand for iron, and purchases have been made here and there at a reduction of 5s. per ton. At a meeting of the principal firms in the South Staffordshire iron trade, held at the Swan Hotel, Wolverhampton, on Thursday, the 27th ult., it was agreed that an advance of 10s. per ton in the price of manufactured iron should take place next quarter-day, the orders at present in hand, as well as those anticipated, fully justifying this important step. The price of bar and rod iron, it is expected, will be then 9*l.* per ton; hoop iron, 13*l.*; sheet iron, for shingles, 14*l.*; and pigs, 6*l.* 10s. to 7*l.* In consequence of the sudden and great rise in the price of iron, much inconvenience is felt by the manufacturers and workmen engaged in making bedscrews, latches, &c., particularly in the district of Wednesbury. The quantity of iron required is very great, and cannot be procured; neither can the numerous orders daily arriving be executed at the recent prices. The small masters are therefore comparatively idle amidst abundance of work, and have as yet derived no benefit from the great improvement in the trade.

In the course of the past month an advance of 1*l.* per ton has taken place in Welch iron; and although the existing prices are considerably higher than they have been for some years, yet so general is the opinion of their being maintained, and also that further advances may probably soon occur, that orders, both from abroad, and for home use, are making their appearance somewhat freely. It is with the greatest difficulty the makers are persuaded to take further orders at any price, in fact, some of the largest firms have closed their order books; 12*l.* 17s. 6d. per ton has been refused for rails, and 7*l.* is the price for pigs. During the past week it is well known that one party effected the purchase of 1,000 tons of common bar-iron for delivery in June next, at 9*l.* per ton. The *Liverpool Times* states that a contract was entered into in that town on Saturday last for 21,000 tons of rails, at the price of 12*l.* a ton, to be delivered at the rate of 1,000 tons monthly, beginning in October. The broker's commission in the transaction amounted to 2,400*l.* The purchase was made by a Glasgow house.

The rails and chairs for the Newcastle and Berwick Railway, amounting to 27,000 tons, have been contracted for at 12*l.* per ton the former, and 7*l.* the latter.

London Mechanics' Institution.—We regret to find that this, the oldest popular institution for the dissemination of knowledge, is less flourishing than it deserves to be. A meeting will be held next month to consider how to render more effectual the system of popular education there established, and we hope it will be attended by those who appreciate the advantages conferred on society by such associations. The first number of a new periodical called *The Literary and Scientific Journal*, conducted by members of this institution, has just been published, and is very creditable to those engaged in it.

Burial in Towns.—We are glad to see that the House of Commons has come to the resolution that the practice of interment in large cities is injurious to the health of the population, and demands the serious attention of Parliament. This is one step forward at all events.

SANATORY REGULATIONS.

A few nights since in the House of Commons, Mr. Hume asked when the Government proposed to bring in their measure with respect to the health of towns, and called the attention of the Secretary of State for the Home Department to the necessity of taking precautions in connection with that measure to insure an adequate supply of water.

Sir James Graham said that he could not then undertake to fix any time for the introduction of the measure. With reference to the supply of water, a clause was introduced into all private bills brought before Parliament for that object, making them dependent on any general measures which might be hereafter introduced with respect to the health of towns.

The same subject occupied the attention of the House of Lords on Monday evening last. The Marquis of Normandy, on presenting a petition from the mayor, aldermen, and citizens of Limerick, complaining of the sanatory state of that city, made inquiries as to the time when the promised measure would be introduced, and the extension of its provisions to Ireland. He was aware that the subject was difficult in the arrangement of its details, and he did not wish to cause any unnecessary hurry, but the noble lord was aware that he was connected with an association for improving the sanatory state of towns, and he was daily receiving letters, inquiring when the measure, which had for some cause or other been so long delayed, would be presented. He would ask, therefore, whether it was intended to extend the provisions of the contemplated measure to the sister country, and also whether the Government would shortly introduce a bill on this subject into the other House of Parliament?

The Duke of Buccleuch, in answer to the questions put to him, said that he could not exactly state the period when the measure would be proposed; but he hoped it would be introduced before any great length of time elapsed. Since the receipt of the report of the Commissioners to Inquire into the Health of Towns, no time had been lost in preparing the measure; but it required a great deal of research and care, for it involved the examination of 400 Acts of Parliament, relating to different towns and districts. He trusted, that at no very distant period the bill would be laid before the other House, allowing not only sufficient time, but ample consideration in both Houses. With regard to extending the provisions to the sister kingdom of Ireland, he saw no reason why the provisions should not be extended to Scotland and Ireland; and on the further consideration of the measure he hoped that nothing would occur to prevent that extension.

The Marquis of Normandy said, that nothing could be more satisfactory than the answer given by the noble duke.

SMOKE PROHIBITION BILL.

On the second reading of this bill, which took place last week, the Earl of Lincoln said that the most convenient course would be to postpone the bill till the Government measure for the sanatory regulation of large towns should be before the house. He was not, however, disposed to resist the second reading, knowing that it was the intention of the hon. mover (Mr. Mackinnon) to send the bill to a committee upstairs. He trusted that hon. members opposite would not throw any unfair impediment in the way of legislation on this subject. Lord John Russell thought the bill ought to be postponed till the Government measure was before the House. He would rather see the subject in the hands of the noble lord at the head of the Woods and Forests, who could command the assistance of those best able to advise.

Mr. Brotherton was in favour of referring the bill to a select committee.

Sir R. Peel hoped the House would adopt the suggestion of the hon. gentleman who had last spoken. He represented a district of the country that was deeply interested in the question, and there was no hon. gentleman in that House better qualified to pronounce an opinion upon the subject. He thought it would be very desirable to have the whole of the plan of his noble friend before the House, before they proceeded to legislate upon one branch of these nuisances. The time that would be spent by a committee upstairs deliberating upon and maturing the measure, would, in his opinion, be well employed in bringing the scheme to maturity. He thought his hon. friend (Mr. Mackinnon) deserved the thanks of the House for the great trouble he had taken in the matter. The services of the hon. member were perfectly gratuitous, and he thought he was entitled to the grateful acknowledgments of the House. He believed it was generally understood that the bill of the hon. member would not be proceeded with until the general measure of his noble friend was before the House.

Mr. Mackinnon replied. He had been appointed chairman of a committee that sat two years ago upon the subject, and they had reported that the smoke nuisance ought to be abated, and that the Government ought to bring in a bill for that purpose, and if not that the chairman should undertake it. He did not see any objection to the committee being appointed to take evidence on the subject, and if the noble lord would incorporate the provisions of his bill in the Government measure he (Mr. Mackinnon) would have no objection to abandon his bill altogether.

The bill was then read a second time and ordered to be referred to a select committee.

PROTECTION OF WORKS OF ART IN MUSEUMS.

On reading the order of the day for going into committee on this bill a few days ago, Sir J. Graham said, he wished to go into committee *pro formâ* merely. He did not think it right that the operation of the bill should be confined to works of art in any particular locality, and he had therefore considered that it would be desirable to extend the provisions of the bill as it stood at present, and he was about to move an instruction to the committee to effect that object. There were many valuable works of art to which the bill as at present limited would give no protection. For instance, the statue of the Duke of Wellington, near the Mansion-house, ought to be brought within the protection of the law. His noble friend (Lord F. Egerton) had most liberally thrown open to the public his valuable and extensive collection of paintings and works of art, and it would be monstrous that any mischief should be done by means of a breach of his noble friend's hospitality without the possibility of due punishment reaching the offender. The painted window of St. Margaret's Church might be broken by a stone thrown at it, and as the words of the bill stood they would not reach such an offence. He therefore wished to give the measure a more extensive operation, and he begged to move that it be an instruction to the committee that they have power to extend the bill to all works of art, wherever situate; and, if the house agreed to that instruction, he proposed to go into committee *pro formâ*, so that the provisions of the bill might be made co-extensive with the mischief.

The instruction having been put,

Mr. Bouverie said he quite agreed with the right hon. baronet so far as he went; he only doubted whether it would not be better to have a criminal as well as a civil remedy, giving the option of adopting either mode, according to circumstances.

The instruction was then agreed to, and the bill went through committee *pro formâ*, and was reported to the house, with amendments, and ordered to be printed and recommitted on Monday.

Thames Embankment.—At a Court of Common Council held last week, Mr. Deputy Bedford presented a report from the Thames Navigation Committee on the subject of a letter received from the Earl of Lincoln, as Chairman of the Commissioners of Metropolitan Improvements, with a plan for the embankment of the Thames from Chelsea to Vauxhall. The report recommended a copy to be addressed to his lordship, expressing their concurrence to a certain extent of the plan. On the motion of Mr. Ashurst an addition to the effect of reserving to the Corporation of London in any measure introduced into Parliament their right to the bed and soil of the river was agreed to.



HUNGERFORD AND LAMBETH SUSPENSION BRIDGE.

GOTHIC ORNAMENTS
FROM THE CATHEDRAL CHURCH OF YORK.*

FIG. 11 and Fig. 12 represent two bosses, or knots, in the ceiling of the choir-end of the church. Including the transept, near the altar, there are in the ribs, or groins, 299 bosses, from two feet to two feet six inches in length. Those in the centre are 99 feet from the floor, and are all cut in oak, excepting those over the crowns of the windows, which are cut in stone. The foliage of all was originally gilded, and the figures and heads were painted in colours. The principal ribs (of which the section is shewn in the engraving), project 13 inches, and are 10½ inches broad. The smaller ribs project 11 inches, and are 7 inches in breadth.

Fig. 13 is the external cornice over the windows in the aisles of the choir. It is 2 feet deep, and projects 1 foot 2 inches. It is right to mention that the whole of our illustrations of these details were engraved by Mr. Hart.

YORK MINSTER;
ITS FIRES AND RESTORATIONS.†

BY JAMES WYLSON.

AT the meeting in March, 1842, at which the reports were read, whereof our previous article contains the substance, the Rev. William Vernon Harcourt, senior canon residentiary, in his address stated, with reference to the provision against fire, that there was an insurance of 10,000*l.* on the choir, and 2,000*l.* on the organ; but the Dean and Chapter hoped that, "if the above plan for the easy extinction of fire, or any plan similar to it, could be carried into execution, the insurance might be augmented on terms more advantageous:" he also stated that there was another risk to which the Chapter had directed their attention, namely, the chance of the fabric being fired by lightning; the rev. gentleman said the Minster had been once so endangered, but the fire was speedily extinguished; he attributed the escape of our Cathedrals to circumstances connected with their roofs, and thought "the paying proper attention to the connection of the metallic coverings with the iron and lead water-pipes leading to the drains as forming one great conductor of the electric fluid, a point of much importance to their preservation from such accidents." In reference to the Minster funds, he stated that they now differed from what they were after borrowing the 8,000*l.* on account of the fire of 1829, "exactly by the additional burthen of the annuities on which that sum was borrowed, and the addition of 1,000*l.* to a debt of 6,000*l.* under which they then laboured;" he then recapitulated the sums required as estimated by Mr. Smirke, and which shewed that to meet the completion of the restoration in nave, the urgent and non-urgent repairs, and the 7,000*l.* debt referred to, about 36,000*l.* must be provided; or if the whole restoration recommended by Mr. Smirke were entertained, the deficit would be 45,500*l.*; such being the case, it was necessary, in the first place, that the Dean and Chapter should mortgage the fabric funds, the clear surplus of which (after allowing 1,500*l.* for burthens independent of repairs, and for maintenance of service, and as reduced by the annuities above-mentioned) being 790*l.* would allow of borrowing 12,000*l.* from Queen Anne's bounty, at 4 per cent. to be paid off, interest and principal, in 40 years. To enable them to carry this into effect, the Dean and Chapter had applied for an Act of Parliament: in the second place, a portion of certain leasehold property, called the *common estates*, the fines and other proceeds from which are (by royal statute and parliamentary authority) divided between the fabric and the residentiary body—the former taking one, and the latter five-sixths, it was proposed that the latter to surrender in favour of the repairs; and the sale of one of which, is authorized by Parliament, would realise 6,500*l.*; this sum, it was intended, the fabric should have to pay no interest for, but the principal to be repaid by instalments in forty years; thus, the succeeding residentiaries would enjoy a gradually increasing return, until ultimately its entire value would be restored to them, while the present body may be considered as relinquishing all their future interest in it, and which is worth, say 87*l.* per annum, individually.

The mode of appropriation which the Dean and Chapter had in view in regard to the 27,500*l.* thus to be raised, was, first, to devote 1,000*l.* to the augmentation of the small vicarage connected with the property to be sold; which done, and the parliamentary fees and other expenses defrayed, between 25,000*l.* and 26,000*l.* would remain for the uses of the fabric: from this, then, the 7,000*l.* debt above referred to was to be paid; 6,200*l.* set apart for the first class of repairs; 7,000*l.* towards the second class; and the remaining 4,000*l.* to 5000*l.* placed at the disposal of the Restoration Committee for the especial purpose of reconstructing the groined ceiling of nave. Mr. Harcourt stated that he was authorized by three non-residentiary canons to put down their names for 50*l.* each towards the restoration, and that the ecclesiastical commissioners, who had in their hands about one-third of the property of the original body of the Canons of York, had agreed to contribute 500*l.* to the same object. In conclusion he stated that there would still be a deficit of 12,000*l.* one-half to complete the restoration of the nave, the other to accomplish the necessary repairs: he also stated that it was the desire of the Dean and Chapter that the restoration committee "would carry out and complete the work they had so admirably begun," and complimented that body and Mr. Smirke by saying "that the works had been carried on with a skill and an economy which deserved not only to be commended, but to be followed as an example."

At the meeting in October, 1842, the chairman of the restoration committee (the Rev. Stephen Creyke, one of his grace the Archbishop's domestic chaplains) reported the progress which had been made in the interval since the meeting in spring, the works during which, he stated, "were unfortunately carried on upon the most restricted scale, all that the committee had it in their power to do, in consequence of the exhausted state of the funds at their disposal, being to avoid a total suspension of their operations." The glazing of the four windows of the tower which were in progress in March, as also of the westmost window of south aisle, had been completed—the great tenor bell had been raised and securely suspended—the clock, with all requisite appendages, and a substantial and convenient case, had been erected in the clock chamber, and set in motion. The arches of the nave which support the tower, and which on minute examination were found to be far more dangerously damaged than was anticipated, had been thoroughly and effectually repaired; the pillars on the south side of nave had been also repaired, every stone damaged by the fire being cut out, and accurately replaced by new ones carefully bonded in; those on north side were undergoing a similar renovation. Two contracts had also been entered into, one for the ribs and spandrels forming the vaulting of the nave, the other for the carved work to the same, the latter consisting of upwards of 150 bosses, which were all to be executed in strict resemblance of the originals, as fortunately preserved in Halfpenny's work, and in drawings by Mr. Brown, a York artist of the present

GOTHIC ORNAMENTS FROM THE CATHEDRAL CHURCH OF YORK.

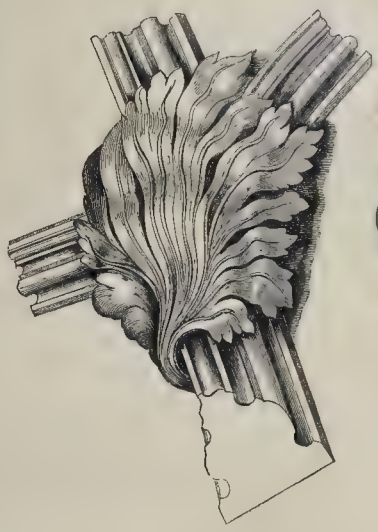


Fig. 11.

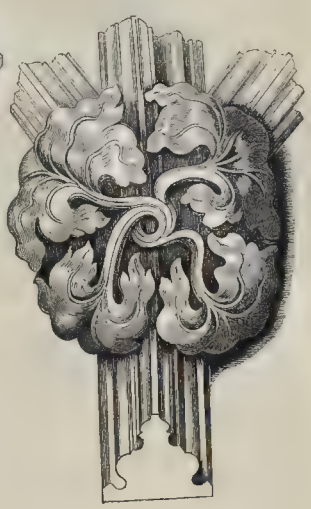


Fig. 12.



Fig. 13.

* See page 163 *ante*.
† Continued from page 159.

day. The reverend gentleman also stated that the 500*l.* above-referred to, as agreed to be placed at the disposal of the Dean and Chapter by the ecclesiastical commissioners, on the part of those prebendal stalls the revenues of which were under their control, had been so contributed, and had been received by the restoration committee, as had also the arrears of subscriptions, with the exception only of a third instalment upon one of them.

In the speech of the Rev. Mr. Harcourt on the same occasion, the meeting was informed that those intentions of the Dean and Chapter already detailed, and for carrying out which the sanction of Parliament was necessary, had been effected: 6,000*l.* had been placed at the disposal of the restoration committee for the repair of those parts of the minster which were in a dangerous state, and to that sum 4,000*l.* were ready to be added towards completing the restoration of the nave should it be required; but it was to be borne in mind, "that all which they might be called upon to supply towards the repair caused by the late fire, would be so much money abstracted from the fund for the substantial and necessary repairs of the building."

After many excellent addresses, evincing throughout the devotion which inspired the inhabitants of this great county for their cathedral, the chairman of the restoration committee proceeded to read the list of additional sums which had been subscribed, and which, with those up to October 29th, amounted to 5,757*l.* 10s., a sum which, considering the large amount of previous contributions, must be considered handsome, but which was still inadequate to the completion of the desired reparations."

Since the meeting last referred to, much has been done in pursuance of the reports of the architect; the restoration of the nave and south-west tower has been completed; the roof of south aisle reconstructed with iron castings in lieu of timber trusses, and covered with lead; the vaulting and repairs of masonry and paving have been finished, and the whole cleaned down, and handsome new doors with elaborate tracery and ornamental hinges hung to central and south doorways in west front, in lieu of those destroyed, which it like that to north tower, were of a very plain description; a new door is likewise in preparation for the latter, like the south one; a new roof with iron trusses and covered with copper has also been constructed over the north transept. While the works in nave were in progress, the great arches at its east end were bricked up, in order to prevent interruption to the service, and to confine the noise and dust of the operations from extending eastward: when the restoration and repairs in the west were finished, these temporary walls were taken down. On Friday, the 5th of July, 1844, the nave was partially opened to the public, and on the Sunday following, the opening was formalized by the presence and preaching of the very rev. the Dean.

On the 26th of December, 1843, Dr. Beckwith, physician of York, died, bequeathing his ample fortune in aid of the various charities and public institutions; amongst the bequests being one of 5,000*l.* to the Dean and Chapter for a new peal of bells, the remainder of the sum to be applied in repairing the Chapter-house. In accordance with the intention of the munificent testator, the restoration committee commissioned the eminent bell-founder, Mears, of Whitechapel (now succeeded by his sons C. and G. Mears), to complete a peal of twelve musical bells, that number being two more than the old peal consisted of. The new or Beckwith peal first burst upon the delighted ears of the inhabitants on the 11th of July, 1844; and though heard under the several disadvantages of the ringers being out of practice, and unused to a peal of twelve; the bells not having yet adjusted themselves to their bearings; the ropes having to stretch; the clappers to accommodate themselves to the sides of the bells, which always want some sharp practice to consolidate and bring them into perfect tune, and the bells yet to attune themselves into perfect harmony with each other, their tones were pronounced to be of fine quality. Another supposed disadvantage that was talked about was the steepness of the new slate louvres in the belfry windows, which it was thought prevented the free passage of the sound; upon inquiry, however, it appears that no alteration was made in their pitch. Respecting these louvres it may be mentioned, that an effect has been produced which was no more anticipated than that of the whispering-gallery of St. Paul's; being a material of ringing hardness, in windy weather they send forth a sound which at night is heard over the city, of course particularly in the direction of the wind, and which is dreary in the extreme, and to those residing in the vicinity of the Minster Yard must be far from enlivening; the melancholy unmusical wail seems to proceed from some imprisoned ghost —the spirit of the departed chimes perhaps, and who as the storm drives more furiously through the bars of his cage, raises his voice to a howl which is heard above it. With a view to obviate this, a piece of stout quartering has been fixed upright in the middle of each opening, notched so as to halve the inner bearing of the louvres, since which the ghostly music has been less loud and less frequent, although not altogether put down; this, however, it is confidently expected will be accomplished. The 11th bell of the peal, which is described as being of a very fine mould, bears the following inscription:—"*Soli Deo Gloria, Anno Domini* MDCCCXXXVII. *Regina Victoria, Britanniarum Regina Septum. Archiepiscopatiæ Edvardi Archiep. Ebor* MDCCCXXXVII. *Stephanis Beckwith, Medicæ Doct inter. Eboracenses Primarias Testamento Legavis. Cardley Es. Georgia Mears, Londini. Fecit. Rud.*, 1844." The weights and dimensions of the several bells in the peal will be found detailed in Vol. II., page 364, of THE BUILDER; their entire weight, including the two small ones added to the old number, is 16 cwt. 2 qrs. and 18 lbs. more than that of the former peal. An amusing idea of the deafening din while up amongst them when in full peal may be formed from the fact, that the writer of this, on an occasion of his being there with some friends, endeavoured at the loudest possible pitch of his voice, while standing close to them, to make himself heard, without being at all audible. In the ringers' chamber is the following inscription engraved on a large brass plate, and which was rendered necessary by the name of Dr. Beckwith being omitted to be inscribed on each bell:—"This peal of twelve bells was given by the will of the late Stephen Beckwith, M.D., senior physician of this city, in the year of our Lord, one thousand eight hundred ond forty-three.

C. and G. Mears, Bell-Founders. London, July, One Thousand Eight Hundred and Forty-four.	Barnard Price, Thomas Price, Faril James Copsie, Executors."

The ringers' chamber is immediately under that containing the bells; under the ringers' is the one appropriated to the clock, which strikes the hours upon the tenor, and the quarters on one of the smaller bells. This clock, it is considered, would not be sufficiently strong for the great bell, which is to be placed in the north-west tower, and a new one of more powerful mechanism is accordingly proposed to be placed there in its stead. An account of "The Monster Bell" will be found in Vol. III., page 83, of THE BUILDER (the current year). In addition to the bells there mentioned, by way of comparison, we may state that although our "Big Peter" is unquestionably the greatest bell in this kingdom, he would play but a second fiddle amongst the bells of the continent, not to say any thing of Russia:—

St. Stephen's bell, Vienna, is stated to weigh upwards of 17 tons.

The people of Rouen estimate their largest at 16 tons.

Our great Tom of Oxford is 7½ tons, or perhaps rather more.

The great bell of Antwerp Cathedral, weighing about the same as this, is said to have taken sixteen men to ring it; from this we find, supposing the circumstances to be similar, that Peter would require the united strength of twenty-six men to bestir his metal; but this estimate probably far exceeds the truth, and much must depend upon the care and nicety exercised in the hanging.

The old Tom of Lincoln, mentioned in the paragraph referred to, having been cracked, was broken up on the 18th of June, 1834.

There may sometimes be great mistakes as to the weight of large bells: in a clock-house at Westminster hung a bell which was usually rung at the coronations and funerals of princes, and bearing this inscription:—

> King Edward made me
> Thirty thousand and three,*
> Take me down and weigh me
> And more you shall find me.

When it was taken down at the doom's-day of abbeys, it was found, even with the help of two more, not to weigh 20,000.

In further observance of Dr. Beckwith's will, a thorough restoration of the interior of the Chapter-house has been going on for the last six months, and which, when completed, will render this part of the Minster a perfection of architectural beauty of its kind. The masonry of the surrounding stalls has undergone a repair of the most perfect description, many of the canopies being in front entirely new, and the whole, including the carvings, reworked and made good. In this part of the masonry, before these operations were begun, the destructive effects of the use of iron cramps were most strikingly exemplified, many† stones being shivered to pieces, the work thrown out of its proper bearings, the joints in every direction an inch or two in width, and the cramps themselves in such a state of decay, that had the Chapter continued to hold their meetings there, and this restoration not have come soon about, the lives of Dean, Canons, and Prebends would have been involved in one common danger by the impending masonry. In the restoration, cramps of iron, encased and brazed in copper, have been used where necessary, but wherever possible the front parts of the masonry have been dovetailed into that behind, and joggled together, and dowelled with slate plugs, so as to render foreign adjuncts unnecessary. In this stall-work, the most beautiful carvings were found wedded to the most clumsily-constructed masonry, such as the artisans of our day would be ashamed of. In the interior angles of the stalls, the Purbeck marble shafts, many of which were much decayed, and some entirely worn through by time, have been made good with new, and the whole highly-polished, presenting a fine contrast to the clean Huddlestone masonry, and setting off with increased effect the exquisitely-carved caps and pendants. Besides the usual process of polishing to which such work is subjected, these shafts received, in a hot state, a coating of some waxen mixture, part of which they imbibed, thus rendering their pores less pervious to the atmosphere, while it enhanced the brilliancy of their polish. On polishing the old shafts, they were found to be generally much superior in beauty to those obtained at the present day, being less confined to the dark grey tone, and presenting pleasing variegated patches, approaching a flesh colour.†

To accord with this part of the works, arrangements have been concluded with Mr. Willement, who executed the beautiful decorations in the vaulted ceiling of the Temple Church, for performing the like office for that of the Chapter-house, the symmetrical combination of which affords favourable scope for his ability. It has been determined also to lay the floor with Minton's encaustic tiles, which, when such reinstatements as are necessary in the beautiful glazing of the windows have been effected, will render the *coup d'œil* complete. On the stall-work and clustered shafts between the windows were plain traces of the masonry having formerly been decorated in party colours, and which is also apparent in the vestibule, but upon mature consideration it was judiciously resolved to confine this branch of art to the groined ceiling, thereby securing a relief which would not otherwise have been obtained. Preparations are in progress for heating the entire Minster with hot-water; four large slate cisterns are also about being prepared for the lantern-tower, as suggested by Mr. Smirke, and which will collect the water from the roof; they are to be placed in the corners, between the groined ceiling and the external roof, and will be three-sided

* lbs.

† A few months back it was accidentally discovered that the central or most projected shafts of the clustered piers in the north, and we think, the south transept, were of Purbeck marble, having suffered during some past restoration, in the 19th century style, the "plague of white-wash;" since the discovery has been made, the difference between them and the other shafts is quite perceptible, being smoother, and less dull in colour. It is to be hoped they will soon be allowed to stand forth in their native colours.

accordingly. Other provision of a like nature is also to be made, as well as the description of lightning conduction adverted to by the Rev. Mr. Harcourt in his address to the meeting of March 31st, 1842, and which, when completed, will enable the Dean and Chapter to effect an insurance at a much reduced premium.

In the summer of last year a considerable sum was realized by a two days' sale of relics, consisting of dilapidated stone and charred oak carvings, surplus materials, &c. On the 23rd of January, in the present year, the restoration committee resigned their trust, having expended 22,450*l.* The repairs now proceed under the Dean and Chapter, as of old.

In conclusion, it would be doing injustice to those conducting these important works were we to pass unmentioned the approbation which their efforts have invariably commanded; and whether we regard the judgment and taste of the architect, whose name is a guaranty of sound professional skill, the unwearied co-operation of the Restoration Committee, or the efficient superintendence of Mr. Allen, the active and intelligent clerk of the works, we feel that while a duty of no common order devolved on them, abilities were brought to bear on it fully equal to the occasion. In regarding the noble structure itself, we are led to admire the wisdom of that cruciform arrangement which the piety of the ancient architects prompted them to adopt, a plan which must often have preserved to them a refuge in one portion of their edifice, while it was desolated in the other by some visitation such as those to which York Minster has twice within so short a period been a prey. Such at least has been the case with the latter; while a furious conflagration raged in and consumed one end, the lantern tower stood like a protector between, and intercepted its approach to the other. Now the visitor may stand under that great tower, and whether he look towards the east or the west, north or south, sublime grandeur and sacred order meet his gaze; and in that long and lofty nave,* with its matchless vistas, if his breast heave not with emotions superior to his best wordly aspirations, he is in anomaly, and belongs to a lower order in creation.

When silent gliding through the sacred aisle,
To join the throng on pious ritual bent;
The organ's solemn peal our thoughts can wile
From ways profane to virtuous intent;
And teach the vengeful bosom to relent;
Each cadence wakes a dormant sympathy;
Each swelling symphony makes penitent:
Such thy celestial power, oh harmony!
In holy fane attuned, to man on bended knee."

SOCIETY OF ARTS.

April 2nd. Dr. Roget, Sec. R.S., V.P., in the chair. The following were elected as members:—W. H. Ashurst, H. T. Harrison, and E. Gibson, jun., Esqrs.

The secretary read a description of Mr. Iding's index-machine for weaving silk goods, which consists of an adaptation of the cylinder the dobbin (with moveable instead of fixed gs) to the wires of a jacquard machine, ing away with the cards, levers, pulleys, ., of the dobbin, and with the cards of the quard machine. Mr. Henry Lawson's clinia for astronomical purposes was next scribed, which consists of a frame 6 feet g, having a foot-bracket at bottom. The me is suspended by two leather straps to a rizontal triangular frame, which rests on large wheels and one small one; the large eels are in such a position as to be under control of a person using the reclinia; small wheel is under the back part of the me. A light chain or cord is connected th a pedal attached to the foot-board, which d leads to a catch, by which the position of racked arch attached to the foot-board is gulated, in order to set the inclined frame at given angle; the inclined body frame filled in with cane-work, as also the pillow-me, which is attached to the former by ans of springs. This observatory reclinia especially useful when large telescopes are ed, in which the sweep of the eye end from horizontal position of the tube to the nith, or vertical position, forms an arc of eral feet. When the observer wishes to remove his eye from the telescope, he has only to press down the spring pillow-frame with his head, which can be done without injuring himself, or unadjusting the telescope. The machine above described is used by Mr. Lawson in his private observatory at Bath. The model of a new fire-escape and portable scaffold, by Mr. J. Clarke, was next introduced to the meeting, which is an improvement on Mr. Wivell's fire-escape, for which he was rewarded by the society in 1839. Mr. Wivell's invention may be seen every evening at the different stations (in the metropolis) of the society for the prevention of accident by fire. Mr. Clark's improvement consists, 1st. In the mode of raising the upper ladder, which runs between the sides of the larger ladder, thus giving firmness to the whole; 2nd. In the facility of using the small ladder alone; 3rd. In the introduction of a balcony instead of the canvas bag, which forms part of Mr. Wivell's escape; 4th. In attaching the carriage to the main ladder with a different arrangement of the springs, whereby the jerking motion of Mr. Wivell's contrivance is obviated; and 5th. Its adaptation as a portable scaffold, either for the interior or exterior of lofty buildings.

* Some one happily said, on visiting the nave, and in reference to its beautiful windows, that "it was like being inside a kaleidoscope."

Correspondence.

PUBLIC CEMETERIES.

Sir,—The late exposure of the disgraceful proceedings in burial-grounds will probably lead to some new system.

I beg to send you the following *rough hints* for forming large picturesque cemeteries, with appropriate, profitable, and attractive buildings, with the hope that the attention of the parochial authorities may be called by these means to the subject, and that parishes may be led by combining together to have them on a grand and liberal scale.

The whole of the city parishes would form one large and rich company, and if they purchased from 300 to 400 acres of land on the bank of the river Thames, might lay it out in serpentine walks, clumps and groves of trees, plantations, &c., frequently shutting out the views, interspersed with the tombs, monuments, monumental statues, &c., so that the visitors might come suddenly on to a more extended view, thus giving as much variety as possible. Part of the land might be laid out in small woods, with underwoods, which would be growing fast into *money*, would give the whole a park-like appearance, and when required for burials, be cut down and sold; parts might also be devoted to the culture and growth of flowers and shrubs.

With regard to the arrangements of the funerals, there should be a building for the reception of the corpse in some central situation close to the river, with suitable rooms for the mourners and attendants, with a proper landing-place: and as there will be many bodies each day, a large galley would be required, and also others for the mourners.

As to the buildings for the performance of the service of the dead, they should be of such size and grand proportions, forming one complete whole, as to impress the greatest solemnity on the minds of the mourners and visitors; at the same time, to have arrangements in the internal cloisters for the accommodation of the tombs and monuments for individuals, and mausoleums for separate families.

I beg to suggest a church in the form of a complete cathedral in the early decorated style, being the simplest form both for the economical use of material, and that of the right sort, (stone), and space, the accommodations and ornamental forms in the decoration arising (not encumbering, like some other styles of architecture, but assisting) out of the very skeleton of the building, giving the utmost amount of strength and durability with the least quantity of material.

The plan I beg to propose would consist of two towers at the west end, with archways between them and a carriage-drive through the centre of the whole building, which would form the *nave*, leading under the central tower and space, with two chapels on each side, forming the *transepts*, and cloisters on both sides of the carriage-drive, representing the *aisles*; also similar cloisters beyond the central tower and *chancel*, thus giving externally the general and grand outline of *a complete cathedral*, which might be either on a large or moderate scale.

The carriage-drive is intended for the passage of the hearse or galley, which might be drawn on a car by horses, and, with the choir leading and the numerous mourners following, would make at times a grand and impressive procession. The aisles, towers, and other parts, would be divided into stories of cloisters, &c. &c., for tombs and tablets, to the extent of about eighteen times the length of the whole building, and the chapels for the services of the dead.

I have sketched out a plan, section, and description of the above more in detail, and shall be happy at some future time to lay it before your readers, if you should think it worthy of a place in your excellent journal.

I am, Sir, &c.,

Lambeth. William J. Short.

[The buildings of the West of London and Westminster Cemetery, in Old Brompton, in the Italian style, are disposed somewhat on the plan suggested by our correspondent.—Ed.]

PRATT'S CARVING MACHINE.

Sir,—In your last number, I find an article relating to Pratt's patent carving machine, which I am afraid has a direct tendency to mislead a great portion of your architectural readers, more particularly the junior members of the profession. As an ornamental draughtsman, and an enthusiastic admirer of decoration generally, I am induced to offer a few remarks on this subject, and trust you will deem them worthy of insertion in your useful and popular publication. I am under the necessity of quoting from the article mentioned, it being stated therein that by means of Pratt's machine "the most elaborate tracery can be carved out of the solid wood or stone with great rapidity, and for about one-third of the sum it would cost if executed by hand." This estimate is wrong in every respect; and with all due deference to Mr. Pratt's *discernment*, I shall now endeavour to shew the falsity of his assertions. On applying to Mr. Pratt for information respecting his process, he offered to take *any* description of work, and execute it equal to specimens in his window, at a lower price than by hand. On shewing the drawings, however, for the work required (a Gothic screen perforated and worked on both sides), he remarked that he could not do that, nor this (pointing to several parts of the tracery), "*as there was not enough of it alike to pay him*;" and those parts which he offered to do for 1*l.* (*perhaps for* 15*s.*) each were, on his refusal to do the whole, eventually put into the hands of a first rate workman, and by him completed at 14*s.* 6*d.* each—so much for price. The reason Mr. P. cannot take a small order is that the necessary metal patterns (for the cutters of the machine to work by) are sufficiently expensive in themselves to prevent their being kept in stock; and even if such was not the case, every design being different, a new set of patterns must still be made for each job previous to its commencement. The cost of these patterns must be considerable from the care which is required not only in casting, but in giving them a true face afterwards, and the necessity which exists of shifting them frequently, renders the process throughout tedious and irksome in the extreme; and although the cutters act very well, and cut clear with the grain of the wood, still, against it they are quite the reverse.

When the machine has done its portion of the labour, the mitres, eyes, &c., not being touched by the cutters, must be finished by hand, and taking into consideration the cost of the wood pattern in the first instance, the delay caused in casting and filing up the same, the fitting of the patterns in the machine, previous to the work being commenced, the necessity which exists for shifting the cutters over the fillets from one foil to another, and the incompetency of the machine generally to finish its work, must, I think, convince any reasonable person that Pratt's patented process is not a cheap one. Again, as Mr. Pratt does not consider it worth his while to take *small orders*, I do not see how his plan can be productive of any good result as regards the interests of the architect. That the machine is capable of "*working any form, however elaborate*," is incorrect, for if such was the case, it would work the mitres, and as it does not do

so, it cannot properly be said, that Mr. Pratt, by means of his machine, can produce Gothic tracery, the beauty of which depends entirely upon the accuracy of the mitreing. Having, upon several occasions, had an opportunity of carefully examining work executed by this process, I have invariably found it rough and inferior in every respect to that done by hand, and am also of opinion, that instead of "*calling into operation a school of carvers,*" it will have a contrary effect. My reason for arriving at this conclusion is, that the present race of carvers are sadly wanting in their knowledge of, and, in fact, seem to have no conception of *relief*. The carver of wood or stone, if he works upon material prepared by the machine, thus literally throws away the best opportunity he has of acquiring freedom in execution, combined with taste, the "*roughing out*" being the most essential part of his art.

As regards the specimens alluded to at Ravensworth Castle and Malvern, they are at too great a distance from town for those who are most interested in the matter to visit, but fortunately the machine decoration to that splendid ecclesiastical edifice, Camberwell New Church, may be seen and *admired* by any person who may feel inclined to trouble himself by walking or riding that far, or by calling at Mr. Pratt's establishment, in New Bond-street. I beg to apologize for the length of this communication, and am, Sir, &c.,

F. M.

8, Great College-street, Westminster,
March 26th, 1845.

JAMAICA LUNATIC ASYLUM.

Sir,—Not having seen in your very excellent work any account of the competition for the Jamaica Lunatic Asylum, I presume you are not aware that it is decided; and knowing you are anxious for information upon those subjects, I avail myself of this opportunity to state that Mr. Jos. Harris, resident engineer of the Hanwell Asylum, was the successful competitor.

I feel much pleasure in saying that no influence whatever, either directly or indirectly, was used by that gentlemen or his friends to affect the decision, which, under such circumstances, must have arisen from the merit of the design.

The following notice is from a Jamaica paper, dated 14th Feb., 1845:—

"*The Lunatic Asylum.*—There was a meeting on Wednesday last, at the King's house, of the Commissioners appointed to carry out the Act for Building a new Lunatic Asylum, his excellency the Governor in the chair. It is said that the object of this meeting was to receive the report of the committee, which had been previously appointed, to select one of the numerous plans and models submitted to the commissioners for examination and approval, when that of J. Harris, Esq., the resident engineer of the Hanwell Asylum, in England (which is the largest and best of the kind in all Europe), was approved of."

I am, Sir, &c.,

Notting-hill. J. R. Croft.

COMPETITION—CLIFTON UNION.

Sir,—A letter, signed "Thomas Allom," appeared in The Builder of the 29th of March, in which it is more than insinuated that in the choice of a plan for a new workhouse, the guardians of the Clifton Union had acted with partiality, no other proof being adduced than the bare circumstance that the plan, which has been chosen, was prepared by a Bristol architect.

Mr. Allom cites the opinion of a professional gentleman, who was engaged to assist in the examination of plans, as having been favourable to his; it is readily admitted that the opinion referred to was favourable to Mr. Allom's plan *architecturally considered*, but it should be remembered that the chief requisites in a plan for a workhouse are, sufficient space for the inmates, and proper arrangement for their classification and inspection, to which requirements the architectural design of the building ought to be subordinate. In citing the opinion already mentioned, Mr. Allom omitted to notice two important features in the report which contained that opinion, namely, that Mr. Allom's plan shewed a deficiency of space for several classes of the inmates, and that to carry it out would cost 3,600*l.* *more than Mr. Allom's estimate.* To this it may be added, that the same professional gentleman alluded to estimated the cost of carrying out the plan which has been chosen (similar materials of every kind being taken into the calculation for both plans) at 1,902*l.* *less than Mr. Allom's plan.* Now, admitting the two plans to have possessed equal merit (which was not the case, the plan chosen *being superior in the three chief requisites of space, classification, and inspection*), surely there was sufficient and substantial ground for giving the preference to a plan which a professional adviser stated would cost 1,902*l.* less than Mr. Allom's.

It might very easily be shewn that of all the architects who sent plans Mr. Allom should have been the last to complain of partiality having been shewn, but the object of the writer is not to wound the feelings of any one, but simply to record one or two incontrovertible facts, in order to prove to the professional gentlemen who sent plans that the guardians have acted towards them with perfect good faith.—I am, Sir, &c.,

A Guardian.

Bristol, April 4, 1845.

*** A correspondent desires to know who *is* the successful candidate: the name has not yet reached us.

THE FLOATING DOCK.

Sir,—In The Builder of 15th March, it is mentioned, that a Mr. Lennox has invented a floating-dock, and that the directors of Woolwich Dock-yard have been ordered to prepare detail drawings of the scheme.

I most respectfully ask to be informed whether the above-mentioned floating-dock means a *dry* floating-dock. If it means a dry floating-dock, I am pleased to know that some person more competent than myself has fortunately step forward for so laudable a purpose. Not only our own merchants and government, but merchants of other nations will feel its beneficial effect, to say nothing of the many lives of our bold and adventurous tars it will probably be the means of saving. If it does not mean a dry floating-dock, you will hear further from me.

I am, Sir, &c. W. R.

EXHIBITION OF WORKS OF DECORATIVE ART, &c.

Sir,—You have doubtless heard of the various projects on foot for the establishment of galleries for the purpose of exhibiting mechanically-factured and decorative works of art,—places to bring together such matters as were exhibited lately in St. James's-street.

There can be but one opinion as to the utility of such exhibitions when properly conducted. They offer the means to the artist and artisan of communicating directly with the public, of coming before them, in fact, without the intervention of a third party—an advantage of no little consideration; and this must most evidently tend to promote the taste and increase the demand for works of this nature.

Although the exhibition in St. James's-street made no great impression on the public, neither was it to be expected that it should, for most of the decorative instances were attempts of persons not regularly educated in the principles of ornament, but emanations from hitherto untried hands, evincing the skill and perseverance of an emulation just beyond the workshop. An artist, in the accepted sense of the term, could but in few instances be said to have exhibited at all. Take that exhibition under its true circumstances, I think you will agree that it was satisfactory; for though a smile may have been excited at an ambiguous attempt here and there, scarcely any one could pass through the room without respecting the united efforts.

Such an exhibition is a school for the exhibitor; he cannot compare his attempt with the attempts of others without learning many important things, one of which, and a very material one, will be his own value. It is very difficult to judge of the respective value of two matters extremely remote in quality, but the "little-better" is always easily observed, and has a more encouraging effect.

The main things wanting to such an exhibition, is to give it a good place and permanency. Now, Sir, without disparaging any of the projects in hand, I would submit, with your permission, to the interested public, through the agency of your effective journal, a single suggestion on the subject, and that is that some portion of the vast area which forms the site of the British Museum should be appropriated to a purpose of this kind. The able superintendence under which the Museum is now so admirably conducted, would ensure success. There are many reasons which will readily occur why institutions of this kind, got up by private individuals, should fail. There ought to be, in my opinion, but one place of the kind, and that the most public that can be found. Trusting that the importance of the subject will be my sufficient excuse.

I am, Sir, &c.,

Bedford-square. W. A. Hopkins.

BURIAL-GROUND OF ST. SAVIOUR'S, SOUTHWARK.

Sir,—On perusing your journal of the 5th instant, I find a paragraph referring to the state of the burial-ground of St. Saviour's Church, Southwark, and what the parishioners had done in consequence.

Allow me to draw your attention to a few particulars connected with this matter, and then I will leave it with your sound judgment to determine whether much has not been said in the public journals on this subject that might have been well spared until they had better information, or at least until the committee to whom it is referred had investigated the matter, and reported thereon to the vestry.

You know that there are two days in the year when vestry meetings are held differing in their power to any of the others that may be held, viz. Easter Tuesday, and Michaelmas-day. On these days any parishioner can propose any resolution without giving previous notice thereof, and if carried, need no confirmation by a subsequent vestry,—such was the case on Easter Tuesday. What the vestry really did was to refer it to the wardens and a committee of six inhabitants to investigate the matter and report to a future vestry.

The churchyard in question contains 1,603 yards superficial, from which a deduction of 233 yards for paths may be taken, leaving 1,370 yards free for burials.

The whole amount of burials therein in three following years just passed, was 245, of which 91 were infants, 33 under thirty years of age, 121 above thirty,—being not quite an average of 82 per annum, and consist of 30 infants, 11 under thirty, and 41 above.

The committee's first meeting to investigate this matter was on Thursday afternoon last, after which probably you may hear again from

A Subscriber to your Journal, and an Inhabitant of St. Saviour's, Southwark.

History of a London Workshop.—A man begins by employing a few hands in a house often but ill-adapted for an ordinary dwelling-house, and, as his business increases, he contrives to add one low apartment to another, by knocking down partition-walls, and making such alterations as suit his immediate purpose. He contrives by this means to accommodate an increasing number of men, and the only practicable limit to that number is the want of mere standing or sitting-room, as the case may be. He warms these rooms by a stove, by steam, or by hot air, and lights them with gas: the consequence is, that the workmen are exposed at the same time to a high temperature, and a foul and stagnant atmosphere. This combination is carried to its highest degree in tailors' workshops, and I have been told more than once by the journeymen tailors themselves, that they have been obliged to strip to the very skin, that they might be able to bear the intense heat to which they are exposed. In buildings intended for workshops more space is given to the men, but they are usually constructed on very bad principles; the whole building often forming one space, divided by floors perforated by a common staircase; if a steam-engine is employed, it is generally to be found in a lower apartment of this building, so that the heat rises from this into the upper rooms, and, mingling with the foul air of the intermediate floors, ascends to the highest floor where the hot and foul air collects in great abundance.—*Medical Times.*

Miscellanea.

Osborne Estate, Isle of Wight.—This estate, recently purchased by her Majesty from Lady Isabella Blatchford, is considered one of the best situations in the island, being placed on a spacious lawn sloping to the sea, affording some of the most beautiful and extensive views of the Solent Sea, Cowes, the New Forest, and the Southampton water, with Portsmouth and Spithead in the distance. Including the park, Osborne great wood, and New Barn Farm, it contains 376 acres. But to this is added the Barton Farm, containing 441 acres, making a total of 817 acres. Barton Farm, also the property of Lady Isabella Blatchford, has now become the freehold of her Majesty, of which formal possession will be taken on the 1st of May. The whole royal purchase embraces an indented shore of the sea of about a mile and a half, Fish-house Creek being the eastern boundary, and Norris Castle the western limit. It extends inland to the Newport high road. Various reports are current respecting the anticipated alterations at Osborne. One states confidently that her Majesty has determined to use Osborne House as a nursery for the royal children, and that the house at Barton is to be taken down, and a suitable palace erected on its site. Another is to the effect that it is only in contemplation to enlarge and restore Barton House, thereby preserving the fine old example of the Elizabethan style, of which it is considered to be a very perfect specimen. A pier will be run out from the beach under Osborne House immediately. From this place in the new yacht-tender, Fairy, the royal party will be enabled to land and embark at all times of the tide.

Fall of a Building.—Five Lives Lost.—On Friday, the 28th ultimo, a most melancholy accident occurred at Pollokshaws, distant about three miles from Glasgow. Some time ago it was proposed by the Old Trades' Society of Pollokshaws to erect a building in the main street of that town. This building was commenced, and on Thursday, the 27th ultimo, the mason-work of it was finished, and the scaffolding removed the same evening. Close to this building stood a thatched house of one story high, occupied by poor but respectable tenants. The occupants of this humble dwelling, seven in number, had considerable doubts as to the stability of the building erecting adjacent to them, and during the course of the preceding week, remained two nights in a lodging-house, being afraid that the building would fall upon them. On Thursday evening while the wind was blowing a hurricane, the inmates entered their habitation, still under the same fears. They congregated themselves around the hearth, and sat there listening to the storm raging without, until far in the morning. Thinking, then, their fears were groundless, and danger distant, they all retired to rest; but they were not in minutes stretched upon their beds, than down fell upwards of 20 feet of the gable and chimney-stack, which was very high, of the building, crushing beneath it the humble domicile of these unfortunate beings. The crash was heard in an adjoining house, the inmates of which instantly rose and procured every assistance in their power to have the sufferers removed from the awful situation in which they were placed. Two of the seven were speedily got out, and found to be little injured. It required upwards of two hours, however, of great exertion, before the remainder of the sufferers could be reached. When discovered they were all found to be lying in their beds with life totally extinct.

Pompeii.—The latest excavations made at Pompeii, by M. Vilain XIV., the Belgian chargè d'affaires, have been exceedingly interesting. A house was laid open in the quarter of the people. Twenty workmen were employed at the task, and the entrance-room furnished about twenty-five articles, vases, cups, patars, and bronze pateræ. Another room, from which a narrow passage led to the kitchen, contained some large earthen jars. In the kitchen, the tinning of the saucepans was still bright. A large boiler, two jars with handles, light and transparent, objects exceedingly rare in collections, were also found there. The next excavations were to be made in the workshops of sculpture of the town.

Leviathan Air Engine.—We have lately heard of a most stupendous construction of this kind, said to be the invention of Professor Reinagle, who is securing patents in every civilized country for his discovery, and this will obviously account for our not being able to enter into a definite description of its component parts. Report says, that Professor Faraday, having seen the drawing, and heard the theory and practice of this invention explained, complimented the inventor by declaring, that he had discovered perpetual motion of the most terrific description. It is also stated, that other eminent men have recently seen it, amongst them Professor Byrne, Dr. Armstrong, Dr. Carpue, and some distinguished foreigners, besides very many private friends of the inventor, of great intelligence, who have all expressed their candid opinion of its perfect simplicity, and of its immense power. To enable the public to form some notion of the power obtained, Professor Reinagle has contrived a table apparatus, anything but air-tight, by which he moves 80 lbs. full 2 feet in three seconds (placed on a four-wheeled car) by his breath alone. Even 100 lbs. can be moved in like manner.

Nineveh.—"The discoveries in architecture and statuary made at Nineveh, by M. Botta," says the *Moniteur Parisien*, "must be of considerable value if we are to judge by the specimens which have arrived at Paris. They consist in pieces of architecture, bassi relievi, and statues, in better or worse preservation. The inscriptions are perfectly legible, but altogether beyond the art of modern deciphering. The king, after having examined these curiosities with great interest, has decided that a vessel belonging to the Government shall be sent to Bassora to transport the whole collection to Paris."

Monument to Dr. Watts.—The committee under whose management this monument is to be erected, have engaged Mr. Baily, the eminent sculptor, to execute it. The monument will consist of a statue of colossal size, and will be placed upon a pedestal in Abney-park Cemetery, the directors of which have promised to grant a site. No place could be more appropriate, for there, at the residence of Sir Thomas Abney, Dr. Watts spent thirty-six years of his life. There he wrote most of his works, and at a place of worship near to Abney he frequently preached. Mr. Baily says, in a letter to the *Morning Post*, "in consideration of the moral and intellectual benefit conferred on the nation at large by his works, I consented to execute the same in Portland stone, for the money which might be raised, and which does not exceed 300*l.*, though my price would have been, under other circumstances, 500 guineas."

Lord Northampton's Soiree.—The accomplished and amiable president of the Royal Society gave his closing conversazione on Saturday last, when a larger number of distinguished men were present, and more interesting matters were exposed in the rooms, than we have ever seen there.

City Bricklayer.—An election took place last week for the office of bricklayer to the corporation of the city of London, when, after a poll between the only two candidates, Mr. Boucher was elected by a majority of sixty-five votes over his competitor, Mr. Ward.

Fires in Liverpool.—The total value of the property destroyed by fire in Liverpool, during the last three years, was, in 1842, 517,927*l.*; in 1843, 119,584*l.*; in 1844, 24,391.

Stockton Mechanics' Institution.—The Bishop of Durham has subscribed 20*l.*; Mr. Bowes, M.P., 15*l.*; and Mr. Farrer, 21.2s.; towards the erection of a building for the Mechanics' Institution, at Stockton.

Tenders.

Tenders delivered for the Alteration of Kingsland Chapel.—W. Wallen, Esq., Architect.

Lawrence and Sons	£1,309 0
Jay	1,280 0
Pritchard	1,269 0
Turner	1,145 0
Haines and Co.	1,064 0
Brigg	1,059 10
Ashby	1,049 0
Hayworth	1,016 0

The Tenders were opened in the presence of the parties, and the lowest accepted.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the restoration of the Parish Church of Grays Thurrock, Essex. April 12.

For the erection of a Church in the parish of St. Thomas, Winchester. April 12.

For the supply of 600 Coal Waggons of superior construction, spring mounted, with malleable iron wheels, and calculated to carry about six tons of coals each, for the Great North of England Railway. April 15.

For the erection and building of a Farm-house, Barn, Stable, and other offices, at Hepworth, Suffolk. April 16.

For keeping Battle-bridge and Holloway-road in repair for one or more years. April 17.

For making a Brick Barrel Culvert from the Pump in Much Park-street to Jordan Well, Coventry, and for Excavating and Carting away the soil and rubbish. April 17.

For submitting a plan of a Tread-wheel, and constructing the same in the Common Gaol of Great Yarmouth, Norfolk. April 24.

For all the Works to be done in the erection and completion of the new cast-iron Bridge over the Haven of Great Yarmouth, including the finding of labour, certain materials, &c. April 26.

For the construction of the third and fourth divisions of the Chester and Holyhead Railway. April 28.

For the supply of Materials to the Commissioners of the Metropolis Roads. April 30.

For performing the several works in building a new Workhouse at Tenterden. May 2.

For the formation and completion of a new Drain, being about eleven miles long, twenty yards wide, and five yards deep, for the Middle Level Drainage Commissioners. Also for the erection of a Staunch, several Bridges of wood with brick abutments, together with the necessary culverts, and other works. May 8.

For the erection of a Baptist Chapel at Folkstone.

For laying out the Grounds of the Victoria-park Cemetery, and for draining the same, making the roads, paths, and finding all necessary trees, shrubs, materials, &c.

COMPETITIONS.

Plans, sections, and elevations for a Terminus, and other requisite accompanying offices, for the Great Southern and Western Railway, Ireland.

Plans for a Church to be erected within the Borough of Kingston-upon-Hull. May 8.

Plans, Specifications, and Estimates for the Building and Interior Fittings of a Church, to be erected in Gloucester. To contain 600 adults and 200 school children. The shape of the ground is nearly rectangular, and measures on the east side 55 feet, on the west 62, on the north 120, and on the south 112.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

April 14.—On the Estate of Mr. John Welham, near the Mills, Earl Stoneham, Suffolk. Six capital Timber Ashes, of first-rate quality, measuring from 60 to 30 feet in a tree; also 180 Pollard Elms.

April 14.—At Chapple Essex: a large quantity of Ash, Elm, Pollards, and some very good Elm Timber.

April 15.—At the Three Ashes, crossing near Witham, Essex: 1185 Oak Trees, now growing in the woods and fields of Lanhams, and Crossing Lodge Farms. Many of the Trees are of large dimensions.

April 15.—At 23, Fuller-street, Church-street, Bethnal-green: a quantity of Spanish and Honduras Mahogany, several thousand feet of Cherry-tree, Birch and Beech, &c.

April 16.—At Camberwell, Surrey: several Elm Trees, large Walnut and Ash Trees, also the Building Materials of the Grammar School and two large Dwelling-houses.

April 16.—At the Wiffin Inn, Malpas, Cheshire: 68 Oak Trees, and 4 Cyphers.

April 16.—At the Cups Inn, Colchester: above 100 fine Oak Timber Trees, now standing upon Dove House Farm. The metings average from one load to three loads per stick, and of considerable length.

April 17.—At the Roebuck Inn, Loughton, Essex: 100 Oak Timber Trees, very old and sound, and the greater portion of large dimensions.

April 18.—At the Greyhound, Sandy, Bedfordshire: 950 Larch and Scotch Spires.

April 18.—At the George Inn, Froome, Somerset: 310 fine grown Oak Trees now standing on the Orchardleigh Estate. They are of large dimensions, great length, and of very superior quality.

Last week in April.—At the Timber-yard, opposite St. Giles's Church, London: 3,200 Pine Deals, Planks, and Battens, 340 Yellow Deals, 2,480 Spruce Deals and Planks, 120 Yellow and White Battens, 14,000 feet of three-quarter inch and half inch Pine Boards, &c.

Some time during the present month.—A large quantity of full-grown Coppice and Hedgerow Timber, now standing at Denby, Derbyshire.

End of April or beginning of May.—250,000 Building Bricks, 40,000 Arch ditto, &c.; now at Sherborne Kiln, three miles from London.

BY TENDER.

All the implements used in the execution of the works at the Fleetwood-pier; they are now on the wharf at Fleetwood, and can be put on the railway-waggons, or on board ship.

April 21.—Above 1,000 Oak Trees, now standing upon Lewisham Lands-wood, near Beckingham, Kent.

20 Oak, 1 Elm, 1 Cherry, and 12 Ash Trees; now standing at Hanmer, near Welchhampton, Cheshire.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, April 14.—*Geographical*, 3, Waterloo-place, 8½ P.M.; *British Architects*, 16, Grosvenor-street, 8 P.M.; *United Service Institution*, Whitehall-yard, 9 P.M.; *Medical*, Bolt-court, Fleet-street, 8 P.M.

TUESDAY, 15.—*Linnæum*, Soho-square, 8 P.M.; *Horticultural*, 21, Regent-street, 3 P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.

WEDNESDAY, 16.—*Society of Arts*, Adelphi, 8 P.M.; *Geological*, Somerset-house, 8½ P.M.

THURSDAY, 17. — *Royal*, Somerset-house, 8½ P.M.; *Antiquaries*, Somerset-house, 8 P.M.

FRIDAY, 18. — *Royal Institution*, Albemarle-street, 8½ P.M.

SATURDAY, 19. — *Asiatic*, 14, Grafton-street, 2 P.M.; *Westminster Medical*, 32, Sackville-street, 8 P.M.

TO CORRESPONDENTS.

"G. R."—*We cannot promise to insert our obliging correspondent's last letter.*

"A Subscriber" (London).—*The information may be obtained at the office without expense.*

"A Builder" (Borough).—*A drawing of this roof is now in the hands of the engraver.*

"W. G." (Hackney).—*The last clause of schedule provides that no chimney-shaft, jamb, breast, or flue, already built, or which shall be hereafter built, shall be cut into for any other purpose than the repair thereof, or for the formation of soot-doors or for* letting in, *removing, or altering* stove-pipes, *or smoke-jacks, except as directed for building an external wall against an old sound party wall. Our correspondent may get over his difficulty by using a piece of pipe.*

"A Reader of THE BUILDER" *will find a plan of the railway at the Sessions-house, Clerkenwell.*

"G. M."—*The Act is not very clear on this point, but we believe if rigidly interpreted, the sash-door in the situation stated is liable to the tax.*

"W. F. P."—*All works of art intended for exhibition at the Royal Academy were received on Monday and Tuesday last. We gave notice several weeks ago.*

"T. M. C." (Norfolk).—*If the party has left the house to which the letter is addressed, and the letter be returned to the postman with his present direction upon it, the office is bound to forward it. If simply absent temporarily, it must be reported.*

"H. Wilkinson" (Portsea).—*The price of Hebert's "Engineers, and Mechanics' Encyclopædia," (2 vols. 8vo.) is 1l. 16s.*

"A Builder" *wishes to know "the address of the person who makes patent hand-rails."*

"T. O. M." *wishes to know who is the manufacturer of the patent* spring seat *water-closet apparatus.*

"Scrutator," "A Surveyor," "History of a Competition," "Brickmaking," "Freemasons of the Church," "Archi."—*Next week.*

"R. W. D."—*Declined with many thanks.*

"J. R. P." (Clerkenwell).—*We have read the poem with pleasure, but are unable to make use of it. It is left at the office as requested.*

"Spafields Burial Ground."—*In our notice last week of some water drawn from the pump here, for "animal matter," read "solid matter."*

Received.—"*Dolman's Magazine*," *No. III.*—*Young's "Lectures on Natural Philosophy," new edition (published by Taylor and Walton), part III.*—"*List of Periodicals published in Paris*" (*Thomas, Catherine-street, Strand*), *a useful pamphlet*—"*The Polytechnic Review*," *No. X. Several notices of books forwarded to us are unavoidably dealyed by press of other matter.*

ADVERTISEMENTS.

NOTICE TO INVENTORS.

OFFICE FOR PATENTS OF INVENTIONS and REGISTRATIONS of DESIGNS, 14, Lincoln's-inn-fields.—The printed INSTRUCTIONS gratis, and every information upon the subject of PROTECTION for INVENTIONS, either by Letters Patent or the Design Acts, may be had by applying personally, or by letter, prepaid, to Mr. Alexander Prince, at the office, 14, Lincoln's-inn-fields.

NOTICE. — INVENTORS desirous of obtaining LOANS ON or of SELLING their INVENTIONS, or Patents, should apply to Mr. M. JOSCELIN COOKE, at the OFFICE for PATENTS, 20, Half Moon-street, London, where English and Foreign Patents are obtained, and Designs registered. An INDEX is kept for inspection and a list of charges gratis on application. All Patents granted for the last century; also copies of every Patent of importance. Instructions to Inventors and a list of charges gratis on application.

EMBARRASSED CIRCUMSTANCES. — PERSONS IN DIFFICULTIES being desirous of availing themselves of the Benefit of LORD BROUGHAM'S HUMANE ACT are requested to apply to MESSRS. GRAND AND CO., of 54, Coleman-street, City, where every information may be obtained, FREE OF EXPENSE, or arrangements can be made with Creditors, by which means the painful necessity of resorting to BANKRUPTCY or INSOLVENCY may in many cases be avoided.—N.B. Partnership accounts adjusted.

IMPORTANT TO INVENTORS AND PATENTEES.

PRACTICAL ASSISTANCE GIVEN to parties taking Letters Patent, by Mr. J. WILSON, Engineer and Patent Agent. Every description of business relating to or connected with Patents, Registration of Designs, Patent Agency, &c., conducted at his offices, 16, CHANCERY-LANE, opposite Carey-street. Negotiations entered into with parties wishing to dispose of or purchase patented or registered inventions. Every necessary information may be obtained at the offices as above, where also may be had printed instructions (gratis), to which Mr. W. begs particularly to draw the attention of parties about to take out patents

Mechanical drawings of every description, original designs for machinery, models, &c., executed with dispatch and economy.

OKER.—B. R. WRIGHT begs to inform Builders, Paperstainers, and the Trade in general, the prices for Native Oxford and Washed STONE OKERS, at his Oil and Colour-warehouse, 37, Castle-street East, Oxford-street:—Native Oxford Oker, 21s. per cwt, or 18l. per ton; Washed Stone Oker, 14s. per cwt., or 12l. per ton; Plasterers' Oker, 7s. per cwt. A liberal discount to the trade.



MOON'S IMPROVED CHIMNEYS.—Samples of the Bricks to form the Circular Flue, now coming into general use, also those invented by Clark and Reed for a similar purpose, may be seen at the Patentee's Western Depôt, New-road, near Tottenham-court-road, where may be procured the Metal Bars and Throats, also the much-approved Caps for the prevention of Smoky Chimneys, without causing adjoining flues to smoke, or producing the noise so generally complained of, arising from a large surface of metal being exposed to the action of the wind.

Licences are granted to Brick and Tile Makers for manufacturing the Bricks and Tiles, throughout the United Kingdom, by application as above, or to Mr. ELIAS DORNING, 27, Cross-street, Manchester.

HOLBORN AND FINSBURY SEWERS, MIDDLESEX.

THE COMMISSIONERS of SEWERS for the LIMITS give NOTICE, that their Office, Hatton Garden, is open daily between the hours of Ten and Four, where information can be obtained (gratis) by persons about to Purchase or Rent Houses or Property, or take Land for Building purposes, of the situation and level of the public Sewers, capable of affording sufficient Drainage, and which they recommend all such Persons to apply for at the above Office.

By the Court,
STABLE and LUSH, Clerks.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. (chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, or public way, or in any part intended to become a street, lane, or public way, or to carry off or drain off water from any house, building, yard, or ground, into any sewer under their management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewer or sewers shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, upon application being made at this office previous to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, whenever the lower floors or pavements of buildings shall have been laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings must in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners, will be cut off, and the parties making the same will subject themselves to a fine.

By order of the Court,
LEWIS C. HERTSLET, Clerk.

TO BE SOLD or LET, at a Ground-rent, Two or Four detached CARCASES of seven-room COTTAGES, in a wide and principal road at Islington, the sewers and roads being complete; term 97 years. Apply to Messrs. Overton and Hughes, 25, Old Jewry, City.

FREEHOLD GROUND and partly erected HOUSES TO LET on Building Leases, with the option of purchasing the Freehold if desirable: situate in Single-street, Mile End, rather less than a mile from the City; a famous spot for letting. The houses are fourth-rate, and will be either let as they stand or when tiled in; money will probably be advanced. Apply personally at the offices of Mr. Single, surveyor and auctioneer, 34, Coleman-street, near the Bank of England.

TO BUILDERS and others.—The present prices of SELF-ACTING RANGES at WARDS, No. 14, TOTTENHAM-STREET, Tottenham-court-road, are— feet, 4l.; 3 feet 6, 3l. 12s. 6d.; 3 feet, 3l. 5s.; register stoves, from 7½d.; elliptics with double backs, 3½d.

BED FEATHERS.—DUTY FREE.—HEAL and SON have reduced the price of Foreign Feathers the amount of the duty, and they can now offer—

Best White Dantzic	2s. 10d. | Best Foreign Greys 2s. 0d.
Irish White Goose	2s. 0d. | Irish Grey Goose.. 1s. 6d.
Best ditto	2s. 6d. | Best ditto ..... 1s. 9d.
Poultry.....	1s.

List of prices of every description of bedding sent free by post.

Heal and Son, 196, opposite the Chapel, Tottenham-court-road.

PORCELAIN LETTERS FOR SHOP-FRONTS, &c. -CAUTION.—W. G. BENTLEY, of 234, High Holborn, begs to caution the Public, as several mistakes have been made as to the true Patent Letters. Some persons imagine that those vulgar bright blue letters, that are smeared with gold, are the Patent Porcelain. They are merely Plaister Letters, which turn black, and are only fit for Marine Store-shops.

THE PATENT PORCELAIN LETTERS are only to be had at 234, High Holborn.

DUTY OFF ORNAMENTAL WINDOW GLASS.

CHARLES LONG begs to inform his Friends and the Public, that he can now supply Ornamental Glass at 1s. 3d. per foot superficial, and having just built two of the largest Kilns in London, is enabled to execute extensive Orders with unprecedented dispatch.—Terms, Cash only.

DUTY off WINDOW GLASS. — On April the 6th, Squares stouter and of better make than formerly for Glazing purposes at 6d. per foot.

NURSERYMEN, MARKET GARDENERS, AND OTHERS requiring Small Glass, will find a greater variety of sizes (a large Stock of which is constantly on hand) than is kept by any other house in London, from 4d. per foot Flattened Sheet, Sealed, Fluted, the BIRMINGHAM Sheet Plate (superior in all respects to every other make) and Ornamental Glass of every description. Complete Lists of Glass, Lead, Colours, &c., at ready-money prices, may be had (gratis) on application to R. Cogan, at the Western Glass, Lead, and Colour Warehouse, 5, Princes-street, Leicester-square, London.

SURVEYORS, CONTRACTORS FOR PUBLIC WORKS, and the TRADE generally, sending specifications of quantities required, will receive by return of post an invoice at the very lowest cash prices.

A parcel of very Superior Spruce Oker, suitable for PLASTERERS AND PAINTERS, to be sold at 6s. per cwt.

HIP TILES to suit slate roofs in colour Ridges, with plain or rebated joints, roll tops, and vertical ornaments; drains, many sizes, with plain or socket joints; paving in squares, hexagons, octagons, &c., different colours; roofing, in Grecian or Italian styles, other devices also, or plain; conduits, which do not injure pure water; fire-bricks and tiles; clinkers, and out-door paving sundry wall-coping, garden-borders, chimney-tops; also tubular and other flues of peculiar material. No agent, but a depôt at WHITEFRIARS, and 22, WATER-LANE, FLEET-STREET, LONDON, under Mr. PEAKE'S personal care, to supply genuine TERRO-METALLIC goods at fair prices as per quality.

The TILERIES, TUNSTALL, STAFFORDSHIRE, are near the centre of England, whence boats are sent direct to any inland place; or to the Mersey for the coasts, the colonies and elsewhere.

PAINTING BRUSHES OF SUPERIOR QUALITY, TO PAINTERS, BUILDERS, &c.

J. J. KENT AND CO.,

MANUFACTURERS,

11, GREAT MARLBOROUGH-STREET, LONDON, Offer to Painters, Builders, &c., Painting Brushes of quality far superior to those generally offered for sale, which they beg to call the attention of all who prefer quality and durability to apparent cheapness.

oooooo.—7 in. Dusters.	
ooooo.—7 in. ditto, extra.	
oooo.—Ground Brushes.	
Plasterers' Brushes.	
Distemper ditto. Ground and Unground.	
Sash Tools, and Common Tools.	
Tar Brushes and Masons' Brushes, and all other Brushes used by Painters and Artists.	

Lists of Prices of Painting Brushes, and of all other kinds of Brushes, forwarded on application. Established 1777.

C. S. RICHARDSON, Practical Surveyor, Whitefriars-street, City, begs to inform the Public, that he is commissioned by the Proprietor to LET the five newly-erected Houses and Shops, situate Nos. 4, 5, 6, and 8, Whitefriars-street, Fleet-street. Independent of the Low Rent, which is only from 50l. to 65l. per annum, there are advantages present themselves which seldom ever occur in a crowded neighbourhood like the above; the rooms are commodious, well Lighted and Ventilated, the Building is covered with North's Patent Sheet Slating, forming a flat, which at once affords a most delightful promenade, a free egress in case of Fire, and a Yard the whole area of the house, which will be found highly advantageous for numerous domestic purposes; there are Washing Closets on the first floor landings, and two lofty Kitchens on the basement floor, good Drainage, and plenty of Water. The premises close adjoin the Offices of the Anti-Corn Law League, and are well-adapted for general business purposes. The Tenant will be secured from having any opposing Trades or professions in the same line of Buildings. For further particulars apply as above, at East Temple Buildings, between the hours of 9 and 6.

The Builder.

No. CXV.

SATURDAY, APRIL 19, 1845.

THE demand for a museum illustrative of our national architecture is becoming louder, and must ultimately be listened to by those who are in authority:—a collection of casts chronologically arranged, where the student may draw and compare, and so gain in a month a clearer understanding of the peculiarities which distinguish different epochs than he now does in the whole of his clerkship,—sometimes the whole of his life. Year after year the importance of obtaining such a collection has been urged by different individuals, but has been disregarded, and, in some quarters, laughed at; and, to the disgrace of succeeding governments be it said, no attempt even, has yet been made to form it. Two years ago Mr. E. B. Lamb addressed a very sensible letter on the subject to the trustees of the British Museum, praying them to provide in their new building an extension of accommodation for British antiquities, so that works of British art, from the earliest to the latest periods, might be arranged in the national museum. He pointed out, that specimens judiciously procured from various parts of the country, and arranged in chronological order, would enable the architectural student to gain such a knowledge of the forms of ornaments, buildings, and sculpture, as could not be obtained from the objects themselves in their original position. The distinctive characteristics of Gothic architecture being divided into numerous classes, and each style imperceptibly growing out of the other, the gradations are so delicate, and the peculiarities so minute, that without a place for the reception of well-selected examples, the student is put to considerable labour and expense before he can acquire any knowledge of that part of the art; and then only by unweared exertions, and the examination of many edifices.

The answer he received was, "The trustees are not prepared to recommend her Majesty's Government to provide in the museum for any general collection of remains of the Gothic architecture of Great Britain," and there the matter stopped. An outbuilding, a mere shed, might have been something, and might at once have been filled with actual relics and casts, at present put away in holes and corners. At the Royal Academy, for example, a considerable number are stowed away in a cellar simply for want of a proper receptacle. But no, the trustees were not prepared to recommend that any attempt should be made to meet the want which was felt, and advance the study of our national architecture.

At the last meeting of the Institute of Architects, a paper on this same subject was read, as will be seen in another part of the present number of our journal, and was warmly responded to. It was then suggested, that the Institute should not simply look on and wish, but should come forward and act; and we sincerely hope that the suggestion will not be disregarded.

Mr. Wyse, we understand, is about to bring the matter before Parliament, and now, therefore, is the time for all who feel how advantageous such a collection would be to petition the legislature, and otherwise assist the endeavour so far as they may be able.

It is not simply to the professional inquirer that such a museum would have great attractions. Architecture now occupies the attention of a much larger class than it formerly did. Many now say with Chateaubriand,—"it cannot be denied that architecture, considered as an Art, is in its principle eminently religious—it was invented for the worship of the Deity, and those who had a multitude of gods, were led to different kinds of edifices, according to the ideas which they entertained of the different powers of those gods:" and with this feeling have commenced the study of it earnestly. Look also at our carvers, modellers, glass painters, and other decorative artists, now coming into more active existence, to whom such a collection would be of the first importance, and it must be seen that a very large section of the public would hail the establishment of a museum of national architecture as a boon.

For a continuation of the subject, we refer to the following article.

THE PRESERVATION OF NATIONAL ANTIQUITIES.*

"You, too, proceed! make falling arts your care,
Erect new wonders, and the old repair."

UNDER the conviction that specimens of medieval art still remaining in England are more numerous, and of more interesting character, than generally supposed, even by many antiquaries, we have endeavoured to give some notion of the extent to which examination, and the immediate prevention of further destruction is needed. The necessity for something more than individual exertion is great and pressing, as well to preserve antiquities of national value, as to rescue ourselves from the reproach of being the only one among modern nations, wanting in the proper estimation of records of such interest and importance. Associations for objects of an antiquarian nature have either lost the vigour of their youth, departed greatly from the objects of their foundation, or are consuming valuable time in disputes, ridiculous in their origin, but not on that account the less interminable. The Society of Antiquaries does nothing more than publish transactions, and hold weekly *conversazioni*, though its long standing, and the great names it boasts, gives it the opportunity of effecting a considerable amount of good. The committee of the Cambridge Camden Society, because not seconded in practices foreign to its ostensible purpose, have threatened to break up the whole body, thus at the same time concluding the only approximation to an effectual supervision of medieval remains, that we have experienced. Lastly, the British Archæological Association, from which so much was expected, is likely to end its days in contention on matters having no bearing upon the real objects of the institution. Thus, the fate impending over our cathedrals and churches is as lowering as ever, and the necessity for the immediate attention of the Government at once apparent. It may indeed afford matter for surprise, that while the Governments of foreign states are actively employed in upholding the decaying fabrics, and in furthering the pursuit of art in their respective countries, ours rather holds such matters to be without the sphere of the duties of a minister. But an enlightened administration will surely advance in the path it has already indicated, and willingly hear any practical suggestions for the attainment of an end of such manifest importance.

The systematic examination and description of those treasures of art with which this country is enriched, while adding to the antiquary new objects of interest and investigation, could not but advantageously influence the ornamental and decorative branches of art, and add new data for the elucidation of obscure points in British history. No longer confined to the biography of monarchs, and to the picture of martial strife, history, in the hands of its true illustrators, treats the condition of the

* Continued from page

serf and the peasant as having a stronger claim, than that of the noble and the potentate; the history of a country is the history of the people who dwelt in it, *their* manners, civilization, and arts, not of a section of its rulers. The historian, Gibbon, felt the importance of placing history in this light, and in the absence of other annals than those of princes and signors, derived from architectural monuments and kindred sources, materials for a narration, highly suggestive of the state of society in Italy, during the eventful times of which he wrote. The writer has elsewhere said:—"The architecture of Egypt in its paintings and hieroglyphics, in its long and gloomy vistas, and its avenues of sphinxes, is a lasting petrifaction of the manners and customs of the people, and of the dominion of that mysterious hierarchy who sat in judgment over the dead, and who curbed the flights of imagination in architecture and in sculpture by inviolable regulations. The porticos and sculptures of Greece are evidences of the refinement of a nation, who responded to the works of its artists as to the creations of the dramatist and the reasoning of the philosopher; while the sumptuous edifices of the Romans speak of the pomp of imperial sway, and the slavery of subject states. The architecture of every country and of every age is vocal with the inmost workings of its creating mind: and it occupies the place of written history in points, which, though of the highest interest, historians have, for the most part, failed to touch. Every village church is a key to the history of the surrounding district; from its effigies, its sepulchral brasses, and its heraldic enrichments, the topographer and the genealogist may derive important data for the prosecution of researches into the history of a county, and of its principal inhabitants. The very age and body of the time are manifest in each feature, and in the minute details are related even the passions and the animosities of the different orders of the priesthood."* The writer of British history seldom versed in matters of art, has made little use of the means at his disposal in architecture and antiquity: ignorant of the skill, which the works of medieval artists evince, he has set forth the period anterior to the Reformation as entirely dark and illiterate. But the succeeding historian will fall short of his task unless he investigate the architecture of the country, and the numerous branches of art which that architecture called into play; and the number of those engaged in antiquarian topics is now so great, that the minister who, in emulation of Mons. Guizot, when Minister of Public Instruction in France, should do what he did for the examination and description of the antiquities of the country, could not but deserve well of all promoters of truthful representation, and greatly add to his political influence. The "Comité Historique des Arts et Monuments," founded by the French minister, has been for some time in active operation. Under the term "historical monuments" were included not only literary documents, but monuments of art; and it was proposed to publish, by degrees, a complete antiquarian survey of France, with descriptions and delineations of all its monuments. The commission has been divided into two comités—one for historical documents, and the other called the "Comité des Arts et Monuments." The latter has already issued several popular treatises on different branches of archæology, in the form of instructions for its numerous correspondents, as well as more lengthened and learned dissertations. The good thus effected has been great and permanent; it has already led to that active spirit of preservation with which France is actuated, and which the Government does every thing to second; and with the assistance of the "Société Française pour la Conservation des Monuments Historiques," will shortly remove at least the visible traces of that revolution to which the country owes the destruction of its monuments, as well as the alteration of its political institutions. The "Société Française" was established about nine years ago by that enlightened antiquary M. de Caumont, of Caen, in Normandy; and now, by its repeated

* *Vide* "Some Observations on propriety of style, particularly with reference to the modern adaptation of Gothic Architecture," a paper read at the Royal Institute of British Architects, June 26th, 1843, reported in the "Civil Engineer's Journal."

visits to different provinces, is rapidly extending the taste for preservation and research.

The British Association has not yet manifested the vigour of the French society; but, could the contending parties be reconciled, might be of equal service, and might be the means of influencing the Government in the direction pointed out. It can hardly be hoped, that an association of private individuals can ever do more than diffuse the salutary influence of good taste; and any active operations must be the work of a government. But the association might do good service through corresponding members and branch associations, to induce a higher feeling of the value of national antiquities, and often, by its mere representations, might prevent needless alterations. To procure drawings of existing remains, and more especially of such as might be in danger of demolition, should also be one of its main objects. It might also undertake such restorations as were desirable, and did not involve much expense,—as the removal of lath and plaster ceilings, which so often occasion the decay of roof timbers, and the cleaning of churches from whitewash. We would suggest, that in the latter work, the services of the younger members of the profession might be made available for superintendence with considerable advantage. The respect for the forms of Gothic architecture which, we are happy to say, exists amongst the rising generation of architects, would be likely to prevent the destruction of mouldings and ornaments, such as might otherwise occur in the process of cleaning; and the payment of travelling expenses, with the opportunity of gaining much valuable knowledge not to be found in books, would be a sufficient recompense. At the same time, these persons might superintend the taking of casts of ornaments for a museum of national antiquities, a true British museum, such as we hope one day to see in England.

It is to be regretted, that no provision has been made in the buildings of the British Museum for a collection of national antiquities. Such a collection would be of higher value, and of far less expense, than the blocks of granite brought from Egypt at so much trouble and cost, which, however singular as curiosities, have no claim upon the delineator of national manners, and are all but valueless to the artist. It is for want of a receptacle for national antiquities, that we find so many pieces of pottery, carvings, and stained glass, in the hands of dealers, or in private collections; and there is no doubt, that if a proper building were set apart, many private collections would be presented to the public. Such museums exist on the continent, not only in the capitals, but in many provincial towns; and it is to be hoped that the measure now before parliament may end in the immediate establishment of such desirable institutions. We regret that a motion in the common council on the subject of a museum for the city of London did not even come to a discussion. The canopy from the tomb of John of Eltham in the collection a Strawberry-hill, a ceiling from the chamber a Crosby-hall, and considerable portions of St. Katherine's, Tower-hill, in the museum of a celebrated architect; original capitals from Wells Cathedral, in the window of a dealer; fragments from the Temple Church sold publicly, at the time of the late restoration; pieces of stained glass, and encaustic tiles innumerable, might have been restored to their proper positions, or have remained available for examination, had the existence of a national commission in the one case, and of a national museum in the other, preserved them from the comparative oblivion in which they now exist, to the serious detriment of the arts and history of the kingdom. As we have said, no restoration, however perfect, can be of the same value as the original fragment, therefore the latter should be preserved, at least, in some other *locale*.

We cannot too strongly urge the importance of exertions for the preservation of national antiquities of every description, and that those exertions should be immediate and vigorous: let chartered bodies forget their origin in another century, and lead the march of modern improvement, and let antiquaries forget their differences and re-form *one* association stronger than the last. In the present posture every day lessens the number of antiquarian remains, and implores more loudly for a protecting hand. The proceedings of the Central Committee of the Archæological Association shew, that destruction is still at work to a lamentable extent. Old halls and manor-houses disappear even more rapidly than ecclesiastical antiquities, and the same hall, which once we could not walk through without learning, at every step, something of the customs of our ancestors, has been despoiled of its old features, or divided into several residences:—

"The court with nettles, moats with cresses stored,
* * * * *
Like some lone chartreux stands the good old hall,
Silence without, and fasts within the wall;
No rafter'd roofs with dance and tabor sound,
No noontide bell invites the country round:
Tenants with sighs the smokeless towers survey,
And turn their unwilling steeds another way:
Benighted wanderers, the forest o'er,
Curse the saved candle and unopening door;
While the gaunt mastiff, growling at the gate,
Affrights the beggar whom he longs to eat."

The old halls of England are antiquities most interesting to every one, and expressions of regret at their disappearance are frequent. Can it be necessary that they should, in every case, be sacrificed to modern improvement?*

A national commission for the preservation of antiquities will fall short of its duties unless it secures, consistently with the same preservation, the free admission of the public to every cathedral and museum, which is public property, and endeavours to influence the possessors of private collections to throw their galleries open, on proper stipulations. That most interesting edifice, Hatfield House, is closed to the public, or was so last year; and many others have the like restrictions. That it is *not* the love of the British people to destroy works of art has now become as much an axiom as was the reverse, twenty years back; and while the love of education is on the increase, as now, there is no fear for the future.

E. H.

* We have hinted, previously, that Gothic buildings are not the only structures requiring the hand of preservation. Many of our most interesting examples of Italian architecture are in as bad a state.

BRICKS AND BRICKMAKING.

BY JOSEPH LOCKWOOD.

As my former short article on this matter appears to have attracted the attention of some of your readers, I feel justified in adding a few more remarks to those already made. I shall be glad if I succeed in having this matter fully discussed in your pages; for it is not a little singular that, in this scribbling age, the subject of brickmaking should have been passed over by most of the scientific writers of the day, or at least if they have not entirely passed it over, they have touched upon it so lightly, that little or no information is to be gathered from what they have written, with respect to the proper proportions of the materials required in brickmaking. There is considerable difficulty in the matter, and I am afraid it is not possible to clear up all the doubts which exist until a regular series of practical experiments has been carefully performed and the results registered. Brickmakers are as much, if indeed not more, divided on the niceties of their craft, than mere theorists themselves, for, as far as my experience goes, I think I may venture to assert that no two brickmakers agree as to the proper or best way of proportioning the different ingredients they use in the manufacture of their bricks.

This subject hitherto has not attracted that attention amongst architects and engineers that it ought to do; why such should be the case I am at a loss to discover, unless it be that it is thought unworthy of their consideration. I hope, however, the case is different now, and that the working brickmakers themselves will come forward and explain the motives for using their different materials in the way they now do, of course not forgetting in all cases to forward an exact description of the nature and quality of their different earths.

To take up the thread of my former article, I will observe that the quality of a good brick depends principally upon two things—the goodness of the materials, and the way in which they are used. The principal ingredients from which bricks are made are clay, marl, and loam, in all their variety, with the different admixture of breeze, chalk, sand, small coke, &c. The whole of these are reducible into their constituent elements, and by ascertaining what each of the above articles principally consists of, *per se*, we shall most likely be able to get some clue as to what ought to be the different proportion used of either the one or the other.

I cannot here, however, undertake to describe the chemical bases and relations which belong to each of the above articles, as that would make the present article of too great a length. But before any really correct results can be given, or general rules laid down, it will be necessary to examine each ingredient separately, to ascertion its various combinations, and neutralizing properties, when mixed or applied in any way to the other articles with which it has to be incorporated, when used in brickmaking.

It is impossible to give a general description of what in common language is called "clay," as it comprehends too many substances and qualities, which vary with local circumstances; most clays possess an earthy texture, and yield an argillaceous odour when handled; they differ as much in their plastic qualities as they do in colour. The principal ingredients of clay are silica and alumina, with a small quantity of lime, and occasionally of magnesia and alkali. Sometimes clay is red, yellow, blue, greenish blue, or mottled; it is often light, loose, and sandy, frequently heavy and greasy, and mostly friable when exposed to the action of the atmosphere. It varies in its bed even in the narrow limits of a field, some portion of the same field being much superior to the other, although it does not differ much in colour or appearance, but a practised hand and eye will readily detect the different qualities when examined closely.

If a clay contains an over proportion of sand it will require the assistance of some dry substance to modify the action of the fire in the clamp, as the siliceous particles in the clay will fuse and run when under the action of great heat. In such case, it is plain that an increase in the quantity of chalk will be of great service if properly blended with the clay, because it will take up the fusing silica, and hold it together; a much less quantity of breeze also will be required, for as the materials used readily transmit heat from particle to particle it will be easier to get them up to any required heat than when the substances do not so readily take the fire.

In round numbers, silica contains about 5 of oxygen in one hundred parts, and of alumina about 47, so that there is a large amount of oxygen combined in the elementary bases of clay, which will convince us of the necessity of not applying too strong a fire in the case where the silica is plentiful, for if we do, the certain result will be, that the bricks will "run" and be burnt into clinkers; in such case, therefore my experience leads me to increase the chalk or similar "holding" bodies, and decrease to some extent the quantity of breeze mixed with the clay. The more alumina there is in the clay the better will be the brick if it is properly tempered by the introduction of sand and breeze, the one to burn it, the other to keep it from shrinking too much when under the action of the fire.

The best malm-bricks are made from a light kindly clay, which contains a free proportion of limestone. To get up good coloured, fine grained bricks from this description of earth it will be advisable to introduce both sand and breeze, the latter in larger proportion perhaps than with commoner clay, because the lime which is incorporated with the clay contains less oxygen in proportion than when the base contains a greater quantity of silica; added to which, the sulphur in the breeze or cinder combines during the process of combustion with the alumina, and brightens the colour by turning the clay more or less white, for it is well known, that when clay contains a large proportion of alumina, it has a tendency to turn white when under the action of fire.

From what has just been advanced, it would appear that the quality of the bricks may be very much varied by increasing or decreasing any of the different materials used in its manufacture, in some measure, if not principally, in consequence of the chemical property of the clay being materially changed by the addition or subtraction of one or other of them; if we add a larger quantity of breeze, for instance, to a clay overcharged with sand, a necessary consequence will be, that it will have a ten-

lency to run; if, on the other hand, we hold ack the breeze when there is but little sand nd a large proportion of alumina, the bricks ill be brittle and porous for want of a flux to olidify them.

The colour of bricks appears to depend upon he proportion of the different materials mixed ith the clay, and the time taken in burning hem, as also the degree of heat used in the atter process. Chalk, when properly pre-ared and introduced into the material from hich bricks are to be made, will have the ffect of lightening the colour when burnt. t is very desirable in all cases where chalk is sed that it should be washed, to free it from ne foreign bodies mixed with it, and get rid f the pebbles, flints, and coarse sand which re intimately connected with it, for they will njure the quality of the brick if not removed. he flint, which is generally abundant in halk, would do no harm if it was pulverised fter being calcined, and then mixed with the lay; it would have the effect not only of hitening the bricks, but also of improving eir quality with respect to durability. A uperabundance of chalk in clay, tolerably free om siliceous sand, will cause the bricks to be rittle and spongy, especially if it is not care-lly incorporated with the mass of the clay by rinding or kneading.

It will be readily gathered from what has een already stated that breeze or ashes con-itute a very important element in the manu-cture of bricks, for if carefully managed ccording to the quality of the clay, it may be ade to produce very effective results both with eference to colour and quality. The reason hy breeze appears to play such a useful part the process of brickmaking is, I have reason believe, in consequence of the quantity of lphur which it generates, or gives out, when ked in the clamp; added to which, it is the incipal agent for vitrifying the siliceous rticles in the clay, and combining them with e alumina and carbonate of lime, which rm the basis of bricks. Most brickmakers refer breeze or domestic ashes for their ork when they can get them; if these are ot readily obtained, they have resort to the mall broken refuse coke, and sweepings from e gas-houses in the neighbourhood of London, nd in rural districts small coal is used in ace of the ashes.

The inferiority of coke ashes, when com-ared with breeze, appears to arise from the fferent mode in which these articles are ade, the former being reduced from coal coke in close retorts, free from the action of e external air during the process of com-stion, while domestic ashes are produced om coals consumed in the open grate, fully posed to a free current of air during the hole time of being in the fire; so that in the rmer case the sulphur, gas, &c., are driven f more perfectly than in the latter case; thus, though coke is more highly carbonized than eeze, it is less useful to the brickmaker than eeze, or domestic ashes.

That the sulphur contained in the ashes ays an important part in colouring bricks ay, I think, be easily proved without enter-g into any thing like chemical detail; for if brick clamp is carefully examined when ened, the course which the blue lambent me of the sulphur has taken may be readily aced by the streaks or deposits of sulphury rticles which it leaves on the bricks where-er it has played upon them; and further, o, by the fact that many bricks, though of od colour externally, are often more or less d within. I do not mean to assert that it is e sulphur alone which produces this colour, is, no doubt, caused by the combination of the lphur from the ashes with the iron contained the earths used in the brick, which by the long-ntinued action of the fire is converted into a roxide, and this we know gives various lours according to circumstances; it is a estion, however, whether the colour would so good if the sulphur were less abundant, or e brick subjected to the fire with a greater pply of air. Generally speaking, the bricks aced nearest the outside of a clamp are of fferent shades of red, which is either a con-quence of being imperfectly burned, or else the too free absorption of air; the former, wever, is believed to be the real state of the se. The *rationale* of mixing the ashes with e clay is exactly similar to that of mixing e refuse coal from the mines with a large proportion of clay to make what are called *fire-balls*, which are much used by poor people in many parts of Wales and in the north of England: it economises fuel, and gives out greater heat than if the small coal were burnt in the open grate, for it evidently first under-goes a process of coking, and then of more perfect combustion; it is during the latter stage that the greatest heat is evolved; hence, therefore, these fire-balls are always put on a fire already well ignited, as they require a considerable degree of heat to set them going. I have often noticed that when these balls are taken from the fire, at their greatest heat just before they break, and allowed to cool gradually, they turn more or less white, which is also a property of all kinds of clay slate, and, as is well known, of pure alumina,—the chief basis of clay itself.

Breeze I consider to be much better for the purpose of brickmakers than small coal, although the latter in most cases would yield more sulphur than the former, but the effect is neutralized by gas which is evolved during the process of combustion in the clamp: bricks, therefore, made with small coal are not likely to be so good in colour as those made with ashes.

The effect of adding siliceous sand to clay, as has been already observed, is to hold the particles of the clay more strongly together when under the fire, as a natural tendency of pure clay when subject to great heat is to contract, and frequently in cooling to break up into cracks and flaws, which sand prevents, by fusing and combining itself intimately with the particles of the clay, so that on cooling they are prevented from separating by the powerful cohesive powers of the vitrified sand. Extremes, however, must be avoided, for if there should be an excess of sharp, siliceous sand, it will run into a shapeless mass when in a state of vitrifaction: if it should be burned too much in this state, it will form what are called clinkers, which are produced by excess of heat and sand.

From what has been stated, it will be perceived that the quality of the brick produced from any given quality of earth will depend upon the skill of the brickmaker, and the judgment he displays in assigning the proportions of the different ingredients he has to add to the clay; it is therefore impossible that any thing like a general rule can be laid down to govern all cases; it may, however, be observed that when the clay is heavy, the addition of chalk will lighten it: when it contains much sand, chalk will be necessary to take up the sand, and keep it from running; if, on the other hand, the earth should be of a marly nature, a little sand will be of service: with heavy earth a larger proportion of ashes will be required than when the soil is light and friable, as it will be more difficult to burn in the former case than in the latter.

With respect to the proper quantity of the different ingredients to be put into a given amount of clay, it may be again observed, that it will depend entirely upon the nature of the earth to be used in making the bricks; in the neighbourhood of London, I find most brick-makers use a different proportion, more in-deed by chance than reason, some preferring one thing, some another; some use breeze entirely, while others prefer a mixture of breeze and small gas-house coke; some also would use more chalk than others even with the same description of earth. For myself, I think I should venture to point out the follow-ing mixtures, having more especial reference to the clay in the immediate neighbourhood of London, with which I am more familiar than any other. With good clay of average quality, being rather heavy than light, say

Clay.....65	or	Clay.....65
Breeze....20		Breeze....15
Chalk....15		Chalk....15
		Sand....5
100 Loads		100 Loads

It will be seen that the quantity of breeze here used is rather less in proportion than most brickmakers generally employ in such case. With clays of a lighter nature, I should use

Clay.....75	or	Clay.....75
Breeze....15		Breeze....15
Chalk....7½		Chalk....10
Sand.....2½		
100 Loads		100 Loads

in all which cases, the average of the breeze is lighter than what brickmakers would use, because they are always anxious to burn their bricks as soon as possible; which, in my opinion, is the cause of an unnecessary amount of waste from clinkers and imperfectly burned bricks.

Here I must again be allowed to press upon all brickmakers the absolute necessity of allowing themselves more time if they really wish to make good durable bricks, for they may rest assured that it is scarcely possible to make them good even with the best materials unless they are properly incorporated by care-ful labour. It is a common practice in London brickfields for the clay after being dug from its bed, merely to be turned over, then it is covered with a layer of breeze or coke-dust for a few inches, and merely mixed together by passing them through the pug-mill, from whence the clay is carried to the moulder, to go through the remaining operations.

It is, however, generally admitted, that the clay ought to be well worked during the winter season, especially during the variable frosts, which tempers it, and renders it more tough and plastic, and in the end a far better ma-terial for the purpose of the builder, as the bricks will be all the stronger for the labour bestowed upon them, besides being more close and compact in grain. The action of the frost causes the water in the interstices of the humid clay to swell during the process of freezing, so that in the succeeding thaw it becomes friable and loose in texture, and consequently so much the more easy to be worked. I would, in all cases, recommend the clay and chalk to be well washed and cleaned before they are used, as that will improve both the appearance and quality of the brick beyond measure, and turn out articles worth looking at, good in colour, and tough in quality; quite different from the rotten, soft, and porous things now so com-monly used, I am sorry to say, in situations where they ought never to be have been per-mitted.

Time and labour I am fully persuaded is of the very greatest importance in brickmaking, but as these ingredients are expensive, it is not likely that my solitary voice will be able to induce brickmakers to be more liberal in the use of them in the preparation and manufac-ture of their earths, as well as in the burning of their bricks in the clamps; if such was the case, there would not be such an over-abund-ance of imperfect bricks as now deluge the market, and damage and deface almost every new building in or near the metropolis.

I shall devote what little space now remains to your correspondent, who signs himself "An Early Subscriber," in your last number. Whatever may be the spirit in which his queries are put, I beg to assure him that if any of my opinions and statements are erroneous, I shall be most happy to be corrected, as I at least am anxious to elicit truth, and not to pro-pagate error. If any of your readers should not approve of the opinions I have expressed, I hope they will at once explain their reasons for not doing so, and at the same time convey as much information on the matter as they pos-sibly can, as this subject is one not yet very well developed, and is capable of great exten-sion and improvement.

With respect to the first question of your correspondent, I can at present only refer him to what I have stated above and in my former letter. With respect to the second, I think he must be a very "young brickmaker" indeed if he cannot tell when his materials are pro-perly mixed. If in taking up a shovelful of the prepared earth he can see streaks or layers of breeze, or sand, and lumps or layers of chalk, he may rest assured that his materials are far from being properly mixed, and ought to be immediately reground. If the earth is well prepared, it will be of a uniform colour through-out, and he will neither be able to detect breeze or chalk in a separate state; to be properly mixed, they must be thoroughly incorporated one with the other.

For want of time, I must pass over the first part of the third question, and say of the re-mainder that I believe the articles would cer-tainly be better mixed together, and that I have no reason to fear that the burning quali-ties of the breeze would be damaged by being mixed with the clay for a few of the winter months.

Child's-place, Temple.

ALL SAINTS' DISTRICT CHURCH, STANWAY AND LEXDEN, NEAR COLCHESTER.

This church, of which an engraving has appeared in The Builder, was consecrated on the 8th instant by the Bishop of London, in the presence of nearly 500 persons, including the Venerable Archdeacon Burney, and about sixty of the clergy, and many influential families in the neighbourhood. At the conclusion of the ceremony, the architect, Mr. George Russell French, was introduced to the bishop, when his lordship was pleased to express to him his unqualified approbation of the sacred building, in which feeling the whole of the clergy present seemed to participate, declaring that it might be justly looked upon as a model of its kind. The pulpit, which projects from the wall, and which is accessible from the chancel and vestry, was especially an object of admiration, being of Caen stone, with highly enriched tracery panels, the cornices filled with the ball-flower and the four-leaved flower, and the lower spandrils having palm-branches and crowns carved thereon. The seats of the church are of oak, with low backs, the bench ends in the nave having buttresses, low doors marking the appropriated seats; the ends of the seats in the chancel and of the reading-desk have carved finials. The roofs are open to the ridges, shewing the entire construction of the timbers and boarding, which are stained.

The date of the architecture is that of the middle of the 14th century, when the Decorated style is considered to have reached its height of purity; a style, it is believed, as suitable to small country churches as to a vast cathedral, and admitting of great variety of detail: thus, in All Saints' Church there are not less than seven different patterns of windows, and four of gable crosses, yet all agreeing with each other. In order to make the period chosen appear with the more certainty, portraits (taken from their sculptured effigies) of Edward III., his queen Philippa, and their son, the Black Prince, are introduced among the heads which support the labels on the north side, as is that of Bishop Wykeham (at the east end), the great architect of the great Edward. The series of heads on the north side is chosen to illustrate that passage in the 148th Psalm, "Kings of the earth and all people, princes and all judges of the earth, young men and maidens, old men and children, praise the name of the Lord."

The font, of Caen stone (in which material all the external decorations of the church are executed), has been much admired; it is octagon, having on each side of the bowl varied tracery, within which are symbols of the Trinity, or the dove, the cross, or monograms of the Saviour's name; the pedestal is carved in tracery panels, and the ball-flower is introduced in the cornice.

The font is lined with lead, and has a drain. It is also raised on a platform of Chamberlain's encaustic tiles, the four Evangelists being at the corners, and the riser is formed of glazed tiles, which bear the text—IN : THE : NAME : OF : THE : FATHER : AND : OF : THE : SON : AND : OF THE : HOLY : GHOST. In a small transept (built for an organ) is a triangular gable-light filled with stained-glass, the gift of Mrs. John Papillon, and in the chancel is a single-light window, presented by the architect, having a ruby border enriched with the vine-leaf, and the text in old English letters, "Blessed are the poor in spirit, for theirs is the kingdom of heaven:" being the first of the beatitudes occurring in the gospel appointed for All Saints' day. A few points connected with this church have been thus dwelt upon to lead those who are designing ecclesiastical buildings to bestow some study upon their subject in connection with the particular era of architecture chosen for imitation, and thus the antiquary and man of taste will recognize the union of chronology with architecture, and the poorer frequenters of the sacred building will be led to take an interest in that church in which they and their children are henceforth to worship, and the contemplation of the sculptured stone and storied glass will raise their thoughts to that "house not made with hands, eternal in the heavens."

Restoration. — The beautiful tombs of the Black Prince, and King Henry IV., in Canterbury Cathedral are to be restored at the expense of the Government.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At an ordinary meeting on Monday evening, the 14th instant, Mr. H. E. Kendall in the chair, Mr. H. R. Ricardo was elected an associate. The foreign secretary introduced Herr Kühnell, architect of Berlin, who has visited England to study our gas establishments, with reference to the general introduction of gas-lights throughout Berlin. Mr. Donaldson took occasion to state to the meeting, that a number of gentlemen who appreciated the services conferred on the profession by Mr. John Britton contemplated presenting to that gentleman some testimonial of their esteem, and he invited the co-operation of all who thought with them.

Mr. Godwin said, that a preliminary meeting would be called next week; that *pro tempore* he had been requested to act as hon. secretary in conjunction with Mr. Peter Cunningham, and would gladly receive the names of any gentlemen willing to be on the committee. A letter was read from Mr. Wright, associate, inclosing a copy of an advertisement for plans, specifications, and estimate for building a church in Gloucester; wherein the committee offered no premium, would not bind themselves to adopt the best, and in a correspondence, which was also sent, would not say that if a design were selected, the architect would be employed to carry it out. The meeting seemed unanimously of opinion, that the force of impudence could no further go. How much longer architects will encourage the repetition of such insults remains to be seen.

The hon. secretary then read a paper on the formation of a museum of casts, illustrative of the architecture of antiquity and of the middle ages, by Mr. C. H. Wilson, director of the Government School of Design. The writer considered that the extent of the assistance which Government should give to art was an important inquiry. He urged the necessity of having collections of fine models, but cautioned students against a disposition to copy slavishly, now apparent. The Germans, much as had been said of their return to ancient examples, did not imitate so closely as we did; they did not think it necessary, when adopting a particular style, to restrict themselves to the immature details, should it have them. In this he agreed, and thought that, instead of copying dislocated saints, it would be better to introduce correct drawing, and use our improved knowledge. In an architectural museum he should like to see the models take the position in which they properly were; he would have the portico of a building set up full size. He commented on the difficulty of obtaining architectural casts in England, and urged the establishment of a central casting establishment, whence museums and galleries might at once be supplied cheaply. In France this was the case, and the greatest advantages resulted.

After the paper had been read, Mr. Donaldson made some remarks on the points which it had suggested, and especially dwelt on the little interest in such subjects exhibited by English Governments as compared with those of other countries. Amongst other instances, the French had recently sent to Bruges to obtain casts of a very fine chimney-piece, which is in one of the public buildings there. We really did nothing. Look at the ancient monuments in Westminster Abbey, they were rapidly decaying, and even the royal family, who might be supposed to feel especially interested in them, seemed quite careless about the matter. The importance of models was very great; more might be learnt in a museum in an hour than by reading for a day. The question of cost should not be considered,—the education of a people should not be measured by money.

Relative to casts from Gothic buildings, it was mentioned that a modeller had been recently sent into the country by our Government, with authority to take casts from all public buildings, for assistance in the completion of the Houses of Parliament.

An Anti-inclosure Association is talked of, and would probably be serviceable. Its claims on public attention should, however, be put forward in milder tones than those of the circular issued by Mr. Henry Dowell Griffiths.

FREEMASONS OF THE CHURCH.

April 8th.—Mr. James Finn, in the chair. Mr. W. G. Rogers exhibited a series of exquisite carvings in oak, by Grinling Gibbons, consisting of books, flowers, medals, &c., from the pulpit of St. Clements Dane. Also a very early carved boss from Winchester Cathedral, and an Italian bronze of the sixteenth century.

A lecture was then delivered by Mr. William Papineau, on architectural chemistry. After regretting the extraordinary apathy the architectural profession had shewn in the acquirement of the collateral sciences bearing upon architecture, the lecturer proceeded to enforce the great importance of their cultivation to the advancement and exaltation of the profession, adducing as a parallel case, the rise of the medical profession from the debased and empirical age of the barber-surgeons to its present high standing and repute, solely by the appointment of standard qualifications in its members, and the gradual extension and elaboration of the circle of knowledge. He dwelt on the close connection of many of these sciences with the theory of architecture, and the important advantages which an intimate knowledge of them must confer on the practical part of the profession.

After strongly urging the importance of the principle laid down and the great good which must eventually accrue to the profession from a more extended and scientific course of study than the ordinary routine through which the majority at present passed, and particularly instancing chemistry as a science at once eminently useful to, and greatly if not entirely neglected by the architect, he proceeded to give an introductory view of the properties of matter and laws of combination, at the same time regretting that the short space of two lectures, necessarily allotted to him, would prevent his entering so fully into details as he could desire, which deficiency he trusted to make good by practical papers contributed from time to time, and by the systematic courses which were in preparation.

ARTISTICAL.

In a letter recently received from Rome, Mr. Gibson, R.A., states that he is now modelling the statue of the Queen, and that it will be two years before it is finished. Our distinguished countryman is also engaged on a repetition of his statue of "The Hunter," for Lord Yarborough.——Thorwaldsen's statue of Byron, which has occupied a cellar in the London Docks for several years past, in consequence of the refusal of the Dean and Chapter of Westminster to admit it into the Abbey, is destined for the library of Trinity College, Cambridge.——Mr. Lough's colossal figure of her Majesty, for the Royal Exchange, is completed, and is about to be raised to its place.——The exhibition of the New Society of Painters in Water Colours will be opened to the public on Monday.——M. Alost, sent to this country by the King of the French to obtain the portraits of all the members of the London Corporation who attended his Majesty with the address at Windsor, for the purpose of painting a large picture commemorative of it for Versailles, has completed the sketches. The likeness in above thirty of them which we have seen is admirable. A duplicate of the picture will be presented by the king to the city, and be hung in the Guildhall.——The annual meeting of the Art-Union of London will be held on Tuesday next, the 22nd, in Drury-lane Theatre, to receive the committee's report and distribute the amount subscribed for the purchase of works of art. The Duke of Cambridge will take the chair at twelve. We shall give a full report of the proceedings in our next number.

St. Paul's Cathedral.—The porticoes of the western entrance of this splendid cathedral are about to undergo a thorough cleansing and scraping, with a view to removing the incrustation that has settled on the stone work, arising from smoke and dirt. On Tuesday week the scaffolding under the lower portico was erected, and the workmen commenced their operations; it has not, however, yet been determined whether the whole of the western front, as also the other outer portions of the building, will be scraped and cleansed, the lower part being tried first by way of experiment.

WORKS IN THE PROVINCES.

On Tuesday, the 1st instant, at noon, the eremony took place of laying, not the founda-on, but a main corner-stone of the new church, t South Milford, a township in the parish of herburn. The church will be in the early-ointed style of architecture, and consist of a ave 52 feet by 27½ feet; chancel 28½ feet by 8 feet; octagonal vestry on north side of the ıtter, and porches on the north side and west nd of the former; the gable to the west is ırmounted by a bell turret, which, the site eing in a central and elevated part, will sup-y that feature so essential to an English vil-ge. The cost of the fabric will rather ex-eed 1,400*l*. The accommodation provided ill be for 240 adults and 60 children. The rchitect is Mr. George Fowler Jones, of ork. The Rev. Mr. Matthews, the Vicar of herburn, who officiated in laying the stone, ated in his address that the patrons of the be-efice and others proposed to raise a sufficient ım for the construction of a house for a resi-ent minister, and a school-room for the ildren. The church will be dedicated to e Virgin Mary.

On Easter Monday, the ceremony of laying e foundation-stone of a new church took ace at Woodford, a village pleasantly situated the Avon valley, about midway between ılisbury and Amesbury. The ponderous rner stone, forming the south-east angle of e church, was laid with due ceremony by rs. Duke, supported by Archdeacon Lear. he tower is the only part left remaining of e old church, the building having become ry much out of repair through lapse of time. he new church will have an additional aisle, ere being one only on the south side before. r. Wyatt is the architect.

At Eastover, near Bridgwater, the new urch, to be dedicated to St. John, is nearly ished, and will be consecrated in a short ne by the Bishop of Salisbury. It is designed the early English style, and substantially ilt of stone. The south side of the church s a deeply-recessed and ornamented doorway. ıe whole of the windows are completed, and nsist of richly-stained glass. The roof and ıtts are of beautiful carved work. This is s only church in the town or neighbourhood ıere every sitting will be free, there being commodation for about 500.

The railway works at Ely are proceeding ith great rapidity. Near the bridge above a hundred labourers and artisans are actu-y employed. The station will be situated on south side of the bridge, and is to be built wood; but, upon some future occasion, it ll be removed for an elegant structure of ne. The report that the company have ven the contractors an extra month to finish line from Brandon to London is untrue. It ll be fully completed by July 1st.

At the West-Riding Sessions at Pontefract, d last week, a motion was made by Mr. ll to authorize the inhabitants of Wetherby ake down the old Court-house, which was y of no use to the Riding. A memorial l been presented last year, which was re-ed to a committee; and that committee l reported in favour of the request. It eared that the inhabitants had raised by scription 700*l*. to which a gentleman pro-ed to add another 100*l*; and the object re-red was to be allowed to take down the old rt-house, the property of the Riding, throw site thereof to the Market-place, and to ct some public buildings thereupon. After ıe discussion by the magistrates, it was eed that the prayer of the petitioners be nted, on an arrangement being entered into the parties for allowing the use of a room r the building for the West-Riding magis-es, as may be satisfactory to the committee ady appointed.

The Scott Monument at Edinburgh, having n most satisfactorily completed by Mr. d, the builder, a public dinner was last week n to that gentleman, Alexander Robertson, ., of Eldin, in the chair.

t Windsor, St. George's Chapel has just embellished with two additional stained-ss windows, executed by Mr. Willement. ses windows are in the north aisle of chapel, immediately under the Royal closet, facing the back of the tomb of King ward the Fourth, and his Queen, Elizabeth odville. In the two centre compartments of one of the windows are full-length figures of Edward and his queen, attired in their robes of state, in devotional attitude, over the sacred volume. The two outer compartments contain the armorial bearings of that monarch, and also of his queen. The other new window adjoining is to be called the "Rutland Window," and contains the arms of Ann, daughter of Richard Duke of York, Thomas Earl of Rutland, Richard Duke of York, Richard Earl of Cambridge, and Ann, daughter of Thomas St. Ledger. Mr. Willement has also filled up the three compartments left in one of the new windows fronting the royal closet with the arms of the King of the French, the Duke Saxe Coburg and Gotha, and Philip Earl de Grey, the three newly installed knights of the most honourable and noble Order of the Garter. The fountain decided upon by the Board of Green Cloth, to be placed in the new Royal gardens at Windsor, is now complete, and was played for the first time on Friday last, before Sir Thomas Marrables, who attended on the part of the board, and approved of it.

The committee for managing the erection of new churches within the borough of Kingston-upon-Hull have made the requisite arrangements for immediately proceeding with the third, in the recently endowed district of St. Paul's. Plans and specifications have been advertised for, and it is confidently anticipated that the additional means required for carrying them into effect will be readily contributed, and insure an early completion of the work.

Lord Lyttleton has addressed a circular to the gentry of the neighbourhood of Stourbridge, in the name of a committee of gentlemen formed for the purpose of extending hospital accommodation to the district.

The *Gloucestershire Chronicle* states that his Royal Highness Prince Albert is expected to lay the foundation-stone of the new Agricultural College at Cirencester.

At Kirkaldy, in Scotland, a bonded warehouse is now in the course of erection on the ground immediately on the east side of the harbour.

A new church, now fast approaching to completion at Sowton, near Exeter, has been built, at a cost of 3,000*l*., by the munificence of John Garratt, Esq., of Bishop's-court. Mr. Garratt was one of the Aldermen of London for many years, and highly-respected in the metropolis. He accumulated a handsome competency by activity and integrity in mercantile and commercial pursuits, and retired into Devonshire, where he has made large purchases of landed property, and where, as a country gentlemen, he has acquired the general esteem of the nobility, gentry, and all classes. He possesses a large portion of the parish of Sowton.

The Hon. H. Herbert, son of the Earl of Carnarvon, is building a new house at Street, in the parish of Blackawton, Devonshire.

THE LONSDALE MEMORIAL.

DURABILITY OF MARBLE.

We stated in our impression of the 8th ult., that a marble statue of the late Earl of Lonsdale was about to be erected in the county of Cumberland. Since then the committee appointed to carry out the design have determined to entrust the execution of it to Mr. M. L. Watson, who is, we believe, a native of Cumberland. The following letter from the artist has been addressed to the treasurer:—

"Dear Sir,—Permit me to submit to you for the consideration of the committee a few remarks respecting the durability of marbles.

The purest marbles are those of Tuscany. They are admirably fitted for works of art, and universally adopted in monuments and statues intended to be placed in the interiors of churches and public institutions. Not one of these will bear exposure to the atmosphere in our northern climate.

The marble of Sicily is, however, well calculated for statues and monuments intended to be erected in the open air. The triumphal arch in St. James's-park, embellished with figures and relievi from designs by Flaxman, and executed by Sir Richard Westmacott, is entirely of Sicilian marble. The colossal statues of our Saviour and the Apostles, by Thorwalsden, erected at Copenhagen, are of the same material; and you may rest assured that the durability of this marble was satisfactorily ascertained before the sanction of the respective governments could be obtained for the adoption of it.

A colossal statue placed on a truncated column or lofty pedestal would be imposing, and endure for many centuries. The amount subscribed is nearly sufficient to defray the entire cost. There is not a marble statue in either Cumberland or Westmoreland. I cannot express to you how deeply I shall regret that any thing less important than a colossal statue in marble should be determined on as an appropriate monument to the late Earl of Lonsdale.

The subscribers may desire, however, to erect a work, still more colossal, executed in native stone, which is much less durable than Sicilian marble. Should this be resolved on, the statue 15 feet in height might be completed for the funds you have on hand.

It may be long ere so favourable an opportunity will present itself for the encouragement of sculpture in our native county. I cannot forbear expressing a hope that the arts may not be forgotten by those who have so liberally subscribed towards a memorial intended to record the virtues and eminent services of the lamented Earl of Lonsdale."

THE WATERMEN'S FLOATING PIER AT GREENWICH.

A cause involving the legality of this pier was argued at Kingston on the 31st ultimo, before Lord Chief Justice Denman and a special jury. The plaintiffs were Sir Richard Dobson, the deputy inspector of hospitals, and a gentleman named Sutton; the defendant, Blackmore, was superintendent of the pier in question.

From the statement of Mr. Serjeant Channel, it appeared that the plaintiffs had purchased seven houses, some of which abutted upon the river, and others were close to it, and to the whole of which there had always been free access from the water, until the persons with whom the defendant was connected thought proper to build this pier, the effect of which was to prevent all access, and no boats or barges could get to them. The proceeding upon which the present action was founded took place in 1842, at which period the plaintiffs were desirous of repairing some of the houses which they had just purchased, and two barges containing the necessary materials were sent for that purpose. The watermen, however, refused to let them come in, and the result was that one of the barges was swamped and sunk, and the other was compelled to go a considerable distance up the river to unload, thus entailing a good deal of additional expense in performing the repairs.

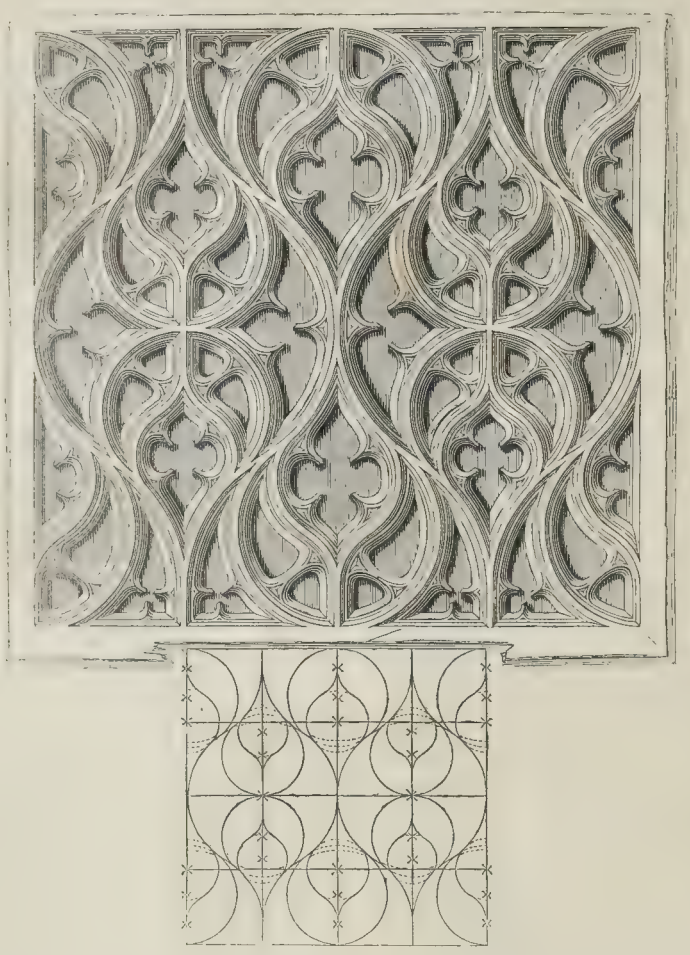
Mr. Serjeant Shee, in addressing the jury on behalf of the defendant, said that they had to decide a dispute between a stone pier erected by Act of Parliament, and which belonged to the plaintiffs, and a small floating pier, which had been erected by a body of men who, finding their former means of obtaining a livelihood entirely taken away from them by the use of steam, had been compelled, in their own defence, to have boats of their own, and to erect a pier for the accommodation of the passengers who travelled by them, hoping thereby to be enabled to support themselves and families. The object of the plaintiffs, who were the proprietors of a rival pier, was to thwart and oppose them in this attempt by every means in their power. He concluded by contending that no real obstruction had been made out against the pier, and that the defendant was entitled to a verdict.

The Lord Chief Justice in summing up observed, that it ought not to make any difference to the jury if they should be of opinion that the plaintiffs had purchased the property in question solely with a view to the present proceeding. The only question for them to decide was, whether or not the free course of the water may have been obstructed, and whether the defendant was the party liable for that obstruction.

The jury, after deliberating for a few minutes, returned a verdict for the plaintiffs—damages 1s.

The effect of this verdict, if it is not set aside, will, of course, be to do away with the floating pier altogether.

GEOMETRIC TRACERY FROM CARLISLE CATHEDRAL.



GEOMETRIC TRACERY FROM CARLISLE CATHEDRAL.

The accompanying engraving, from a drawing by Mr. R. W. Billings, represents one of a series of panels from the wooden screens in Carlisle Cathedral. This particular example forms part of St. Catherine's Chapel, in the south transept, and still remains in the cathedral; but many similar specimens have been removed by barbarous churchwardens, and are to be found scattered about the country. Mr. Billings published a small volume some time ago illustrative of this paneling, to which we alluded in our notice of the author's work on the tracery of Brancepeth Church, Durham, p. 104, *ante*. Some of the panels which he gave are enshrined at Carlton Hall, near Penrith, and at Featherstone Castle, Northumberland. Apart from their elegance, they are valuable as proving that the Gothic architects designed on system. Although the result is very different, it is found that the majority of these panels were formed on the same ground-work, namely, on the division of a square into four parts each way, or sixteen squares. Upon the lines of these squares, as shewn by the diagram below the example we have given, the centres of all the curves are worked, and upon such a simple calculation of parts as to render their construction perfectly easy. It is singular to observe how great an alteration in the general features is effected by a very slight deviation in the curves.

In the leading curves of these examples, Mr. Billings remarks, nothing can exceed their accuracy of projection; but all the foils contained within are worked by hand. They are ascribed to the time of Prior Thomas Gondibour, who presided over the cathedral from 1484 to 1507. His initials were cut in the tracery of a panel in the door to the chapel, but this was unfortunately broken out and carried away a few years ago.

The engraving is one-third the real size of the panel represented.

THE HISTORY OF A COMPETITION.

"If the history of competitions were written, its details would shew an extent of rascality astounding to architects themselves."—The Builder, p. 82, *ante*.

Sir,—In the *Manchester Guardian and Courier* newspapers of the 28th of September last, there appeared the following advertisement:—"To architects.—St. Simon's Church, Salford.—Persons desirous of sending in plans and specifications for building the above church are requested to forward the same as soon as possible to Huitson Dearman, Esq., treasurer to the committee, Springfield-lane, Salford. All plans to be in not later than the 1st of October." In answer to this, some twenty or thirty architects wrote for particulars, and amongst them was one, who from the answer received, inserted in The Builder of the 5th of October, a paragraph headed "Increase of honour and profit to Architects;" now, although it is evident from future proceedings, and even from the general tenor of the particulars, that your correspondent had misunderstood the intent of the committee, yet I can assure him, it is much better for him that he did do so, than if he had entered into competition with others for the building of the church at the rate of 5 per cent. on the whole amount; however, to return. The 11th of October at length arrived, and with it some fifty or sixty plans from architects in the towns of Manchester, Sheffield, Liverpool, and London. Now, in the conditions as framed by the committee (who doubtless were all honourable men), was a stipulation to the effect, that the cost was not to exceed the sum of 3,000*l.*, and further, that if any design which might be chosen, should exceed that sum, the committee should be at liberty to reject it altogether; this in itself, was perfectly right, but let us see how far this committee acted up to their conditions.

Some of the designs bore names, and some mottoes, about which there was no express stipulation, and amongst the latter was one bearing the signature of "Ignatius." A few days passed on, and it began to be talked of that "Ignatius" would be the successful candidate, but who "Ignatius" was, at present seemed a mystery; however, time, as it mostly does all things, unravelled this, and the design was said to be that of two young architects

(Messrs. B. and P.) of Manhester The competition now began to wear a settled aspect, and a few of the architects sent for their plans back, but the answer in all cases was that it was not determined. The designers of the plans bearing "Ignatius" were now called in to make an approximate estimate, and to give a guarantee to the effect that it should be completed for the sum of 3,000*l.* The plans too were shewn to many friends, amongst whom happened to be one or two having a practical knowledge of building, who stoutly declared that it was ridiculous to imagine that such a design could be erected for 3,000*l.* However, the architects made an estimate, and shewed that it could be finished for about 3,250*l.*, this was pretty near the mark, and certainly not to be objected to. Upon this the committee sent the design to the London commissioners (to whom they were applying for a grant); when, to the committee's astonishment, in a few days word came down that the walls for the aisles in the nave were but 14 inches thick, or thereabouts, and that those in the clerestory were somewhat less than that; but the committee, still determined not to lose a chance of having the pretty picture converted into a real church of stone, returned word that they themselves would bear the extra expense of the thickening of the walls, thus increasing the outlay to something about 3,500*l.*

The committee now thought all was pretty safe, when down came another objection in the form of a letter, stating that the tower with the supports it then had would actually fall before it was half way up; in short, objection upon objection was poured in, whilst the committee as obstinately tried to get rid of them; but, alas! all was in vain, for the commissioners at last resolved that if the committee attempted the design, they would not aid them. The hopes of "Ignatius" were now at an end, and it was left for the committee to choose another from the many designs they had received, and which (though two months had now elapsed) they still kept possession of; but it seemed they still had the pretty picture in their eye, for none of the forty or more designs would suit them: however, it appeared one or two of the committee had a friend (Mr. L. of Manchester), perhaps a particular friend, among the competitors, but who had, alas! made his plans too plain, though doubtless they were honest, for his could be erected for 3,000*l.*; but then the church was not handsome enough, so what was to be done? Why this very honourable committee agreed, and actually sent for this friend, and gave him instructions to draw out a fresh set of drawings; this he did, and produced what we are told will be a very handsome church: but then may it not well be so, when he comes forward and says this design cannot be completed under 3,500*l.* Of course the committee are very sorry for that, but then he is a friend, and, what is more, he has produced a more handsome design than any sent in (because, he had 500*l.* more to work upon), so he must be the architect, and the church must proceed. Now let us take a glance at the private doings of this committee, and see how the competition has been carried on, and then we will leave these honourable men to their fate, and let us hope to public indignation too.

When first the building of this church was in its infancy, which was some two or three months before it was advertised, a certain minister (the Rev. H. Stowell) introduced to the intended minister of the new church, and one of the committee (the Rev. E. Harper), an architect (Mr. Shellard, of King-street), one whom no doubt he had every wish to see as the architect for the new building; however, I believe the minister there and then informed him that ultimately it would be a competition; but at the same time said, that if he would send them in a set of plans, the committee would look at them, and no doubt he should have interest enough to serve him. In a short time from that, a set of drawings was duly received, and pretty well looked over, but as the day of competition drew near, another set was also received from the same person, and took its place among the rest (this set was got up entirely under the immediate superintendence of the minister). Now these proceedings had been whispered abroad, and reports reached the ears of the committee back again, that it was but a sham competition, and that in fact, Mr. S. was the architect and already appointed; by which doings, many were deterred from sending in altogether. The committee again and again assured doubtful parties that all should have a fair chance, and amongst the committee were a few who did not like the idea of this same gentleman (Mr. S.) being thrust upon them whether or no, so the result was, that at the first meeting, it was moved, seconded, and carried (three only voting against it), that the plans of Mr. S. be taken away altogether: and thus was his chance lost entirely through being misled by one of themselves, his second plans not even looked at, but at once rejected. Again, in their conditions, all plans were to be in by the 11th of October, yet even for more than a fortnight after, plans were still being received; and yet further, to the regret of several of the committee, there were no plans in from the office of two architects (Starkey and Cuffley, Cross-street, partners), who had built a very pretty church in the town (they had been deterred by the alarm that it was a false competition), so what did this honourable committee do even a fortnight or more after the day mentioned in the stipulations, but call at the said office, and solicit a set of drawings; whether they got them, or not, I am not sure, but I believe they did. And still after all not one of the designs sent in has been chosen; the committee have wasted the money of the subscribers too, for they have paid "Ignatius" between 10*l.* and 20*l.* for after trouble, and besides this report speaks of a bill of 50*l.* by way of a charge, which has been presented to them by their first friend, Mr. L.

Such is a pure and ungarnished history of the competition of St. Simon's Church, a competition in every way disgraceful to the committee; a committee appointed to inquire into the merits and demerits of some forty designs or more, each of which will have cost to the designers from 20*l.* to 50*l.* each, and lest it may be said that the grapes are sour, I beg to subscribe myself not an architect, but simply

Yours obediently,

A Looker-on.

The church is now proceeding under the superintendence of the friend named, Mr. Lane, of Manchester, and the committee are now afraid it will come to 4000*l.*, for the architect's estimate for foundations was 180*l.*, and they are costing 230*l.*

ANCIENT IRONWORK.



Fig. 1.



Fig. 3.

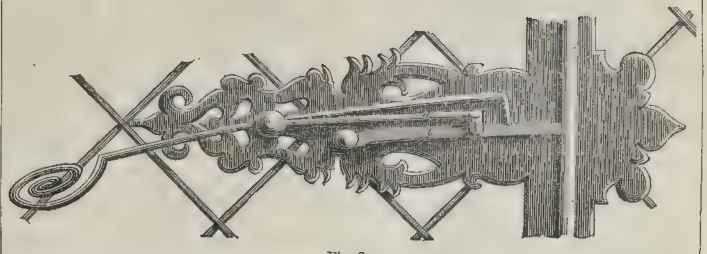


Fig. 2.

ANCIENT IRONWORK.

Fig. 1 gives the front and side view of an ancient fire-dog at an old hospital at Sandwich, in Kent. The date is about the time of James I. It is a very good example; the hook to support the spit for cooking is seldom seen attached.

Figs. 2 and 3 represent casement-fastenings. In old buildings the iron casement-fastenings were often very much enriched; they were sometimes so large as to reach quite across the frame, and sometimes they formed part of the frame itself. The larger of these examples here given is of the latter description. The old lead-light casements opening in the centre, were very difficult to close effectually, so as to keep out the wet; that the inconvenience must have been felt as fully in former times as it would be at present, our larger example is proof. It is a very ingenious contrivance for securely closing the two halves of the sash-frame. The rod *c c*, attached to the end of one-half the frame, and turned by the handle *b*, has a buckle on the top and bottom, which falls on the other half of the iron frame of the sash. The spring-latch, as by a leverage action, closely presses in the handle *b*, and keeps the sash effectually tight, preventing any shaking from the wind, &c.

It may be here observed that the iron sash-frames in the state apartments at Holland House, Kensington (a most interesting structure) fastened on the same principle, are models of what may be done with these very inconvenient parts of old structures.

The two examples given are probably of about the period of Charles I. Such examples are seldom met with, though in some parts of the country they are numerous; at Saffron Walden, in Essex, for example, nearly every cottage has specimens, as ornamental as our largest examples, but they are merely spring-latches.

R.

CAST-IRON PIER AT GRAVESEND.

At the Institution of Civil Engineers, on April the 8th, Sir John Rennie, President, in the chair, a paper was read by Mr. J. Baldry Redman, giving a description of the new cast-iron pier at Gravesend, just completed from his designs, and under his superintendence. After an introductory memoir, describing the rapid growth of steam navigation, and consequent increase of the town, and demand for greater accommodation, the paper gave an account of the mode of construction adopted, which was illustrated by drawings, and a model of the work by Mr. Salter. The pier is situated in front of the Terrace-gardens, in a line with Harmer-street. The length is 250 feet, and it is supported upon twenty-two Doric columns of cast-iron, 28 feet long, weighing nearly ten tons each. The first tier is situate at high-water mark, and from thence there are three spans, of 50 feet each, to the pier-head, which is 90 feet long by 30 feet wide. Horizontal iron girders support the platform, and the external girders are inclosed by an entablature, which also forms the parapet; at the south end are solid abutments and wing-walls to support the approach, and stone offices with turrets flank the entrance. The first tier of girders is carried over the esplanade in front of the gardens, which is thus continued underneath the pier. The whole area of the platform is covered by a wrought-iron roof, boarded and slated, and supported upon coupled iron pilasters, with corrugated iron panels between, and the sides can be inclosed at will by shutters; sky-lights are introduced in the roof. The approach from the river is by a double flight of steps with landings to suit all states of the tide. A powerful light is exhibited from a cast-iron lighthouse, surmounting the junction of the roofs at the pier-head, which is supported upon a system of iron trussing, 43 feet in span; octagonal copper gas-lamps are suspended from the apex of the roof. This structure has been designed to meet the views of the conservators of the river, so as to offer but little obstruction to the navigation, and there is a clear headway of 8 feet underneath at high-water spring-tides. The comfort and convenience of passengers by steamers have been also materially consulted.

The paper described in detail the method adopted in getting in the foundations which was one of the chief features of the paper, as the method was novel, viz., by sinking cast-iron cylinders to a depth varying from 9 feet to 14 feet below the level of low-water mark of spring-tides, and keeping their tops always raised above high-water.

The ground was excavated from within them, and they were fitted with solid work to the level of low-water mark, where the columns were bedded on the stone bases; the work occupied two years in its construction, and has been since Easter Monday, open to the public.

A very ingenious machine was exhibited for making with perfect accuracy artificial teeth, gums, and palates: it is the invention of Mr. Tomes, who described its action and demonstrated its capabilities. A plaster of Paris cast of the gums having been obtained, a peculiar moulding composition, softened by heat, is pressed upon the cast and allowed to cool in that situation, it is then removed and reduced to the shape of the intended teeth, and if on trial this composition model is found to fit the mouth accurately, it is placed in the face-plate of the machine, and a perfect copy is obtained by the mechanical action of the revolving cutter or tool. The machine consists of three slides; two are placed vertically and move in two directions horizontally and vertically, but each in the vertical plane. Upon these slides is a plate of iron, to which is fixed the composition model and the substance in which the copy is to be produced; the two, therefore, partake of equal motion. The third slide is placed horizontally, and admits of horizontal motion only, but at right angles with the motions of the perpendicular slides. Upon this slide a trace with a blunt point is permanently fixed, and parallel with it is a revolving cutting point or drill, by the three sliding motions the tracer is made to pass over the surface to be copied, whilst the drill is constrained to describe an exactly similar surface in the substance placed before it, and by the rapidity of its motion joined to the delicacy of its action, copies with accuracy the most minute projections on the cast. In the specimen exhibited the finest filaments were accurately delineated on the ivory carving, and the machine was pronounced to be capable of adaptation to many other purposes beyond dental carving, for which it was designed and for which it has been entirely used by the ingenious inventor.

PROPOSED NEW BRIDGE OVER THE MENAI.

The great national improvement involved in the establishment of a speedy communication by railway and steam-ships between London and Dublin, *vid* Holyhead, being now in progress, and, as it is understood, sanctioned by the Government, powers for crossing the Menai by a bridge at the Britannia Rock, one of the wildest and most critical parts of the Swellies, have been introduced into the Chester and Holyhead Railway Bill now pending in Parliament.

The idea is by no means new. It appears to have first originated about the year 1783; the expressed object being to facilitate the communication with Ireland, and do away with the delay and danger of the ferry called "Bangor Ferry." The inhabitants of Carnarvonshire, more particularly those of the county town (where the principal shipping interests of the coast were then located, but not as now incorporated by Act of Parliament) took alarm at what they considered a dangerous obstruction to the navigation of the Straits, and a bill being brought into Parliament for the purpose, it was strenuously opposed in the year 1784-5, and finally defeated in 1786. The question, however, was not set at rest, but still continued to be occasionally agitated, and in 1801 a survey of the Straits was made by the late Mr. Rennie, under the direction of Government, with the object of crossing them by a bridge; he reported in favour of the project, and proposed two plans of bridges, both arched and of cast-iron, and supported by pillars of masonry; one of a single arch at the side of the present suspension bridge; the other of three arches at the Swelly, Benlas, and Welltog Rocks; and these plans being submitted to Mr. Jessop, an engineer of great celebrity, and to Dr. Hutton, the Royal Professor at Woolwich, were approved of by them.

Notwithstanding the reports of the most scientific men of their day, the Government never carried into effect their suggestions of arched bridges on piers of masonry. The Chester and Holyhead Railway company now propose to carry their road over the Straits at the Britannia Rock, a spot never proposed by former engineers, and by a bridge of two cast-iron arches, supported on piers of masonry, founded at low-water mark, of the following dimensions:—

Span of the arches from pier to pier....	360 ft.
Height of ditto from high-water to the crown of the arches	105
Height from high-water to the springs of the arches	55
Clear space for headway under the arches	200

In width at a minimum height of 90 feet—

Width of middle pillar of solid masonry	130
Height of ditto	140
Width of side pillars	60 to 70

The Trustees of Carnarvon Harbour, as well as other parties concerned in the coasting trade, regard this proposed bridge as possessing all the defects and dangers of the arched bridges of former times, aggravated by its diminished space from pier to pier, by its increased mass of masonry, by its fixture in a most dangerous locality, and by other circumstances too numerous and particular to detail in this article.

Memorials to Government having been presented on the subject, engineers and nautical gentlemen nominated by them have been sent down to inquire particularly into the matter, and a meeting for this purpose took place at the George Hotel, near Menai Bridge, on the 25th ult. On the part of the Admiralty there were present Sir John Rennie and Mr. Rendel, engineers. The presence of a nautical man having been suggested by the trustees, Captain Vidal, R.N. of the surveying steamer Styx, was sent down about a fortnight back, and he has since been occupied in making a minute survey of the Swellies, and obtaining all possible information on the mode of navigating vessels there. The Chester and Holyhead Railway Company were represented by Captain Moorsom, R.N.,, and Mr. Robert Stephenson, the engineer, attended by Mr. Parker (of the firm of Parker, Hayes, Barnwell, and Twisden, of London, solicitors); T. H. Evans, Mayor of Carnarvon; H. P. Manley, Esq., collector of the Harbour Dues; R. A. Poole, Esq., of the firm of Messrs. Poole and Powell, solicitors of Carnarvon, with Mr. Poole, jun. appeared for the trustees.

The most particular attention was paid by the scientific gentlemen present to the statements of every person examined, and we believe the contending parties separated with the best feelings, and under the impression that their respective interests had been carefully considered, and would be duly protected.

In the course of the inquiry, Mr. Stephenson stated that he considered it perfectly practicable to construct cast-iron arches which should not be effected by the vibration of a railway. That he was not at present prepared with any plan of a suspension bridge which he considered unobjectionable as applicable to a railway. That the arches of the proposed bridge could be let down from above into their proper places, but that for this purpose the main or middle pillar of masonry must be at least of the height marked, viz. 130 feet, and in all probability more. That it would not be difficult to form it into two pillars by an arched aperture in the middle.

THE BOX TUNNEL.

Considerable alarm having been excited by an account in the newspapers, of the fall of a quantity of stone from the top of the Box Tunnel, it seems desirable to give increased publicity to Mr. Brunel's report, as calculated to allay the fears of the public:—

"18, Duke-street, Westminster, April 7.

"Gentlemen,—I beg to lay before you a short statement of the circumstances attending the falling of a stone in the Box Tunnel, on the 24th ult. I should remind you that about 'a quarter' in length of the tunnel, near the east end, is cut through the natural rock, and is not lined with masonry. At the eastern extremity, a short distance was arched or lined subsequently to the completion of the tunnel. In the centre of this length of inclined tunnel is one of the large working shafts. During the winter, and particularly during the thaw after a severe frost, the surface of the rock, and some of the beds particularly, have always suffered in the immediate neighbourhood of the shaft and formerly also near the east mouth; but since the arch has been turned, for some short distance within the mouth, no further spawling or scaling of the stone takes place there. Down the shaft, however, the cold air descends, and for 50 or 100 yards on either side of the bottom of the shaft the most intense cold frequently prevails. During the past very severe winter, men have been constantly employed between the trains in breaking the icicles which form in and about the shaft, and knocking down spawls or loosened stones, and the effect of the shaft was found to be so mischievous that it has been determined to close it as soon as the frost would permit of the necessary masonry being built. Between the trains on the day in question a large stone which apparently had been loosened by previous work, fell, not from the roof, but from the side of the tunnel, near the shaft. It fell upon the rails, and the empty assistant engine, although signalled by the men employed at this work, ran upon it and was thrown off. This led to the delay of the succeeding trains. The accident was entirely the result of the severe cold, and owing to the open shaft. The shaft is now being closed. No effect has ever been produced upon any other part of the rock than that exposed to the direct action of the frost—formerly, near the mouth, and subsequently near the shaft. Such occurrences are by no means unfrequent consequences of severe frost in open cuttings either of railways, canals, or common roads, and are much more rare in tunnels. In the Box Tunnel the frost only reached, as I have said, a short distance either way from one shaft, and this will now be closed. It is altogether an incorrect statement which has been circulated, that there is any thing peculiar

in the stratification or the character of the beds of oolite at Box that can or does cause any danger; on the contrary, there is a very fine, hard, and sound bed, which has been selected and made to form the roof by working up to it, and from which nothing ever fell, and there are extensive quarries close by exhibiting the durability and soundness of this stone with roofs of much greater extent than in the tunnel.

"I. K. BRUNEL."

General Pasley has also reported, and declares that the tunnel is perfectly sound and safe.

COLLEGE OF CHEMISTRY.

An attempt is being made to establish a college of chemistry in the metropolis. It is a national disgrace that we have not had for many years an institution of this kind in active operation, and it is to the want of such a college that we must attribute the little progress which this science has made in this country, when compared with the improvements which have been effected in the various continental states, particularly Germany, where schools of practical chemistry have for a long period been established.

The promoters of this college have four objects in view—viz.: 1st. To establish a laboratory (as designed by Sir H. Davy) for original investigations, and for extending the boundaries of chemical science on the model of the Giessen laboratory. 2nd. To form a "college" for the instruction of students in analysis and scientific research, upon such terms as to encourage young men of talent and scientific taste to apply themselves to chemistry, and for qualifying public lecturers and teachers. 3rd. To form departments for the application of chemistry to agriculture, geology, mineralogy, and metallurgy, by an analysis of soils, rocks, &c.; to medicine, physiology, the arts and manufactures. 4th. The employment of such means as may appear expedient for encouraging the pursuit of scientific chemistry throughout the country, and for making it a branch of general education.

The project is patronised by some of the most eminent public and scientific men of the day, among whom we find (on the council) the names of the Dukes of Wellington and Sutherland, the Marquis of Lansdowne, Earls of Dalhousie and Fitzwilliam, Sir J. Clark, Bart., Dr. Holland, Dr. Gregory, and the Rev. Dr. Buckland.

It is trusted that so noble an undertaking will not be allowed to fall to the ground for want of public patronage.

A case illustrating the importance of a school of practical chemistry, with reference to metallurgy, has been mentioned recently. A student of the Giessen school having visited and inspected the iron-works of Count Salm, in Austria, was enabled to suggest improvements in the processes employed, the cost of which did not exceed 600*l.* sterling. For this, and for superintending the processes, the chemist agreed to receive a third part of the profits accruing. At the end of five years he had realized a fortune of 30,000*l.*

SCENIC EFFECTS.—For the approaching bazaar to be held in Covent Garden Theatre, in aid of the Anti-corn Law Fund. It has been determined by the stroke of Grieve's magic wand, and the aid of the "willing imps" in the service of Mr. Edwards, builder, of Manchester, to transform the whole interior of the theatre, audience part and stage, into a Norman-Gothic hall, which is to have a roof corresponding in character with the style of the rest of the building; this will be of stained glass, from a design of Mr. Grieve, and brilliantly lighted from above so as to shed a "myriad-coloured lustre" of great brilliancy on the upper part of the large area. The pit will be floored over, so as to make it and the stage one vast hall; and there will be a range of Gothic windows of stained glass round the stage part of the hall.

LINCOLN'S-INN NEW SQUARE.—The projected improvements in the new square have been somewhat suddenly suspended by order of the Benchers, in consequence of a protest against them having been numerously signed by the owners and occupiers of chambers in the square.

New Books.

Bloomfield's Poems. Illustrated Edition. Van Voorst. London, 1845.

THE public are indebted to Mr. Van Voorst for beautifully illustrated editions of several of our best authors, amongst which the "Vicar of Wakefield," with Mulready's drawings, stands quite alone. The work now before us contains thirteen illustrations by Sidney Cooper, Thomas Webster, A.R.A., J. Callcott Horsley, and Fred. Tayler, admirably engraved on wood by Thurston Thompson. It cannot fail to be acceptable to the admirers of "The Farmer's Boy," and will make better known writings which are full of right feeling and exquisite sensibility. The drawing at the head of "Richard and Kate," by Webster, is our favourite;" we should advise the artist to make a picture of it.

A Series of Letters on Agricultural Improvement. By J. J. MECHI. Longman, 1845.

THESE letters unfortunately look a little too much like advertisements; but as we concur with the author "in thinking that the United Kingdom should be as a well-cultivated garden—that our national agriculture has not progressed in the same ratio as our other productions—that this non-progression is a serious national evil, and source of weakness—and that it arises from a want of knowledge and inclination rather than from want of means," and, moreover, are of opinion, that the letters contain much which may be studied usefully by all who are engaged in agriculture, we cannot avoid recommending them to the consideration of our readers. Efficient drainage, good farm buildings, and careful preservation of all manure produced on the farm, are amongst the prominent points urged.

Correspondence.

BATHS AND WASH-HOUSES.

SIR,—I beg leave to trouble you with a few remarks concerning the designs for Public Baths and Wash-houses. I had inspection of the designs at Mr. Rainy's rooms on Tuesday; after spending some time there, I was struck with the idea that the plans generally were upon one principle, and I cannot conceive that any one of those designs was such as should be acted upon; some of them, so far as the drawings and designs for elevations were concerned, certainly deserved credit, but some of the gentlemen strayed away from the voluntary contribution bath and wash-house edifice to that of the private gentleman's country seat.

Now, my idea as to that which is wanting for such a public building and purpose is:—1st. A cold plunging bath for male adults, and another for male youth; another for female adults, and another for girls, all of which should be of good extensive dimensions. This is one most essential requisite for the poor, in proof of which I will refer you to the bathing in the Thames, Lea River, and ponds wherever they can get to swim and wash in; none of these plans possess these plunging baths except two or three of them, and those only on a very small scale.

My second observation will be in regard to the washing department; most of the designs have these offices upon the ground-floor plan, which, according to my opinion, is out of all character so far as concerns the principle of steam, because in having the washing rooms on the ground-floor, the wash steam will rise, and obtain access to the upper floors.

I consider the plunging, warm, vapour, and shower baths should be on the ground-floor, and the washing rooms on the upper floor, because when the women are in the building, they would have every requisite before them for washing; that the trouble of going up one pair of stairs would not be much to them, but to warm bathers it would be so, as many of them are invalid, and some scarcely able ot crawl—for instance, a poor creature with violent rheumatism.

Waste steam from the washing being carried on up stairs would do no harm; the building might have a ventilated roof for the escape of steam, and thus be kept in a healthy state, at least as far as vapour is concerned. The ironing and drying rooms could be in connection. If these observations be worthy of your consideration, you are at liberty to use them in any way you please.

Before concluding, I will remark respecting the committee for deciding upon a design for such an important matter; it should consist, I think, of the following, and to be men of experience:—architects, medical men, merchants, tradesmen, and poor mechanics; from such a committee as this a good result might be expected. In the first place, the architects would be enabled to decide upon the mechanical arrangement of the design; the medical men would be enabled to state upon the requisite wants and construction of shower, vapour, and warm baths; the merchants and tradesmen upon the general wants, and the mechanics upon the actual necessities of the poor.—I am, Sir, &c.,

Hoxton, April 3rd. ARCHI.

ACCIDENT AT OLDHAM.—IRON GIRDERS.

SIR,—In your journal of the 21st of last December, you announced that the Government had appointed a commission, consisting of Sir Henry De la Beche and Thomas Cubitt, Esq., to inquire into the causes of the falling of the cotton-mill at Oldham, and as to the failure of part of the prison at Northleach; and on the 1st of last February, you stated that certain experiments had been made at Thames Bank on the strength of iron girders, for the express purpose of assisting those gentlemen in their inquiries. These announcements have naturally induced me, and to my knowledge many others, to look almost impatiently for a detailed account of these experiments, as well as for a full statement of the causes which led to the accidents referred to in the commission. I therefore beg to inquire whether a report has yet been made, and if it has, whether you intend to give the substance of it in your valuable journal?—I am, Sir, &c.,

SIDEROS.

*** We understand that the commissioners made their report some time ago: we shall not fail to give our readers the substance of it. As to the experiments on cast-iron girders, we were prepared to place the results before the public, but learning afterwards that they were to be made part of the report to her Majesty's Government, considered it expedient to defer doing so until after the report had been considered.—ED.

THE DISTRICT SURVEYORS.

SIR,—With others of the building community, I have anxiously been looking in your useful weekly columns, under the hope of finding, either from yourself or your correspondents, some article tending to relieve the building interest from the despotism desired to be exercised over it by the district surveyors. They make every frivolous circumstance a matter of reference to the official referees to whose dictum we are still exposed, notwithstanding the excellent and unanswerable arguments which have appeared in your columns.

To myself it would seem that the secret desire of these gentlemen is to perplex all building operations carried on under the guidance of private surveyors, so as to make it compulsory on builders to employ the surveyor of the district in which he is about to build, in order to protect his operations from molestation or hindrance; to resist which dishonourable attempt, it is a matter of surprise that the trade has not united.

Union is strength—every wrong has its remedy, and this would be found a certain one. I am aware some will say this position is improbable, because the Act specifies that if a district surveyor be employed by the builder, he, the district surveyor, shall not be the official surveyor over such building, but this is easily managed in more ways than one; and looking at their procedure, I maintain that their litigious and unnecessary conduct fairly induces this conclusion. But whether right or wrong in this general censure (upon a body who should be far above such measures) it would be desirable, under the circumstances, to call a public meeting of the trade, request yourself, or some other gentleman who has studied the subject, to preside as chairman, and making common cause, select some cases best calculated to elicit a legal and honest construction of such points as press most heavily upon the trade by an appeal to the highest authorities.

I will gladly attend myself, having hoped before this to find such a course suggested by some more weighty individual than,

Sir, your obedient servant,

SCRUTATOR.

*** Our correspondent must not be led by the litigious and unwise proceedings of two or three of the district surveyors to condemn the whole body, which consists, for the most part, of able and right-judging men. We may feel it our duty shortly to animadvert on the conduct of these exceptions more pointedly. As to the proposed public meeting, we received some weeks ago from several of our correspondents a similar suggestion, but delayed publishing it on the ground that time would more clearly point out what portions of the Act required alteration.—ED.

ARCHITECTURAL MODELLING.

SIR,—I see in your last number a letter on the subject of architectural decorations, the tenor of which I should like to see carried into effect. At the same time, as a practical man, I would wish to point out a few of the evils of the present system, which architects might easily alter. In almost all cases the decorative modeller is not employed by the architect, but by the builder, who, having little taste for works of art himself, employs any body he can get to do it cheap, mostly some plasterer, who understands little about modelling, nothing about drawing or style of composition, while the artist of acknowledged talent is entirely deserted by the architect. The drawing made by the architect, seldom for more than a quarter part, gives a very ambiguous idea of the subject wanting, and in many cases no drawing at all, the models so made are consigned to the tender mercies of some hod-boy to cast, and fixed by others who know as little about it. Were the architects to employ the decorative artist without the interference of the builder, and allow a fair remuneration for his work, he would feel an interest in the finish of the works, and would soon effect great improvement.

I am, Sir, &c.,

A DECORATIVE MODELLER AND A SUBSCRIBER.

CEMENTS.

SIR,—I think your correspondent, James Pulham, in No. 113, would do many of your readers who are users of cement a favour if he would explain the difference in the properties of Maude's Portland cement, Pulham's Portland-stone cement, and Austin's stone-colour cement; the three are described as bearing a close resemblance to Portland stone.

I am, Sir, &c.,

A READER.

Newcastle-on-Tyne.

Miscellanea.

THE PYRAMIDS ECLIPSED.—The *National Intelligencer* contains a long letter from Mr. Pickett, at Lima, commenting upon discoveries of very extraordinary ruins said to have been found by Judge Neito, in the province of Chaohapovos, while on an exploring expedition. In making a survey of the country he found at Ceulap, a building of most extraordinary character, which he describes as a wall of hewn stone 560 feet in width, 3,600 feet in length, and 150 feet high. The edifice being solid in the interior for the whole space contained within 5,366,000 feet of circumference, which it has, to the beforementioned height of 150 feet, is solid and levelled, and upon it there is another wall of 300,000 feet in circumference in this form, 600 feet in length and 50 in breadth, with the same elevation (150 feet) in the lower wall, and, like it, solid and levelled to the summit. In this elevation, and also that of the lower wall, are a great many habitations or rooms of the same hewn stone, 18 feet long and 15 wide, and in these rooms, as well as between the dividing walls of the great wall, are found neatly constructed ditches, a yard or two-thirds in length, and half a yard broad and deep, in which are found bones of the ancient dead, some naked, and some in cotton shrouds or blankets, of very firm texture, though coarse, and all worked with borders of different colours.

INGENIOUS WORKMANSHIP.—We have inspected with much gratification a working model of a beam steam-engine, manufactured by Mr. Benjamin Warner, a watch-spring maker, who has already exhibited at the Polytechnic Institution some extraordinary examples of patient ingenuity. It is composed of more than 200 pieces, and has the following dimensions:—The length of the stand is 3¼ inches, the length of the beam 2¾ inches, the height of the supporters of beam 1⅞ in., the diameter of cylinder ⅝ths of an inch, the length of stroke ¾ths. It has governors acting correctly, and fine silk forms the band. The parallel motion has straps and brasses, and is fixed with gibs and keys. Every part of the engine is bolted and screwed together, and finished in the same manner as the inside of a watch. We were sorry to find that the ingenious mechanist who had constructed this curiosity was about to seek his fortune in America. It is a pity to lose such a workman.

RADIATION OF HEAT.—M. Melloni, of Naples, has just completed some very interesting experiments on the radiation of heat. The previous researches of Rumford and Leslie proved that the surfaces of different bodies possess at very different degrees the faculty of giving out, by radiation, the heat of the substances which they envelope; and it has also been satisfactorily established that layers of the same varnish considerably modify the radiating powers of the surfaces over which they are laid; shewing, therefore, that the rays of heat given out by a substance proceed not only from its surface, but the points around it to a certain depth. It, therefore, remained to measure numerically the thickness of the superficial layer which assists the radiation, and to this undertaking M. Melloni applied himself. He covered the faces of Leslie's cube with equal layers of a proper varnish, augmenting successively the number of layers, and measuring each time with his thermometrical apparatus the radiating powers of the surface; he found that the power went on gradually increasing up to the seventeenth layer of varnish, when it became stationary. At this point, the total thickness of the varnish, as ascertained with the greatest possible minuteness, was about the four hundredth part of a millimetre. In comparing this result with that which attended the use of leaf-gold, M. Melloni found that a much thinner coating of gold would produce the same amount of radiation; but this difference is not to be imputed to the greater or lesser transparency of the coating, for lamp-black, which is very opaque, possesses like varnish the property of giving out heat from the layers on which it is placed.

FATAL ACCIDENT THROUGH THE FALL OF A QUANTITY OF IRON RODS.—On Saturday the 5th inst., just at the hour when the men engaged in the works of Messrs. Ditchburn and Mare, at Blackwall, were assembled to be paid, a loss of life ensued from the giving way of a stack of iron rods, which had been placed in a slanting direction against a beam, the bottoms of the rods resting upon the ground in the same way as they are placed in other iron yards in London near the Thames. Eight bodies, two lifeless, and six more or less mangled, were found under the ponderous weight, said to be about eleven tons. At the inquest, which was held on the Monday following, the cause of the accident was explained by Mr. Ditchburn's foreman, who stated his belief that the stack was thrown down by the men pressing against it. They were very numerous, and were lounging about waiting for their pay. He could not account for it in any other way, because the iron actually fell in the opposite direction to that in which it was placed. They were within an inch and a half of an upright position, and he had himself seen them properly strutted and supported. It would, by pressure, have fallen forwards, but it fell sideways. Mr. Ditchburn stated that the rods were so placed against his orders, and he was unconscious of its position until he heard of the accident, which he could not believe to be true, as he had given express orders that the iron should be moved away from its original position and placed horizontally on the ground. He had no doubt that it was thrown down by the pressure of the men against it. A verdict of "accidental death" was instantly returned.

DEMOLITION OF THE FLEET PRISON.—The Corporation of the city of London having purchased this property for 25,000*l.* from the Government, are now engaged in disposing of its materials by auction. The first day's sale took place, on the premises, last week; the second portion is to be disposed of by the auctioneers, Messrs. Pullen and Son, on the 21st instant, and following day. The earliest mention of the Fleet Prison occurs in the reign of Richard I., but up to the 16th century nothing is known of its history. The prison was burnt by the followers of Wat Tyler, and in the 16th and 17th centuries the records of the Fleet became suddenly filled with matters of the deepest interest in connection with the religious martyrs of the reigns of Elizabeth and Mary, and the political prisoners of the Star Chamber in the reign of Charles I. It appears that the prison was used for the confinement of debtors from the 13th century, and a petition from a debtor named John Fraunceys, in 1290, is stated in Mr. Knight's "London" still to be preserved. Great atrocities were committed on the inmates, and until the year 1727 little was done in the way of redress. In that year, however, a Parliamentary committee brought many things to light, and since then improvements have been effected in the management of prisons. The great Howard and the other "sons of mercy" have not laboured in vain, though they were not permitted to see the fruit of their exertions. The building now standing was erected after the burning of the older one in the Gordon riots of 1780, when the mob was polite enough to send notice to the prisoners of the period of their coming, and on being informed that it would be inconvenient, on account of the lateness of the hour, to postpone their visit to the following day. The former building also dated its erection from the period of a fire, its predecessor having been destroyed in the great conflagration of 1666. The entire prison at the present time occupies an acre of ground. Nearly 1,000 prisoners, besides the numerous officers of the establishment, have at various times been accommodated in these extensive premises. The buildings are computed to contain upwards of 3,000,000 of stock bricks, 50 tons of lead in the various forms of gutters, flats, cisterns, and pipes, 200 squares of slated roofs, 40,000 feet of York paving, 250 pair of glazed sashes, an infinity of doors, partitions, and interior fixtures and fittings-up, the pewing of the chapel, strong boarded and timber floors, iron girders, massive iron gates with locks and bolts of singular construction and well-tested excellence. At present it is not decided what improvements will take place on the site—whether a new street will be formed, or accommodation afforded for the administration of public justice.

FURNITURE WOODS.—A few nights since, in the House of Commons, Mr. C. Buller said that Sir Robert Peel had stated that furniture woods would be exempted from duty. He had thought they would have been included in one category; but he found the Government had enumerated the woods they meant to exempt. Now, there were various new kinds of these woods continually coming in from the colonies, with respect to which he wished to know whether, if left unenumerated, they would come in under the general designation? Many such woods, the produce of Ceylon and New Zealand, were not found in the list at all. Mr. Labouchere said that, consistently with their professed views, the Government ought to encourage the importation of these new furniture woods. There were many species of woods in the colonies which had hitherto been kept out by the duty. They all ought to be admitted on the same terms as mahogany. Sir G. Clerk said that as soon as the names of these new furniture woods were known, they might be admitted free of duty. Mr. C. Buller observed that the Government list was an ungracious one. There were a great number of furniture woods from Italy, among others olive wood, fig, and orange wood, which were not in the list. Mr. Mitchell then inquired whether the Government meant to take off the duty on wainscot logs; if not, he should submit a proposition for that purpose. Sir Robert Peel, in answer, said the Government was under the necessity of making some discrimination. If they said that wainscot woods in general were to come in, it would be contended that wainscot logs from the Baltic should come in free of duty.

The New Railway Town, Swindon.—Swindon, on the Great Western Railway, like Wolverton, on the London and Birmingham, and Crewe, on the Grand Junction, is one of the extraordinary products of the railway enterprise of the present day. Until lately Swindon was remarkable for nothing but heath and upland; it is now the nursery of a new community, the seat of well-ordered industry, and a colony of engineers and handicraftsmen. The total sum, expended on the locomotive establishment at Swindon, including engines and carriages, is about 550,000*l.*, exclusive of the expense of engine-house, machinery, and tools, amounting to 26,500*l.* The average half-yearly expenditure in wages to engine-drivers, firemen, guards, servants, porters, clothing, &c., is 140,000*l.* The company manufacture their own engines at the factory, where cleaning and every thing connected with constructive repair is carried on. The number of mechanics, including engine-drivers, firemen, fitters, coppersmiths, cleaners, and labourers, constantly employed, varies from 300 to 350. Swindon consists of neat brick buildings, and is so far adjacent to the line as to be seen by the passing trains. The total population is upwards of 800. A library and reading-rooms have already been formed for the use of the inhabitants and servants of the company, together with a Mechanics' Institute. The church, which is being built entirely of stone, under the superintendence of Messrs. Scott and Moffatt, is nearly completed. It is in the decorative style of the 14th century, with aisles, clerestory, chancel, tower, and spire. The entire structure is 140 feet high, and will accommodate 800 persons, all the sittings being entirely free. The estimated cost is between 5,000*l.* and 6,000*l.* Its consecration by the Bishop of Gloucester and Bristol is fixed for Friday, the 25th of April, St. Mark's day, and it is to be dedicated to this evangelist. Adjoining the church, at the east and west, are the schools and parsonage, built in a style corresponding with the church, at a cost of 1,700*l.* On the south of the church a spacious piece of ground has been purchased by the Great Western Company, and laid out as a park or pleasure-ground for the inhabitants.

Barn Floors.—A correspondent of the *Mark Lane Express* states, that having a very bad barn floor, he thought of boarding it, but the expense was an objection, as the boards would require to be very thick; besides, he had observed that a floor of that kind in the neighbourhood had become splintered by the nails, was rotted by the damp, and gnawed by rats. Happening to have a large number of unsaleable pieces of timber, coarse, crooked arms, and knotty ends, that were altogether worthless, even for firewood, for it was impossible to split them, it occurred to him that they would make an excellent surface for his barn floor. He thus describes the mode he adopted in carrying out this idea and success that attended it. "I had an X cross cutting stool made, on which these logs were placed, and cross cut into blocks of a foot long; the bark and any excrescences having been chopped off by the hatchet, the blocks were thus reduced to irregular figures of all shapes, no matter what. The floor having been excavated to the proper depth and levelled, blocks were placed at distances so as to be levelled by a long hand level, and the whole surface levelled off from loose by a straight edge. The blocks were laid down on their ends, having the cross cut surface or end of the grain upwards; the best face of course up, and some attention being paid to their mutual adaptation with regard to size; but, of course, with such a variety of irregular figures there were numerous cavities between—these were filled as well as might be by smaller blocks, thus occupying the larger spaces. Still lesser pieces were now put into the remaining openings, and dry sand were swept over till the holes were filled up to near the top, and the remaining interstices were filled with wedges, the heads of which were sawed and adzed off: all was rammed down with a common paving hammer. This floor has now been a year in use, and is perfection itself for its purpose. The cost was trifling: two labourers in a fortnight cut most of the blocks; and the carpenter, with a handy assistant, laid them in a few days. The wedges should not be driven hard, nor until the blocks are well confined, or they will be spread asunder by the wedges."

Measurement of Wooden Sleepers for Railways.—The following is a copy of a new rule or method, approved by the commissioners of the customs, for the measurement of wooden sleepers of a triangular form, usually imported for railway purposes, when measured singly:—"The length to be taken to the quarter of a foot, and the perpendicular height to be taken to the quarter of an inch, adding thereto the height of the defective angle, which together will constitute the entire perpendicular height; one-half of the base to be then taken, and the contents ascertained by the inverted side of the sliding rule, as directed in the measurement of unequal-sided timber. An example is given of a piece of timber of the description and shape imported in large quantities for the purpose stated, the length being 8¼ feet; the base or breadth at the end, 11 inches; the perpendicular, 6½ inches; with 1 inch defective angle: for instance, by the pen:—

5.5 ½ base.
7.5 perpendicular.

275
385

4125
8.25 length.

20625
8250
3.3000

144)340.3125(2.3-10ths.
288

523
432

19

Operation by the sliding rule. Set 7½ inches, the perpendicular height (the defective angle being added thereto) on the inverted line E to 5½ inches—one-half the base on line C; then opposite to 8¼, the length in feet on the line A will be found 2.3-10ths on the line B, the content in cubic feet for duty." This order has been communicated to revenue officers at this port and at the various outports of the kingdom by directions of the commissioners for their future government.

Important Discovery. — A scientific gentleman, residing at Ipswich, Mr. Frederick Ransome, engineer, has lately discovered a method whereby the hardest stone can be brought into a consistence resembling common putty, so that it can be cut and moulded into any shape, for useful and ornamental purposes, without altering its general character and appearance; for it becomes as hard, and in some instances even harder, than when subjected to the process. Another peculiarity of the process is, that any colour, or variety of colours, can be imparted to its solid substance, so that an endless variety of shades can be produced, and as it is capable of being polished, it effectually resists the action of the weather. It can also be used as a cement, and can be brushed over the surface of wood, so as to render it fire-proof.—*Sheffield Mercury.*

Copper.—Returns of the average prices of copper purchased for the use of her Majesty's dock-yards in each year, from 1815 to 1844 inclusive, and of the price of cake copper in London during the same period, have been issued in the shape of a parliamentary paper, obtained on the motion of Sir C. Lemon, one of the representatives of the mining districts. From 1815 to 1832 the return is *nil;* in the year 1832, the average price of the copper in question was 82*l.* per ton; in 1833, 87*l.* 14s. 6d. per ton; in 1836, 111*l.* 7s. 1d. per ton; in 1839, 97*l.* 10s. per ton; in 1840, 102*l.* 2s. 6d. per ton; in 1841, 102*l.* 8s. 10d. per ton; in 1842, 93*l.* 10s. per ton; in 1843, 82*l.* 10s. 9d. per ton; and in 1844, 83*l.* 7s. per ton. The Admiralty department possesses, it appears, no official means of furnishing the price of cake copper in London during the period stated.

Statue to George Stephenson, Esq.—It is said to be in contemplation to adorn the splendid high level bridge across the Tyne, about to be constructed under the auspices of Mr. Hudson, with a noble statue in honour of George Stephenson, Esq., the eminent civil engineer, a native of Newcastle-upon-Tyne, and beyond all doubt one of the greatest men of the day.

New Stock-Exchange at Bristol.—At Bristol, a large and influential meeting was held on Monday, the 31st ultimo, at the offices of Messrs. Bradley, Barnard, and Co., Albion-chambers, at which resolutions for forming a Stock Exchange were cordially and unanimously passed. John Kerles Haberfield, Esq., has consented to accept the office of president.

Museum of Arts Bill.—The Museum of Arts Bill was opposed by Mr. Buck, who moved that it should be committed that day six months. Sir J. Graham hoped that Mr. Buck would not persevere in his motion. The government were prepared to support the principle of the bill, although its provisions went rather beyond the understanding which had been come to. He would recommend the postponement of the committee for a week, and in the interim he would devote attention to the subject, and take an opportunity of privately explaining to the hon. member the objections entertained to the bill in its present shape. This proposition was assented to, and the committee was accordingly postponed as suggested.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the supply of from 2,000 to 3,000 feet of new 2½ York Paving to the Commissioners for paving the Skinners' Estate, St. Pancras.

For the execution of certain Works required to be done in Hastings-street and Claremont-place, for the Commissioners of the Skinners' Estate, St. Pancras.

For the building of a new Bridge on the Rotherham and Pleasley Turnpike Road at Guilthwaite Common, near Rotherham, Yorkshire.

For the erection of Stone Arches and other works for the Newcastle and Carlisle Railway Company.

For the supply of Paving Granite, flint, Kentish Rag, and Gravel, to repair the highways of Saint Mary, Newington, from 23rd April, 1845, to Easter Tuesday, 1846.

For such Masons', Paviors', and Plasterers' Works as may be required at Hull for the Board of Ordnance.

For furnishing and fixing in the town of Southampton 205 Gas-lights, to consist of 81 Columns, and 124 Scroll Brackets, with the necessary Lamps, Pipes, Fittings, &c.

For taking down a tenement in Bishop-street, Coventry, and erecting two Messuages on the site and ground adjoining.

For submitting a plan of a Tread-wheel, and constructing the same in the Common Gaol of Great Yarmouth, Norfolk.

For the restoration of the Parish Church of Grays Thurrock, Essex.

For all the Works to be done in the erection and completion of the new cast-iron Bridge over the Haven of Great Yarmouth, including the finding of labour, certain materials, &c.

For the construction of the third and fourth divisions of the Chester and Holyhead Railway.

For the supply of Materials to the Commissioners of the Metropolis Roads.

For providing, squaring, and laying new York Paving and Granite Curb, &c., for the Commissioners under the Bedford Paving Act, St. Pancras.

For various Engineers' and Joiners' Works required to be done at the new Workhouse, Birchfield-wood, Saubridge, Kent.

For the Masonry Work of several Viaducts and Bridges.

For performing the several works in building a new Workhouse at Tenterden.

For the formation and completion of a new Drain, being about eleven miles long, twenty yards wide, and five yards deep, for the Middle Level Drainage Commissioners. Also for the erection of a Staunch, several Bridges of wood with brick abutments, together with the necessary culverts, and other works.

COMPETITIONS.

For the erection of a Baptist Chapel at Folkstone.

For laying out the Grounds of the Victoria-park Cemetery, and for draining the same, making the roads, paths, and finding all necessary trees, shrubs, materials, &c.

Plans for a Church to be erected within the Borough of Kingston-upon-Hull.

Plans, sections, and elevations for a Terminus, and other requisite accompanying offices, for the Great Southern and Western Railway, Ireland.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At the Union Inn, Denby, Derbyshire: a large quantity of full-grown Coppice and Hedgerow Timber.

At Shortgrove-park, Newport, Essex: 150 Timber Trees, consisting of Beech, Ash, Sycamore, Alder, Elm, &c.; 230 very fine large Firs, &c.; many of the Beech and Ash Trees are of large dimensions and good quality.

At Waresley, Huntingdonshire: upwards of 200 very choice Oak Trees of large dimensions and fine quality. Also several lots of Ash and Elm Timber Trees, and Larch and other Spires.

At Framsden, near Debenham: a quantity of Ash and Elm Pollards; Ash, Elm, and Sallow Timbers, &c.

At the Swan Inn, Rickmansworth, Herts: the growing Oak Timber on Linster's Farm, and on Savoy Farm, consisting of about 255 Trees.

At Seagry Wood, near Chippenham, Wiltshire: from 1200 to 1400 Ash Poles of large dimensions; prime Elm, Ash, Beech, and Chesnut Timber, &c.

At the Timber-yard, opposite St. Giles's Church, London: 3,200 Pine Deals, Planks, and Battens, 840 Yellow Deals, 2,480 Spruce Deals and Planks, 120 Yellow and White Battens, 14,000 feet of three-quarter inch and half inch Pine Boards, &c.

250,000 Building Bricks, 40,000 Arch ditto, &c.; now at Sherborne Kiln, three miles from London.

At Patcham, near Brighton: a large quantity of Railway Materials; the whole of the Iron is of Staffordshire manufacture.

BY TENDER.

All the implements used in the execution of the works at the Fleetwood-pier; they are now on the wharf at Fleetwood, and can be put on the railway-waggons, or on board ship.

Above 1,000 Oak Trees, now standing upon Lewisham Lands-wood, near Beckingham, Kent.

20 Oak, 1 Elm, 1 Cherry, and 12 Ash Trees; now standing at Hanmer, near Welchhampton, Cheshire.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, April 21. — *Statistical*, 11, Regent-street, 8 P.M.; *Chemical* (Society of Arts), Adelphi, 8 P.M.; *Medical*, Bolt-court, Fleet-street, 8 P.M.

TUESDAY, 22.—*Medical and Chirurgical*, 53, Berners-street, 8½ P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.; Zoological, Hanover-square, 8½ P.M.;

WEDNESDAY, 23.—*Society of Arts*, Adelphi, 8 P.M. (anniversary); *Microscopical*, 21, Regent-street, 8 P.M.; *Pharmaceutical*, 17, Bloomsbury-square, 9 P.M.; *Ethnological*, 27 A, Sackville-street, 8 P.M.; *Antiquaries*, Somerset-house, 2 P.M. (anniversary).

THURSDAY, 24. — *London Institution*, Finsbury-circus, 12 P.M. (anniversary); *Royal Society of Literature*, 4, St. Martin's-place, 3 P.M. (anniversary); *Medico-Botanical*, 32, Sackville-street, 8 P.M.; *Numismatic*, Somerset-house, 7 P.M.

FRIDAY, 25. — *Royal Institution*, Albemarle-street, 8½ P.M.; *Philological*, 49, Pall Mall, 8 P.M.

SATURDAY, 26. — *Royal Botanic*, Regent's-park, 4 P.M.; *Westminster Medical*, 32, Sackville-street, 8 P.M.; *Institute of the Fine Arts* (Society of Arts), Adelphi, 8 P.M.

TO CORRESPONDENTS.

"County Lunatic Asylum."—*Several correspondents are anxious to learn the decision in this competition.*

"A Subscriber" (Camberwell), *and* "T. A.," *next week.*

"P. D." (Lambeth). — *An inch superficial (4 by 3 for example) is the 12th part of a foot superficial, but a square inch (1 by 1) is the 144th part.*

"A Subscriber," *who asks relative to the Bell-hanging at the new Houses of Parliament, should inquire of the Clerk of the Works.*

"William Sugden."—*We are not disposed to pursue the subject further.*

"A Surveyor."—*We do not see any reason why the chimney in the fourth story should not be built over the breast below.*

"T. G. S." *asks whether the district surveyor can demand a fee on account of repairing a privy roof 20 feet from the house. If the roof of any building (unless insulated) be "stripped, ripped, or uncovered," Schedule G. provides that it "must be covered with slates, tiles, metal, glass, artificial stone, or cement," and as the district surveyor is bound to see the Act carried out, he might claim a fee even for a privy. If it be claimed, we shall be glad if "T. G. S." will let us know the sum asked, and in which district it occurs.*

"Repeal of the Window-tax."—*We will attend to the report of the delegates.*

Received.—"*A Manual of Gothic Mouldings,*" *by F. A. Paley, M.A. Van Voorst, London, 1845. A valuable little volume, to which we shall direct our readers' attention shortly.*—*A Subscriber from No. I.*

ADVERTISEMENTS.

BED FEATHERS.—DUTY FREE.—HEAL and SON have reduced the price of Foreign Feathers the amount of the duty, and they can now offer—

Best White Dantzic	2s. 10d.	Best Foreign Greys	2s. 0d.
Irish White Goose	2s. 6d.	Irish Grey Goose..	1s. 6d.
Best ditto	2s. 6d.	Best ditto	1s. 9d.
Poultry.....		1s.	

List of prices of every description of bedding sent free by post.

HEAL and SON, 196, opposite the Chapel, Tottenham-court-road.



MOON'S IMPROVED CHIMNEYS.—Samples of the Bricks to form the Circular Flue, now coming into general use, also those invented by Clark and Reed for a similar purpose, may be seen at the Patentee's Western Depôt, New-road, near Tottenham-court-road, where may be procured the Metal Bars and Throats, also the much-approved Caps for the prevention of Smoky Chimneys, without causing adjoining flues to smoke, or producing the noise so generally complained of, arising from a large surface of metal being exposed to the action of the wind.

Licences are granted to Brick and Tile Makers for manufacturing the Bricks and Tiles, throughout the United Kingdom, by application as above, or to Mr. ELIAS DORNING, 27, Cross-street, Manchester.

E. G.'s TRACING-PAPER.—It is warranted to take Ink, Oil, or Water colour, and is sold by MESSRS. ROBERSON AND CO., SOLE AGENTS, 51, LONG-ACRE, at the following cash prices:—

THIN TRACING-PAPER.

60 by 40, at 14*l*.	0s. per Ream, or	15s. 0d.	per Quire.
40 by 30, at 7*l*.	0s.	,, 7s. 6d.	,,
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THICK TRACING-PAPER.

40 by 30, at 14*l*.	0s. per Ream, or	15s. 0d.	per Quire.
30 by 20, at 7*l*.	10s.	,, 8s. 0d.	,,

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This beautiful and unequalled article is allowed to be the cheapest and most useful Paper hitherto introduced to the public, as will be best proved by a trial.

PAINTING BRUSHES OF SUPERIOR QUALITY.
TO PAINTERS, BUILDERS, &c.
J. J. KENT AND CO.,
MANUFACTURERS,
11, GREAT MARLBOROUGH-STREET, LONDON,

Offer to Painters, Builders, &c., Painting Brushes of a quality far superior to those generally offered for sale, to which they beg to call the attention of all who prefer quality and durability to apparent cheapness.

000000.—7 in.	Dusters.
00000.—7 in.	ditto, extra.
0000.—Ground	Brushes.
Plasterers'	Brushes.
Distemper	ditto. Ground and Unground.
Sash Tools, and Common	Tools.
Tar Brushes and Masons'	Brushes, and all other Brushes used by Painters and Artists.

Lists of Prices of Painting Brushes, and of all other kinds of Brushes, forwarded on application. Established 1777.

ATKINSONS CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architecture and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

KEENE'S PATENT MARBLE CEMENT.—The Patentees of this composition beg to refer to the British Museum, the Royal Exchange, the new works at Bethlem Hospital, Greenwich Hospital, and the Coliseum in the Regent's-park, as buildings finished or in progress, in which Keene's Cement has been used as an internal stucco. Its superiority to common plastering consists in its extreme hardness, and the rapidity with which it dries, which qualities fit it to receive paint or other finishing sooner than other water Cement.

When employed for skirtings, architrave, and other mouldings, in place of wood, it checks dry-rot, is impervious to vermine, prevents the spread of fire, and is more economical in its application than the material for which it thus becomes the substitute.

Confirmation of these statements is to be found in the almost universal adoption of Keene's Cement for Skirting and Hall flooring in the new houses on the Hyde Park Estate, where its application is to be seen to the fullest advantage.

In Liverpool and Manchester, Keene's Cement has in several cases been used for the covering of the fire-proof warehouse floors, where its lightness and hardness give it the preference over tiles and flagging, which are much heavier, and necessarily leave the floor intersected with numerous joints, whilst Keene's Cement is laid down in one unbroken surface.

The high polish and marble-like hardness of which this Cement is susceptible render it the most suitable material for the manufacture of Scagliola.

Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

Depôt in Liverpool, 36, Seel-street, James Woods, Agent.

MARTIN'S PATENT CEMENT.
TO ARCHITECTS, BUILDERS, AND PAINTERS IN FRESCO.

STEVENS and SON, PATENTEES and SOLE MANUFACTURERS, beg respectfully to announce that this beautiful cement has now arrived at a degree of excellence far surpassing their most sanguine expectations. For all internal work it possesses a great superiority over every article hitherto in use; it is now being used extensively by Government in the British Museum and other public buildings. IT DOES NOT THROW OUT ANY SALT, but presents a beautifully plain and perfect surface, which may be painted upon dry work within four days without peeling. It is equally applicable for walls or lath, for mouldings, architraves, skirting, or flooring; and is admitted to form the best ground for fresco painting, having been used for many of the prize frescos lately exhibiting in Westminster Hall. It will bear an intense heat without cracking, and for hardness, durability, and economy, cannot be equalled.

186, DRURY-LANE, LONDON.

Agent for Liverpool and Manchester, Mr. R Part, 11, Atherton's-buildings, Dale-street, Liverpool.

STOCKTON LIAS CEMENT,

MANUFACTURED upon principles laid down in Major General Pasley's Essay on Limes and Cements.—It is of a beautiful Stone Colour, and of acknowledged superior quality, free from vegetation, does not crack, and is well adapted for every description of modelling and casting. It has been extensively used at the Earl of Macclesfield's, Ensham-hall, by C. Barry, Esq.; at Sir F. Shuckburgh's, Shuckburgh-hall, by H. E. Kendall, Esq.; for Works now in progress at Marbury-hall, Cheshire; and for many of the Mansions erected during last Summer in the vicinity of London.

WILMCOTE LIAS CEMENT,

Is of inferior colour to the above, from containing oxide of iron, but of very Superior Quality for Tunnels, Sewers, and Hydraulic Purposes; its use is stipulated for by Mr. John Roe, Engineer of Sewers, London.

GROUND LIAS LIME,

For Concrete, and every description of Hydraulic Work, for which purposes it has been used at Woolwich and Chatham Dock Yards, the London Docks, New Exchange, Hungerford Suspension Bridge, Westminster Bridge, Grand Junction Water Works, Holborn Sewers, Regent and Grand Junction Canals, Wood Paving Companies, London and Birmingham Railway Company, for Works in the Aleter at Hamburgh, the Kiel and Altona Railway, and various Sea Walls, &c.

At R. Greaves's Works, Stockton, near Southam, Warwickshire, and at No. 2, South Wharf, Paddington, London.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

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SPECIMEN OF TABLES.

Age.	Annual Premium for £100.	Age.	Annual Premium for £100.	Age.	Annual Premium for £100.
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CHARLES JAMES THICKE, Resident Secretary.
17, New Bridge-street, Blackfriars.

The Builder.

No. CXVI.

SATURDAY, APRIL 26, 1845.

WANT of attention to what may be termed minor matters in the erection of dwelling-houses, sometimes leads to serious inconvenience and expense. We were called in not long ago to explain how it happened, that when there was a fire in the dining-room, smoke invariably came through the joints of the floor above and from under the skirting, and rendered the apartment almost useless. Worse still, there were other rooms in the house similarly affected by other fires. On examination, the cause was obvious: the brickwork was badly done, the flues were not properly pargeted, and the smoke consequently found its way through the joints of the brickwork between the ceiling and the floor, where the walls were not plastered. This very serious defect is by no means unusual. Operatives, speaking generally, have ceased to feel interested in the production of good work; all that they desire is to get over the ground, and very often this is the case with their masters too. The house will be sold, they hope, as soon as it is finished, and they leave the purchaser to discover the defects, and remedy them if he can.

Sometimes, the particular evil of which we are speaking is caused by the carpenters in fixing the skirting grounds; a header is driven in and a crevice formed, through which the smoke escapes. Very often, the source of the evil is discovered with difficulty, for the smoke, being confined between the ceiling and the floor, may travel to some distance, and make its appearance in an opposite direction; even when discovered, it cannot be remedied without considerable inconvenience and expense.

Considerable injury is caused to many fabrics by the want of a little care when fixing the window-cills. The stone cill is not properly weathered, and does not extend sufficiently under the wood cill of the frame, so that if the latter shrink, or the brickwork settle ever so slightly, the rain-water constantly finds its way between the two, and does serious mischief. A small fillet of mastic at the junction of the wood and stone may be applied remedially, but ought not to be needed.

To the badness of the brickwork executed at this time in the neighbourhood of the metropolis, we have alluded in our pages more than once. Hasty, bad work, induced by competition and the operation of speculative builders, has become so much the habit of our bricklayers, that it is difficult to find men capable of producing superior work, or, at all events, it is difficult to induce them to abandon their hasty, careless, mode of proceeding, and exercise the skill they possess.

The way in which the walls of the majority of houses are "blown up" now-a-days, must be distressing to those who desire to see our operatives advance in knowledge, and the arts of construction improved: half-hollow, imperly bonded, and out of perpendicular, seem prepared expressly for premature decay and ruin. In Manchester and some other places brickwork is still practised as an art.

We are not, however, now dealing with the general question of construction; our object was simply to allude to two or three minor defects in ordinary modern houses, the result merely of thoughtlessness and the want of care.

Shaking floors, which produce a running *obligato* accompaniment to every movement upon them, might be avoided in many cases if the strutting were properly, instead of improperly, executed. Two nails in each strut, instead of one, and the exercise of some little thought, so as to be able to wedge up the whole soundly, would often prevent a nuisance without any extra cost worth consideration, the removal of which, if incurred, might entail an outlay of many pounds.

THE ART-UNION OF LONDON.

On Tuesday last, the Theatre Royal Drury-lane was filled to the ceiling by the members of this important association, to receive the report of the committee, and distribute the amount subscribed for the purchase of works of art. The house presented a most animated and elegant appearance; stage, stalls, pit, boxes, and gallery, were alike crowded with well-dressed persons; and when his Royal Highness, the Duke of Cambridge, accompanied by the Duke of Mecklenburgh Strelitz, appeared on the stage, to take the chair, precisely at twelve o'clock, his Royal Highness was received with loud and continued cheering.

On taking the chair, the president briefly congratulated the subscribers on the prosperity of the association. "Last year," said his Royal Highness, "the subscription was 14,800*l.*; this year it amounts to 15,440*l.* Now when we consider that in the year 1837, when we began, we only collected 490*l.* I think there is every reason for saying that we are thriving; and I most sincerely hope that we shall continue so. After saying these few words, which I trust will be satisfactory to you, I will call on the honorary secretary to read the report."

The Hon. Sec., Mr. George Godwin, F.R.S., then read the following

REPORT.

For the ninth time the committee have the great satisfaction of announcing the continued and increasing prosperity of the Art-Union of London, a more extended and better appreciation of its great objects, and clearer evidence of the goodness of its plan and working.

The subscription for the present year amounts to the sum of 15,440*l.* 5*s.*, and would have been larger, but for the misapprehension that Lord Monteagle's Act (under which the present distribution is made) applied simply to the past year, and that as no fresh Act on the subject had been passed, we were not recognized by the legislature. In reality, however, the Act in question remains in force until the 31st of July next, before which time, as there is every reason to believe, the association will be placed on a firm and permanent basis by an Act of Parliament, to be brought in by the Right Hon. Thomas Wyse, as chairman of a committee of the House of Commons appointed in June last to consider the objects and results of Art-Unions, and the most expedient and practicable means of rendering them most subservient to the improvement and diffusion of art through the different classes of the community. The minutes of evidence and the report of the Parliamentary Committee have been printed, and, when made public, will doubtless afford many valuable suggestions for the future conduct of this association.

It is gratifying to find that the late agitation of the subject and this inquiry have not had the effect of changing the opinion of any early friend to the Art-Union of London, so far as is known; while it has even already induced many, who entertained doubts on the matter, to give it the advantage of their countenance. And here they cannot omit offering publicly respectful thanks to his Royal Highness the Duke of Cambridge, President, for the interest H. R. H. manifested in the successful issue of the late proceedings, and his personal endeavours on several occasions to obtain it. His Royal Highness has himself brought the subscriptions of various members of the Royal Family, and has been graciously pleased at all times to give assistance to the committee.

The list of provincial and foreign secretaries has been increased considerably, and now numbers 338. In addition to New York, Mexico, Novia Scotia, Hobart Town, Ceylon, Bombay, and Singapore, mentioned in the last report, the society has now active correspondents at Coblentz, Wiesbaden, Aix-la-Chapelle, New Brunswick, Dominica, Monte Video, La Guayra, Toronto, in Montreal, and last, but certainly not the least in importance, at Canton, in the Celestial Empire!

The prizeholders of last year purchased 253 works of art, including two pieces of sculpture. These were exhibited for the usual time, at first to the subscribers and their friends, and afterwards gratuitously to the public, and were visited by 250,000 persons without the occurrence of any accident.

Relative to the selection of the works of art on that occasion, it is the painful duty of the committee to reprobate in the strongest terms the conduct of one of the prizeholders, who sought unworthily to divert the funds of the association from their proper course for his own pecuniary advantage. The artists to whom he applied proved themselves men of honour and integrity, and his scheme failed. The committee minutely investigated the occurrence, and received the fullest proof that the selection ultimately made was a *bond fide* transaction, or they would assuredly have declared the prize forfeited, and allowed the subscriber to seek what remedy he might. They deemed it right, however, with a view to the attainment of the objects of the association and the protection of artists, to make the "Regulations as to selection" more stringent than they were before, and have accordingly provided that no arrangement whatever shall be made, or attempted to be made, between a prizeholder and an artist, or by any parties on their behalf, in the selection of a work of art by which a prizeholder may obtain, or attempt to obtain, the return of a portion of the amount of a prize, or other valuable consideration; that no prizeholder shall sell, or attempt to sell, the right of selection; and that should any attempt to evade the published regulations be discovered, the amount of the prize shall be forfeited and merge in the funds of the society. In this determination they are quite satisfied they will receive the support of all who appreciate rightly the real objects of the association, and they would state emphatically, it is only these they desire to find in the list of subscribers. The engraving due to the subscribers of last year, "The Castle of Ischia," will be delivered, in pursuance of the notice already sent to every subscriber, on and after the 7th of May next.

"The Convalescent from Waterloo," engraved by Mr. G. T. Doo, after Mr. Mulready, R.A., due to the subscribers of the present year, is approaching completion. In addition to this print the subscribers will receive for each guinea paid, a series of designs in outline illustrative of Thomson's "Castle of Indolence," made by Mr. William Rimer. The drawings have been placed in the hands of Messrs. Webb, Whitfield, H. W. Collard, and Joubert, and the engravings from them will be distributed as soon as they are completed.

Every subscriber for 1846 will receive an impression of a line engraving, "Jephtha's Daughter," after Mr. O'Neil, by Mr. Peter Lightfoot, which is already far advanced, with such other advantages as the committee may be able to afford.

For the subscribers of some future year the committee have been enabled, by the kind permission of the artist and of the proprietor, Mr. Willes, of Goodrest, Berkshire, to place in the hands of Mr. C. Rolls and Mr. Frederick Heath, two pictures by Mr. Uwins, R.A., "The Last Embrace," and "The Neapolitan Marriage," to be engraved by them for the society and distributed as a pair.

The committee look anxiously to the result of the offered premium of 500*l.* for the best original picture illustrative of English history. The cartoons are to be received in competition on the 1st of next January, and the committee venture to repeat to the artists of the United Kingdom their earnest hope, that a work will be obtained for engraving creditable to them and to the country.

A statement of the engraving account, still open, will be published with this report.

In reply to the offered premium of 60*l.* for the best consecutive series of not less than ten designs in outline, illustrative of some epoch in Biblical or British History, or of the work of a British author, nineteen sets were received, from which the committee selected a series from the "Revelations of St. John," afterwards found to be by Mr. George Elgar Hicks, of Lymington, Hampshire, as entitled to the reward. Considering that much talent was displayed by some of the competitors, and anxious to stimulate young artists to exertion, they further awarded honorary premiums of 20*l.* each to Mr. G. E. Sintzenick, Mr. W. Cave Thomas, and Mr. G. Scharf, jun.

With the view of inducing the production of finer and more elaborate works in lithography than are now general in this country, the committee some time ago placed in the hands of Mr. Templeton, Mr. E. M. Ward's excellent picture, "La Fleur's Departure" (selected by a prizeholder in the last distribution), to be executed on stone of a large size. As this is not yet finished, it will be made to form part of next year's arrangements.

In continuation of the society's endeavours to encourage the production of bronzes, Mr. John Bell's statue of the "Eagle Slayer," exhibited in Westminster Hall last year, has been reduced by Mr. Edward Wyon, and of this twenty copies in bronze will be distributed to-day. The thanks of the society are due to Mr. Bell for the liberal manner in which he placed this figure at the disposal of the committee. For the ensuing year Mr. Foley's statue, "The Boy at the Stream," has been reduced by Mr. Cleverton's machinery, and will be produced in bronze by Mr. Foley himself.

Your committee have long borne in view the connection between manufactures and art, and have felt the importance of leading one to the aid of the other. Considering the porcelain manufacture to be of considerable consequence, and greatly dependent on art, they propose to reduce a statue to a convenient size, and to issue a certain number of copies in that material. Mr. Gibson, R.A., when in England kindly offered the use of any of his works for this purpose, and the committee have determined on adopting "The Narcissus" for the first experiment, his diploma piece at the Royal Academy. Some difficulties which arose at the Academy have delayed the completion of the intention, but these are now removed, and the work will be proceeded with immediately by Messrs. Copeland and Garrett. Mr. A. J. Stothard has completed the medal commemorative of Sir Joshua Reynolds; the committee propose distributing to-day to thirty subscribers the right to receive an impression of it in silver. Any subscriber who may desire to have a copy of the medal in bronze, in lieu of the engraving for the present year, will become entitled to do so by forwarding to the office a note to that effect.

The want of encouragement in the art of gem engraving, at present seriously felt, has been urged upon them in several quarters. It has been shewn that we have no artists in this department capable of engraving a figure equal to those which were produced in England only a few years ago, and that there is not sufficient inducement to lead engravers to pursue such a course of study as would enable them to execute works of first-rate excellence; the committee take this opportunity to draw public attention to the fact.

Since the last meeting Thomas Griffith, Esq., M.A.; George John Morant, Esq.; W. J. Smith, Esq., F.S.A.; Henry G. Atkinson, Esq., F.G.S.; and Arthur Tooke, Esq., M.A.; have retired from the committee; and the Right Hon. the Earl of Arundel and Surrey; the Rev. Edward Coleridge, of Eton; T. C. Harrison, Esq., F.L.S.; and Mr. Serjeant Thompson; have been elected to fill the vacancies thus created.

The account of receipts and disbursements is as follows:—

	£.	s.	d.
Expenses:—Clerks, Printing, Advertising, Postage, &c. ...	1,796	10	10
Sum allotted for the purchase of Pictures, &c.	9,650	0	0
Ditto for Bronzes	450	0	0
Ditto for Medals	200	0	0
Sum reserved for Engraving and Printing Outlines	960	0	0
Balance reserved for the line-engraving of the year	2,383	14	2
	£15,440	5	0

The amount set apart, according to the foregoing statement, for the purchase of works of art, viz., 9650*l.*, will be thus allotted:—

40 Works of Art of the value of 10*l.* each.
55 Works of Art of the value of 15*l.* each.
39 Works of Art of the value of 20*l.* each.
37 Works of Art of the value of 25*l.* each.
25 Works of Art of the value of 30*l.* each.
25 Works of Art of the value of 40*l.* each.
14 Works of Art of the value of 50*l.* each.
12 Works of Art of the value of 60*l.* each.
10 Works of Art of the value of 70*l.* each.
10 Works of Art of the value of 80*l.* each.
6 Works of Art of the value of 100*l.* each.
3 Works of Art of the value of 150*l.* each.
2 Works of Art of the value of 200*l.* each.
and 2 Works of Art of the value of 300*l.* each.

To these are to be added twenty bronzes of "the Eagle Slayer," and thirty medals of Reynolds. To save the time of the meeting, the medals will be allotted to the first thirty names drawn consecutively at the close of the general distribution.

The reserved fund now amounts to 1,524*l.* 2s., consisting simply of the interest on subscriptions received, the sums unexpended by prizeholders, and the profit on the sale of catalogues at the exhibition. In order to enlarge it, the committee renew their exhortations for the payment of subscriptions early in the year.

The committee are anxious to increase to the utmost the efficiency of the association.

The various new modes of multiplying works of art, the announcement of which has recently startled the public, will not be disregarded by them, so far as they may be likely to assist in spreading abroad universally works of fine art. The steam-press has made good literature cheap, and the increased demand consequent has made it cheaper still, without weakening in any degree its worth and power. The delight and instruction it gives are extended to all and lessened to none. So it should be, and will be, with art. It is recorded of Apelles that he could not endure that a picture should have but one master; he thought that the works of great artists should be carried from one country to another, because painting "was a common good to all the world." We are told too, there was a period when such works were looked upon in Greece as public treasures, whereof the enjoyment was due to all.

In modern times the *engraver* has extended the delight afforded by the contemplation of works of art to a wide circle, and the processes now in progress of development may enable him to fulfil literally Apelles' wish, and make a fine picture a common good to all the world. If we look back hardly a century, and note the state of the arts in England at that time, the utter disregard of them which was shewn, and the prevailing opinion that Englishmen had not the qualifications necessary for the successful practice of them, and remembering what has been done since, observe the important movements now making in favour of the fine arts, we shall find reason to be hopeful. Amongst the most recent efforts in this behalf is the bill now before the Legislature to enable town councils to establish museums of art, for the benefit of the public,—to provide galleries for the reception of

"——— Gems of art
And genius, ravish'd from the grasp of Time."

and to adopt the most efficient means of rendering them educationally useful.

Emanating as this bill does from a member of their body, Mr. Ewart, to whom, in conjunction with others, the public are greatly indebted for the establishment of schools of design, and believing that if carried out efficiently by the local authorities, public taste will thereby gradually be improved, and that much good will result, the committee feel entitled to allude to it in terms of sincere commendation. The connection between manufactures and arts is generally admitted, and has been always urged in the reports of your committee; it is asserted, that we cannot compete with foreign manufacturers in some branches of trade because of the want of knowledge of the arts of design on the part of the operatives. By providing collections in each town, of the finest casts of the ancients,—forms of perfect beauty; giving general access to them, and making drawing a part of ordinary education, we might speedily overcome this reproach, and become independent of foreign aid.

The increased facilities of access to national and private collections, now enjoyed by the public, was threatened by the recent demolition of an ancient relic. The law being found defective, a proof amongst others of the indifference towards the fine arts which has been entertained by our legislature, a bill for the protection of works of art has been brought into the House of Commons, and will speedily be made law; and it is to be hoped, that should any evil-disposed person commit a similar outrage, he will be punished with rigour; all have an interest in maintaining the security of works of art publicly exposed, and thereby preventing the renewal of an unjust stigma now nearly removed.

The remission of the duty on glass will be advantageous to painters in water-colours, and lead many to adorn their houses with prints, who otherwise would not have done so.

The increased attention paid to the fine arts at our universities, the important proceedings of the Royal Commission for their encouragement, the rapid spread of a desire for artistical decorations in our buildings, and other evidence, that the love of art is penetrating the mind of the country, would afford important matter for congratulation and comment.

It is not too much to assert, that the proceedings of the Art-Union of London have greatly assisted in producing the movement now apparent, by leading multitudes to talk and think of art who otherwise had disregarded it, and obtaining a more extended consideration of its value and uses. It will be the duty of the committee, as it is their pleasure, to aid in giving this movement a right direction, and they call upon the subscribers, and they call upon artists, as they have before done, zealously to assist them in the endeavour.

"The great end of art," says a philosophical writer of the last century,* "has been so little considered, that many are accustomed to look on pictures as they would on rich hangings. It is true, that some kinds of pictures, like some kinds of books, can do no more than please. But the first object of high art is no more to be ornamental than the first object of an author is to decorate a library. Like poets, historians, and philosophers, painters have the power of instructing whilst entertaining the mind." To painters we say, exercise this power, produce works to teach as well as please, and rouse art to her proper station amongst us; and to the public we say, purchase these works when produced and so lead others to follow the right path,—to advance the character and increase the enjoyments of their countrymen. Seek excellence in every department, from the lowest to the highest, and remember, that by rewarding mediocrity to the exclusion of genius which may await your assistance, you depress talent and commit injustice.

Let us all bear in mind, that the great object of our association, is to elevate and diffuse art.

GEORGE GODWIN } Hon. Secs.
LEWIS POCOCK. }

The cheering which followed the report having subsided, the Duke of Mecklenburgh Strelitz, moved that the report be received, and Sir C. Hopkinson seconded it. The motion being carried by acclamation, Mr. Uwins, in a very eloquent speech, moved a vote of thanks to the committee and officers; as an artist, he said, he was proud to stand forward to give expression to the gratitude that was felt by the whole body. Mr. Cooper, R.A., seconded the motion, and it was carried by acclamation.

Mr. W. H. Rosser, F.S.A., and Mr. Fred Haggard, having consented to act as scrutineers, and Miss Royds and Miss White, to draw the prizes, the distribution commenced, and his Royal Highness then vacated the chair in favour of Mr. B. Bond Cabbell, F.R.S., and retired amidst loud plaudits.

The following is a list of the principal prize holders:—

Lord F. Beauclerk, 68, Grosvenor-street; E. Perry, Bombay,—each 300*l.*

Rev. A. R. Lloyd, Whittington, Oswestry; Mrs. A. Packe, Caythorpe rectory, Grantham, each 200*l.*

J. Jarman, Half-moon street, Bishopgate; Twiss, Cambridge; W. F. Watson, Chelsea, each 150*l.*

C. Claydon, Cambridge; W. Gow, Hungerford

* Richardson's "Art of Criticism."

Wharf; W. M'Donald, Queen-street, Glasgow; H. S. J. Medley, Farringdon; Lady A. Paget, 1, Old Burlington-street; E. Shepheard, Coventry, —each 100*l.*

F. Allen, Pershore; B. Brown, George-yard, Lombard-street; Henry Brown, Boughton, Chester; H. W. Dobell, Sussex-square, Kensington; A. G. Fraser, Halifax, Nova Scotia; P. H. Green, Manchester; W. Keary, Stoke-on-Trent; J. Wayer, Astley-crescent; E. Westall, Croydon; B. Williams, Waterloo-place,—each 80*l.*

J. Burton, Princes-street City; Miss Connell, 36, St. James's-place; W. Crystall, Greenwich; W. Davidson, Glasgow; C. Dolman, Birmingham; W. Durant, Sandringham, Norfolk; F. Hooper, Worcester; H. Senior, Eye, Suffolk; Mrs. Staple, Pimlico; Mrs. J. J. Stone, Kensington-terrace, Bayswater,—each 70*l.*

J. Cobbold, Ipswich; T. Dakin, King-William-street; A. L. Davies, Carmarthen; E. Dickinson, Jerusalem Coffee-house; S. E. Doidge, Bideford; G. Harcourt, Chertsey; A. G. Niner, Regent-street; Mrs. Paget, St. John's wood; H. Renshaw, Strand; C. Rickards, Piccadilly; C. H. L. Woodd, 108, New Bond-street; T. Workman, Basingstoke,—each 60*l.*

E. Ballard, Islington; W. B. Bull, Newport Pagnel; J. Carrington, Potham, Beds; Miss Colquhoun, Walmer-lodge, Avenue-road; Halstead, Chichester; W. Howlett, Kirton Lindsay; G. K. Lancaster, Stafford-cottage, Windham-road; T. Longman, Paternoster-row; M. B. M'Farlane, Cheapside; A. M'Leod, Halifax, Nova Scotia; J. G. Plainer, Helston; J. Stewart, Bank of England; Mrs. Veal, Barnstaple; Lady Whichcote, Buckingham—each 50*l.*

D. W. Alexander, Halifax; Miss Armstrong, Stafford; A. Attwood, Gracechurch-street; W. Beckwith, Isle of Man; Mary A. Clarke, Durham-street, Strand; A. Dawson, Old Broad-street; T. Furguson, Mill-wall, Poplar; T. M. Gresham, Dublin; E. Griffith, Newton; E. Hunt, Southampton; Dr. Jones, Chester; T. Leftwich, Cumberland market; W. F. Moore, Isle of Man; J. Patten, Paddington; F. R. Perkins, Chipstead-place, Sevenoaks; G. Phillip, Liverpool; R. R., Dunchurch; A. Rowbotham, Market-place, Sheffield; Sir M. A. Shee, P.R.A., Cavendish-square; J. Simpson, 43, Newington-place, Kennington; J. Smith, 49, Long Acre; W. Stone, Darwin-street; J. Symonds, Warrington; Mrs. S. Wade, St. Albans; J. Watt, Wych-street,—each 40*l.*

Thanks to the young ladies who assisted in the distribution, moved by Dr. Dickson and seconded by Mr. Wyndham, and to Mr. Bunn, for the liberality with which he had placed the theatre at the disposal of the society, moved by Mr. Noble and seconded by Mr. J. S. Gaskoin, were carried unanimously.

Alderman Wilson proposed a vote of thanks to the honorary secretaries for their exertions in promoting the interests of the Institution, which was seconded by Mr. Cabbell (the chairman), and passed unanimously.

SUSPENSION BRIDGES.

Suspension bridges appear to be of very ancient origin; travellers have discovered them in South America, in China, in Thibet, and in the Indian Peninsula. They are mostly met with in mountainous regions, and being suspended across a deep ravine, or an impetuous torrent, permit the passage of the traveller when the construction of any other kind of bridge would be impracticable. It is not, therefore, from the celebrated nations of antiquity that the engineer has derived his first hints for the construction of suspension bridges, as neither Greece, Rome, nor Egypt is ever known to have had one, but from rude and unpolished people, the results of whose ingenuity we proceed to describe.

In South America there are numerous *rope suspension bridges* formed of the fibrous roots of the great American aloe (*Agave Americana*). The roadway is formed by covering the ropes transversely with small cylindrical pieces of bamboo. The bridge of Penipi, erected over the river Chambo, is 120 feet long and 8 feet broad; but there are others of much larger dimensions.

The utility of these bridges in mountainous countries is immense. Humboldt mentions that a permanent communication has been established between Quito and Lima by means of a rope bridge of extraordinary length, after 30,000*l.* had been expended in a fruitless attempt to build a stone bridge over a torrent, which rushes from the Cordilleras of the Andes. This is erected near Santa, and travellers with loaded mules pass over it in safety. A rope bridge will generally remain in good condition twenty or twenty-five years, though some of the ropes require renewing every eight or ten years. But composed of stronger and more durable materials than the twisted fibres and tendrils of plants, suspension bridges are found to exist in remote and semi-barbarous regions. In Thibet many iron suspension bridges have been discovered, and it is not improbable that in countries as little known and visited by Europeans, others may exist of which we have as yet received no accounts. Turner, in his "Embassy to the Court of Thibet," mentions a most remarkable bridge of this description, stretched over the Tehintchien, situate about eighteen miles from Murichom. "Only one horse is admitted to go over it at a time; it swings as you tread upon it, re-acting at the same time with a force that impels you every step you take to quicken your pace. It is constructed of five chains, which support the platform, and on which chains are placed several layers of strong, coarse mats of bamboo, loosely laid down, so as to play with the swing of the bridge; a fence on each side further secures the passenger." The date of the erection of this bridge is unknown to the inhabitants of the country, and they even ascribe to it a fabulous origin: its length is about 150 feet. In Kircher's "China Illustrated," there is a very clear description of a Chinese iron-chain-bridge. "In the province of Junnan," says he "over a valley of great depth and through which a torrent of water runs with great force and rapidity; a bridge is said to have been built by the Emperor Mingus, of the family of Hama, in the year of Christ 65, not constructed of brickwork or of blocks of stone cemented together, but of chains of beaten iron and hooks, so secured to rings from both sides of the chasm, that it forms a bridge by planks placed under them. There are twenty chains, each of which is 20 perches, or 300 palms in length. When many persons pass over together, the bridge vibrates to and fro. It is impossible to admire sufficiently the dexterity of the architect Sinensius, who had the hardihood to attempt a work so arduous and so conducive to the convenience of travelling."

Another suspension bridge in China is described in the sixth volume of the "Histoire general des Voyages." The following is a condensed translation:—"The famous iron bridge (such is the name given to it) at Quay-Chen, on the road to Yun-Nan (Junnan?), is the work of an ancient Chinese general. On the banks of, and stretching over the Pan-ho, a torrent of inconsiderable breadth but of great depth, a large gateway has been formed between two massive pillars 6 or 7 feet broad, and from 17 to 18 feet high. From the pillars at each end four iron chains extend, on this bridge of chains thick planks laid across formed a platform. The whole is covered by a roof which rests its ends on the pillars at each side of the bank."*

Scamozzi speaks of suspension bridges existing in Europe in the beginning of the 17th century, but it is very questionable if the term he employs designates the same structure as that to which it is now applied. On the Continent no suspension bridges seem to have been erected save those of recent date, and in England the oldest bridge of the kind is believed to be the Winch Chain Bridge suspended over the Tees, and forming a communication between the counties of Durham and of York. Mr. Stephenson (*Edinburgh Philosophical Journal* for October, 1821) conjectures that the date of its erection was about 1741. It is or was (for we do not know whether it is still in existence) about 70 feet long, and rather more than 2 feet wide. The roadway was supported immediately by the chains which were stretched into a nearly straight line, and were steadied by inclined ties from the banks below. A hand-rail was added on one side only for the protection of the passengers whose footing was far from steady. But few suspension bridges and those of minor importance were erected in Great Britain before the construction of the celebrated Menai Bridge. Drewry ("Memoir on Suspension Bridges," 1832) mentions one across Gala Water, which was made of thin wires, at a cost of only about 40*l.*, although its span was 111 feet. It was erected in 1816 by a manufacturer named Lees of Galashiels. Another wire bridge, of about the same length, was built in 1817, across the Tweed at Kings Meadows, at an expense of 160*l.* The platform was 4 feet wide, and was sustained by wires radiating from the tops of two cast-iron columns at each end of the bridge. The columns were cast hollow, and within each of them was placed a verticle bar of wrought-iron 2½ inches square, to which the wires were immediately attached. Other bridges were built upon this principle, which, according to Navier, was suggested many years before by a Frenchman of the name of Poyet.

In 1817, Captain (now Sir Samuel) Brown, obtained a patent for an improved method of constructing chains for suspending the roadway, and three years afterwards, had an opportunity of testing its merits in the erection of the Union-bridge across the Tweed, near Berwick, which was opened for use in July, 1820. The length of the chord-line between the points of suspension on the tops of the towers, is 449 feet, and the deflection is about 30 feet. On the 10th of August, 1820, the first stone was laid of the Menai Bridge, a noble monument of the scientific skill of the late Thomas Telford. In January, 1826, preparations were made for opening the bridge, and on Monday, the 30th, the mails drove over it for the first time. Shortly after, however (February 6th), a tremendous gale did considerable damage to the iron-work, and repeated gales during the spring, tended greatly to retard the necessary operations in repairs. But no inconvenience has since been felt, and there is reason to believe, that with ordinary care and attention this noble structure will last for ages.

In 1821, Captain Brown commenced the Trinity Suspension Pier at Newhaven, near Edinburgh, which consists of three spans of 209 feet each, with 14 feet deflection. He also constructed the Suspension Pier at Brighton, which consists of four openings of 255 feet each with a deflection of 18 feet.

In 1824, Mr. W. Tierney Clark commenced the Hammersmith Suspension Bridge, the first erected in the vicinity of London. The central opening has a chord-line of 422 feet, with a deflection of 29 feet 6 inches. This bridge was opened for use in 1827.

In 1828, Captain Brown commenced a large suspension bridge over the South Esk, at Montrose, the chord-line of which is 432 feet, and each chain extends 115 feet from the centre of the tower to the farthest end of the chamber of masonry, in which its end is secured.

After the completion of the Menai Bridge, others on the suspension principle began to be universally adopted throughout Europe, but it was not till iron-wires had been proved to be more firm than bars of a greater thickness, that these bridges received their most extensive applications.

Since 1821, Messrs. Sequin have constructed more than fifty wire-bridges in France with great success.

In a recent number of the *Pittsburgh Chronicle*, is the following account of a suspension wire bridge, now being constructed over the Alleghany:—

The suspension ropes, which extend from pier to pier in the form of an inverted arch, are to consist of seven strands of wire, each strand being about 3 inches in diameter. The ropes will then be wrapped in annealed wire (No 14) which will render it one solid mass, and as each individual wire is varnished before it is put across, and as the whole will be painted when finished and wrapped, it will be impervious to water, and consequently not liable to be weakened or impaired by the weather. On these two immense wire ropes the structure is to be suspended. But this is not the only reliance for strength. The trunk is to be constructed from pier to pier—the sides being of solid lattice-work — that is, strong beams placed in this form—XXX. The beams are to be placed contiguous to each other for greater strength, so that when finished the trunk alone, without the wire-ropes, will be a firm and strong structure, capable not only of sustaining its own weight, but also of bearing up as much additional work as a lattice-work bridge would do. In effect, the trunk is a lattice-work bridge without arches. The ropes being suspended across strong stone towers placed upon the piers, are in fact, inverted arches, capable of sustaining more than double the additional weight which the letting in of the water would place upon the trunk; the trunk itself is an independent, strong, and immovable structure, so that when

* See Navair, "Memoire sur les Ponts Suspendus."

finished the aqueduct will not be liable to be moved either from the swell of water or the effect of storms. The wires are carried across the river, from one pier to another, by a wheel which traverses the whole distance upon ropes, unbinding the wire from the reels as it goes. The ropes are moved by horse-power. The splices of the wire are made by placing the two ends together and winding them with fine annealed wire, and it is done so strongly, that sufficient force will break the wire, but will not affect the splice. J.

THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

Matters at present remain *in statu quo*, but we understand efforts are about being made to effect a junction of the two parties; we heartily wish success to the endeavour.

Relative to the account we gave of the unfortunate dissensions in the committee (p. 170 *ante*), we have received the following letter:—

"Adverting to your 'impartial statement' of the original cause of quarrel in the British Archæological Association, viz.: the act of Mr. Wright in having 'produced in his own name and irrespective (disrespectful) of the association, 'the Archæological Album,' I beg to state, as I am unfortunately known to have been the first to have objected to it, that in justice to myself, your words 'trumpery, windbag, and sputter,' are very incorrect representations of my purity of motive and mildness of manner towards Mr. Wright, when, on December 11th I '*suggested* that the detailed account of the proceedings of the association at Canterbury about to be given in the Archæological Album (a new periodical to be edited by Mr. Wright) should be prefaced by a statement that such account is unauthorized by this committee,' and I beg to inform you, Sir, that to prove that there was no 'trumpery' (*tromperie*— deceit) on my part in so doing, I had previously told Mr. Wright by letter, that I 'considered it ('the Album') a kind of poaching on the manor of the committee, and should call their attention to it;' and, moreover, that the president on that day publicly and in a letter soon afterwards sent from his lordship to me privately, said, 'I cannot but consider that your conduct is invariably based upon a conviction that the principles upon which you act are just.'

Allow me now to say a few words on your observations. The 'great faults' were our not having any laws to guide us but those of honour.

If on the minority's side are the two first founders of the association, the two next founders, myself and Mr. Way—who is certainly the most influential founder in every respect, and also one of the honorary secretaries—are on the majority's side.

I fear, however, that from the rash and illegal proceedings of Mr. Pettigrew's meeting in Leicester-square, that his minority branch can never be rejoined to the majority of the *comité*. But neither, therefore, are its objects 'wrecked' nor have 'some of the authorities at Winchester' refused their assistance at the contemplated meeting there in September, of the majority's party, for on the contrary, from the town clerk to the dean, every gentleman connected with that city and its cathedral has subscribed his money and hearty interest towards the said meeting.

And though some members of the association may now be perplexed, and imprecate 'a plague on both our houses,' and others have been seduced by the activity and cleverness of the minority to go astray, very many are returning to their old fold, so that I have no doubt that your 'tangled web' will soon be unravelled, and that even in your estimation will again shine forth as untarnished as ever (and I hope surmounted with the union flag), your so called 'trumpery Peg.'

Yours, dear Mr. Editor, most truly,
W. Bromet, M.D."

Our good friend, the writer of the above letter, will see, on reconsideration of the article in question, that the terms to which he objects do not apply to himself or any other individual, but to the proceedings generally which caused the quarrel, and that we see no reason for designating them by any more dignified words than those we have used. Our statement, however, is before the public, and they can judge for themselves: its correctness has been admitted by partisans on both sides, and the Doctor himself does not offer the slightest contradiction to it, excepting as to our assertion that some of the authorities at Winchester have refused their assistance at the contemplated meeting there, and this, we fear, will be found quite true notwithstanding the denial. It is stated by persons in whom we have perfect confidence, that the other party have actually received pressing invitations to meet at Winchester; and we mention it simply as shewing how likely it is that the interests of the association will suffer if a coalition be not effected before the proposed meeting is held.

NEW SOCIETY OF PAINTERS IN WATER COLOURS.

On Saturday last, we attended the private view of the eleventh exhibition of this society, previous to its being thrown open to the public, and perceived with gratification that it had not degenerated from its usual excellence. There are not so many large pictures, which is accounted for by the small degree of patronage bestowed on this branch of art. There is great improvement in the choice of subjects (half the battle by-the-by), and fewer milk-maids, plough-boys, and the like, than are sometimes seen.

Our attention was at once attracted by the gorgeous colouring of No. 81, by L. Haghe, "Ferdinand visiting Rubens at Antwerp," which is almost equal to that great colourist himself. The drapery of Ferdinand, yellow and crimson, contrasted by the light blue scarf, tells most forcibly by the side of the soberly-clad Rubens. This drawing is on the whole a triumph, and merits the greatest compliment we can pay to Mr. Haghe.

Mr. Warren's picture, "The Crusader's first sight of Jerusalem," is of the highest class, and full of beauties, but wants in parts this artist's usual depth. A certain flimsy transparency about some of the figures may be considered questionable.

A palpable instance of improvement is No. 61, "The Prisoner of Gisors," by E. H. Wehnert; the conception of which is remarkably fine. There is a solemnity of tone about it suitable to the story, which is unexceptionably treated, and the work altogether is worthy of the subject. It is one of the cleverest pictures in the gallery.

"Bianca and Lucentio," by the same artist, is originally treated, but will not sustain a comparison with the former.

No. 244, from "*Le Juif Errant*," is by E. Corbould. The horse is well drawn and coloured, more particularly the head, also the veteran soldier; but we cannot say the same of the young ladies.

Mr. Absolon's "Judgment of Midas" is a careful drawing, beautifully finished. The two girls on the left-hand side are truly exquisite, and will enhance the artist's reputation.

Mr. Kearney's picture of "John Knox and Mary Queen of Scotts," is weak and insipid.

Mr. Duncan has produced a gem in his (No. 194) "Shrimpers." The effect of the sun is managed most marvellously.

"Sheep-washing" (212), is another beautiful specimen.

266. "The Ascension," by Mr. Corbould, is a very clever little drawing, well composed. The group of cherubim that encircle the Messiah is very beautiful, and contrasts well with the depth of the apostles' draperies.

"Returning from Market," and "The Gleaner," have both great merit as to drawing and colour, but are depreciated by effeminacy and affectation of treatment.

Absolon's pictures, (227) "From Izaak Walton," "Spring" (16), "Summer" (274), and "From the Fair Maid of Perth," need no other eulogy than that they are quite worthy of the artist.

"A Street in Fougéres, Brittany" (9), "Doorway, Rouen" (197), "Tower of Rouen Cathedral" (151), and "Dinant on the Meuse," are by R. K. Penson. This artist excels particularly in architectural drawings, which he gets up with boldness and skill, without the angular and crude appearance predominating in ordinary pictures of this class.

181. "The Old Gate House, Rotterdam," by G. Howse, is another excellent architectural drawing in a very different style, the whole picture made out with that remarkable clearness peculiarly the artist's own. The colouring is warm and effective, a rich brown predominating. There are many other smaller productions of this clever painter, interiors and architectural bits, the majority of which are excellent.

Two pictures by H. Weigall, from Bloomfield's "Abner and the Widow," are well worthy of attention for truth and domesticity. "The Age of the Horse" (in 133) is correctly portrayed.

"The Ring," by A. H. Taylor, is a pretty picture, but we should advise him to avoid such works as "Playmates" (125).

Mr. Jenkins has considerably distinguished himself. "The Vaunt," "Light from Burns," "Jeunes Filles," "Jouant aux Gazelle," "A Sunny Moment," "La Fille de Fermier," and "Jealousy," are highly characteristic of this artist's style—original, yet somewhat affected.

Among the landscapes of H. Jutsum are some lovely bits, remarkable for the coolness of shadow and decision, yet here and there overdone.

Topham has this year made rapid strides towards excellence. His style is very slight, and the effect produced by mere washing is next to miraculous. The picture of "Pilgrims to the Holy Well," is full of truth and feeling, the posé of the girl in the immediate foreground easy and graceful, and the effect of the whole broad, clear, and harmonious.

No. 112, from English History, by H. P. Riviere. A work of promise. The subject, "Gregory and the Saxon Slaves." If more attention had been paid to the hands and feet, and perhaps the drawing in general, the picture would be entitled to great praise.

Mr. Campion's "Waterloo" is an elaborate work: the distance well managed, but the action of the picture is rather monotonous.

"Christians," by Aaron Penley. A picture of deep sentiment and impressive argument. The head of the female is most carefully stippled up.

Amongst the landscapes, we particularly noticed No. 276, by J. M. Youngman, "Distant View of Malvern Hills, Departing Day," by Aaron Penley; "A Wild pass in the vicinity of Harlech," by Thomas Lindsay; "Mayence," by J. Fahey, "The Curfew tolls the knell of parting day," by H. Maplestone; "Cottage near Bettws y Coed, North Wales," by David Cox, jun.; "Rising Moon from Greenwich Park," Thomas Lindsay; two of "Kenilworth Castle," by H. Warren; "Maude Castle, Aberdeenshire, sunset," by Aaron Penley; "Water Mill near Streatly," H. Maplestone; "On the River Llugwy, North Wales," David Cox, jun.; "Lochen-y-gair, Aberdeenshire," Aaron Penley; and several "Garden Scenes," by G. Dodgson.

The "Marine Pieces," chiefly by Robins and Callow, have great excellence.

INSTITUTION OF CIVIL ENGINEERS.

ATMOSPHERIC RAILWAYS.

April 15th.—Sir John Rennie, President, in the chair.

The paper read was by Mr. Berkley, Associate. It consisted rather of a series of questions on the "peculiar features of the atmospheric system," than an expression of any peculiar views on the subject; and had for its object to elicit clearer and more positive opinions of the leading members of the profession upon the comparative practical advantages and disadvantages of the atmospheric and locomotive systems.

The chief points which were raised consisted of the mechanical difficulties in the application of the atmospheric system to level crossings and sidings, and the performing the work at the stations, &c., which, in spite of the ingenious device of the talented engineers who had adopted the system, appeared to entail considerable cost and complexity.

The advantages and economy of frequent trains on short lines were admitted, but it was stated that the same plan could be effectually practised with locomotive engines without any disadvantage or risk. For a long time the necessity and benefit of the plan was questioned.

It was shewn that greater safety did not exist even on single lines when the circumstances were equal, and if the electric telegraph was applied to each; in fact, that when the whole position was considered, the balance of advantage of probable freedom from accident would appear to be somewhat in favour of the locomotive system.

That greater speed also had not been usually attained; or that, if attained at all, it must involve "inordinate cost."

The facility for surmounting steeper gradients was questioned, and the inference drawn, that the enormous first cost would confine the application of the atmospheric system to the same narrow limits as were occupied by other stationary systems of traction; and that it must be classed with them only as a means of overcoming lengths of such bad gradients as did not come within the limits of locomotive power, or where the lines were short, and the traffic was great, terminal, and simple.

In adverting to the cost of maintenance of the line, the comparative advantages of the two systems were examined, and it was argued that it was fallacious to compare the expense of keeping up the Dalkey line, which was excavated in rock, and resembled an "uncovered stone drain," with that of maintaining the Dublin and Kingstown Railway, which was a sea-embankment stretching across a part of the bay, and on which the passage of the trains was not unfrequently stopped by the inroad of the waves.

A careful examination was entered into of the difficulty of removing the earth from slips, or doing any of the usual quantity of contractors' work on the line without having recourse to locomotive power; on this point the observation of Monsieur Legrand, the French Minister of Public Works, might be quoted. On his return from inspecting the Dalkey Railway, he said that there could not be any doubts of the applicability of the atmospheric system to some positions, and probably with advantage; "mais après tout il fallait avouer ce n'etait pas *un cheval à la main*, comme la machine locomotive."

Numerous other points were strongly insisted upon: Mr. Robert Stephenson's report was frequently referred to and quoted, and the most eminent engineers were called upon, whether they had adopted or rejected the system, to give the facts and arguments by which their decision had been influenced.

In the discussion which ensued, the theory propounded by Dr. Robinson in his recent examination before the Parliamentary Atmospheric Railway Committee, that "a steady uniform height of barometer had nothing to say to the velocity," or did not indicate, as Mr. Stephenson had stated in his report, "a maximum uniform velocity," was examined, and it was generally admitted that the case which he proposed, in illustration of his theory, was practically impossible, and was entirely irrelevant to the subject. The supposition of the existence of a perfect vaccuum in front of the piston would entirely throw aside the question of the uniform action of the machinery, with an accelerating motion of the train, which, it was shewn, must produce an unsteady height of the barometer, the condition of a steady height could not exist unless both the power of the resistances due to the velocity were either equally irregular as regular; in either case an exact balance being maintained.

In Mr. Stephenson's experiments at the Dalkey Railway, the circumstances of regular power and steady height of the barometer were shewn to exist simultaneously, and the inevitable inference was that a regular uniform maximum velocity was attained. Dr. Robinson's case was allowed to have been stated only for the sake of argument before the committee, but a practical inconsistency in Mr. Stephenson's experiments of a steady height of barometer with a slight accelerating velocity, was put forward as condemnatory of his report, on the supposition that it was more practicable to note correctly the velocity of the train than to observe the indication of the barometer, and that the true reason for this slight acceleration was the shortness of the Dalkey line, and that hence no accurate result could be arrived at.

The question of the loss arising from the evolution of caloric in the air-pump due to the condensation of the air, from its rarified condition in the tube to the density of the atmosphere was considered, and was generally admitted to be at least as great as had been stated by Mr. Bergin in the discussion of the subject during the last session.

The further discussion of the question was adjourned until Tuesday evening, the 22nd inst.

THE EVILS OF INTERMENT IN TOWNS.

We mentioned in page 173 that the House of Commons had come to the resolution that the practice of interment in large cities is injurious to the health of the population, and demands the attention of Parliament. The following is a summary of the discussion which preceded it:—

Mr. Mackinnon stated that three years ago, when he first brought forward this subject in Parliament, he had been met with jeers and laughter, and a statement that his notions were quite absurd. There had been a great change of opinion since that time; and a strong feeling now pervaded the country that there was a paramount necessity for making some alteration in our laws with respect to interment. He then referred to the fact that three commissions had been appointed by the Government, and that one committee had been appointed by the House of Commons, to inquire into this subject, and read extracts from the different reports which they had presented, for the purpose of shewing that they had all been of opinion that the practice of interment within the walls of large towns was most injurious to the health of the public. He read a letter which he had received from Mr. Brace, of Surrey-street, Strand, containing some startling particulars as to the abominations of Enon Chapel, and told the House that if it were of opinion that such a plague-spot should continue in the centre of the metropolis, it would be difficult for it to justify its conduct. There was no other civilized nation in the world in which this practice of interment within the precincts of large towns continued to exist; and he thought it a most disgraceful circumstance that we should persist in a practice so abhorrent to human nature as to bury the dead in the midst of the living.

Sir James Graham said he was aware how closely the subject was connected with the feelings of the humblest classes of the community, and therefore it was that he paused before he legislated on it. The example of foreign countries on this point was inapplicable to our own; for there various artificial means to facilitate the decomposition of dead bodies were employed, which would not be permitted here. It was a difficult thing to say that a man should not be buried where his relations were buried before him; and any legislative measure which should be founded on such an interdict would interfere with warm feelings which ought not to be hastily violated. He looked upon it as a gross exaggeration to say that our practice of interment in our large towns was abhorrent to human nature and made foreigners view us as savages and barbarians. He knew that the practice was said to be incompatible with the public health; but he could scarcely believe the assertion to be well founded, when he reflected that there was no other metropolis in the world in which the state of the public health was so satisfactory as it was in London. He demurred to the assertion that health was endangered by residence near a churchyard, and told the house that the Bishop of London had resided for some years in Bishopsgate-churchyard, and had informed him that he and his large family had never enjoyed better health than they did during their residence in that spot. Mr. Mackinnon had complained of the indecent proceedings in Spafields. He had ordered a prosecution to be commenced against the parties concerned in them; and if the facts were proved, he had no doubt that the law would be able to grapple both with the offence and with the offenders. So, too, in the case of Enon Chapel, which appeared a very fit case for further inquiry. He was afraid that if the House proceeded to put a stop to these proceedings, and also to the practice of intermural interment by any very stringent enactment, public feeling would be strongly excited against it. He did not assert that this subject might not hereafter come under the purview of the Council of Health; but he had carefully abstained from placing it under their jurisdiction in the first instance, lest prejudice should be created against the council by its having such a duty assigned to it. He spoke in terms of warm approbation of Mr. Chadwick's report; but the proposition of that gentleman had convinced him more than any thing else of the difficulty of legislating on this matter. He believed that the adoption of the measures recommended by Mr. Chadwick—namely, the abolition of all private interments, and the undertaking of all burials by the government—would be generally repudiated by the country. He denied that the church was opposed to any alteration in the mode of our interments, and stated that the Bishop of London had turned his attention to the subject and intended, he believed, to introduce a measure upon it. But caution must be observed in adopting it. If he had matured a measure on the subject, he would have introduced it to Parliament; but he had not, and until he had done so, it was his duty to attend to the measures introduced by others.

Mr. Bernal thought that the Government would not be justified in postponing for more than another session a measure for curing some of the evils of the present system. He recommended Sir James Graham to close the cemeteries of the parishes of St. Clement and of St Agne, and of some other populous parishes in the metropolis, as such a measure would be productive of the greatest benefit to the working classes.

Dr. Bowring said that Spain, Germany, France, and all the countries of the east, had removed their places of interment to a distance from their large towns, and recommended the house to follow their example. He thought that the objection to such a course rested on the fees which the clergy would lose if such a proposition were adopted, and advised the house to buy off their opposition by granting them an adequate compensation.

Lord Mahon, after making reference to his having been a member of the committee appointed to examine into this subject, said that it appeared to him that Sir James Graham had not exaggerated the difficulty of this subject, but that he had greatly underrated its importance. No question was more essential to the health of large towns than that which Mr. Mackinnon had that evening laid before the house. The Government was preparing measures for the better ventilation and draining of large towns; but those measures were but trifles in comparison with that referred to by Mr. Mackinnon. Of what avail would any measures for the better ventilation of a large town be if the air passed through the miasma of crowded churchyards? And of what avail would any measure for its better drainage be, if the water which flowed through the streets were tainted with the drippings and distillations from buried corpses?

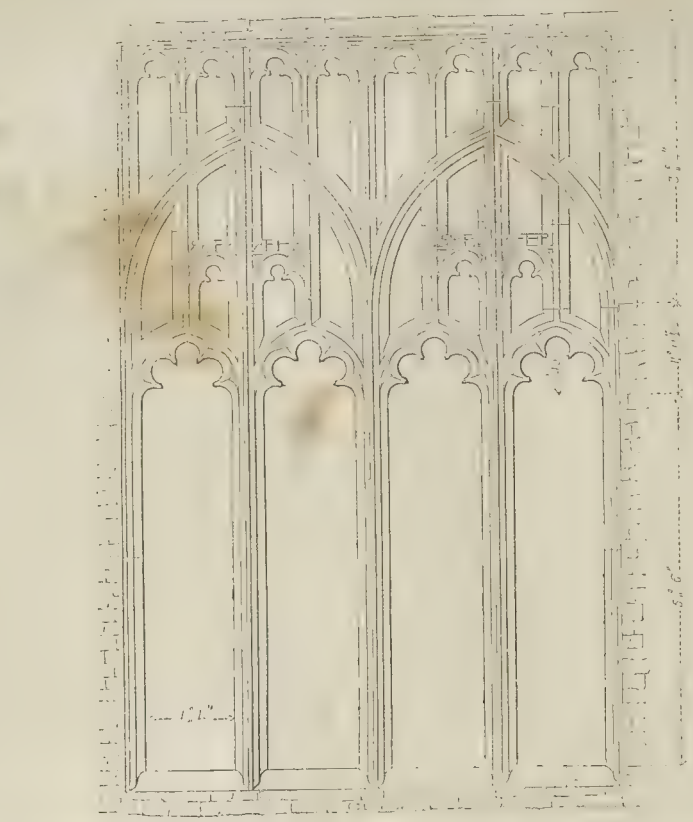
The Earl of Lincoln pressed upon the attention of the House the necessity of considering all the difficulties which attended legislation upon this subject. He believed that the feelings of the poor would be found opposed to any plan for removing the place of burial to any distance from their towns and villages.

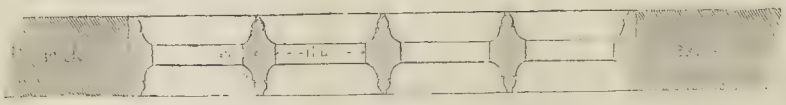
Sir R. Inglis said that the difficulties with which they were met in attempting to legislate upon this subject arose from the neglect with which the religious polity of England had been treated by every Government for the last century. The remedy was to be found in the extension of the parochial system for the living, and also in its extension for the dead. He thought that parishes ought to be empowered to join and purchase burial-grounds for the poor.

Sir James Graham in addressing the House a second time attempted to shew that the remedies which had been proposed for the present system, and which were founded on the practice of foreign countries, were most of them inapplicable to the present state of society in this country. He thought that it would not be impossible to get over the difficulties of the clergy on this subject; but it, perhaps, would not be so easy to overcome the objections of the Dissenting clergymen, who had burial-grounds attached to their chapels, and who derived from them a benefit which they shared in common with the rest of their congregation. He would gladly aid any member who would bring forward a bill upon this subject; but he had stated to the House the difficulties which environed any legislation upon it, and he confessed that he did not know how to remove them.

The report of a Parliamentary Committee on this subject will be found in THE BUILDER, vol. ii. p. 175.

WINDOW FROM WHALLEY ABBEY.





(Plan of Window.)

WINDOW FROM WHALLEY ABBEY.

Sir,—As there have been through the medium of your highly-valuable journal many delineations of beautiful and interesting remains of ancient architecture of this country, I as one, who feel interested in the study of such, have ventured to send the enclosed sketch from Higher Hall, Samlesbury, which is about five miles east-north-east from Preston, and is the property of F. R. Gall Braddyll, Esq., of Cowishead Priory, near Ulverston. This hall formerly belonged to the Southworths' family, and was erected between the years 1532 and 1545, by Sir Thomas. The chapel, or south end, possesses a window, brought from Whalley Abbey, of which the above sketch is a representation. The inside of the hall contains richly-moulded beams and rafters of oak; the joists lie parallel to the beams, as if disdaining their support. There is a very good chimney-piece in the kitchen, bearing the date of 1545, with escutcheons and foliated work. The brick-work is one of the earliest specimens in the whole manor of Samlesbury. Several heads in panels did occur, but many of them have been carried off piecemeal. The principal part of this hall consists of framed timber-work, of which there are many specimens in this country.

Figures 1 and 2, shewing the elevation of the window and plan, are drawn on a scale of



Fig. 3.

half an inch to a foot. And figure 3, shewing the mullion at large, is on a scale of one inch to a foot.

G. P.

Preston.

STIR IN THE SOCIETY OF ANTIQUARIES.

A feeling of dissatisfaction with the mode in which the business of the Society of Antiquaries is carried on, has been long growing up, and has now reached such a point, that it exhibits itself on every occasion which offers. By some strange fatality, observable in mightier governments, the ruling powers shew no disposition to meet the wishes of the members, and the result will be, unless they become wise in time, a sweeping and wholesale reform from without, which might have been altogether avoided by timely concession and a little judicious alteration.

At the anniversary meeting, held on Wednesday last, it was manifest that the great majority of the members entertained but one opinion: every Fellow who spoke said the same thing, and if those who guide the helm shut their eyes wilfully to the state of things, they must be prepared for the consequences.

Dr. Henderson asserted from his own experience that the recommendation of members to form the new council, did not proceed from the old council, and that the society was ruled by some invisible power beyond the council. That the object was, to elect as many inactive members as possible, and that if a member shewed any desire to move in the affairs of the society, he was cashiered at the end of the year, and never elected again. Mr. Wansey alluded to the growth of other societies in consequence of the inactivity of the Society of Antiquaries. The conduct of the president was commented on, and it was shewn that for several years his lordship had not entered the rooms. The Rev. Joseph Hunter said, the present meeting afforded proof of the want of proper officers, for there was neither president nor a vice-president to take the

chair. Dr. Lee even went so far as to move a vote of censure, but this was not seconded.

At the dinner afterwards, the intensest dullness reigned,—there seemed to be a wet blanket over all, and men who are often eloquent, simply stammered out a few common-places. With a sincere desire to see the Society of Antiquaries renew its youth, and the greatest respect for those connected with its management, we earnestly invite the new council to apply themselves vigorously to the task of improvement.

WINDOW FROM ASH CHURCH, IN KENT.

The parish church of Ash is situated on the main road from Canterbury to Sandwich, and is dedicated to St. Nicholas. It contains several ancient and interesting monuments of good design and workmanship, and some brasses.

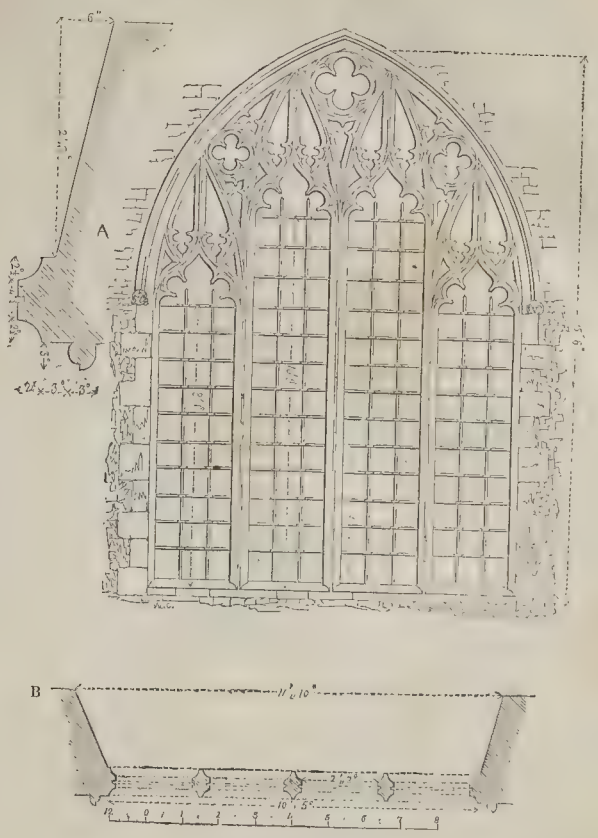
The window represented by our engraving is at the east end of the north aisle of the church. It is 15 feet 6 inches high, and 10 feet 6 inches wide, and consists of four lights, each 2 feet 2 inches wide. Fig. B is the plan of the window, and fig. A gives the section of the mullion, and label or hood-moulding, at large.

The window has at first sight a perpendicular character, but an examination shews that it is a good though singular specimen of decorated work, and belongs to the 14th century.

The roll-moulding forming the label is most peculiar to the decorative style.

Mr. Caveler, by whom the window was measured and drawn, remarks that it is now in a very ruinous condition, and that much injury has been done elsewhere in the church by injudicious repairers.

WINDOW FROM ASH CHURCH.



(*Plan of Window*).

NOTES ON COMPETITIONS.

CLIFTON UNION WORKHOUSE.

Sir,—The letter from your correspondent, "A Guardian," respecting the affair in which he took part, whereby at least 1,000*l.* have been honestly extracted from the pockets of those who can ill afford to lose it, necessarily calls for some remarks, and although he may be personally a most estimable man in his vocation as a maltster, I submit that the board must be sadly in want of "A Guardian," to decide its defence in such hands. In the first place, it is desirable to state that the union in question, although named after a rich parish, includes within its bounds many of the outlying shes of the adjoining city, which are inhabited by multitudes of the lowest orders, viz., colliers, &c., the board is consequently composed of a heterogeneous mixture of gentlemen who seldom attend because they are outvoted, and a phalanx of men, a grade above their constituents in education, who carry all things before them by adopting the motto of "union is strength."

The board consists of forty-eight guardians; and for the purpose of the sham competition, a committee, a select seven, were appointed, three or four of whom, from their station in life were, as Mr. Allom says, above the suspicion of doing *any* thing; but there were amongst them three friends of the successful competitor, to whom the stronger clerk of Mr. Allom will apply, of dropping the mixture one or two shrewd, clever, but *over*-scrupulous fellows," &c. &c.

As to the successful design, it was well known in the neighbourhood that it had been concocting, making, and remaking, in the office of the owner, for very many months, during which time it was being constantly seen by individual members of the board, by whose advice and at the suggestions innumerable alterations were made in it (my informant told me he was present when three of them were there giving advice); and indeed to such a gross extent was this partiality for their bantling carried, that it was taken to a board-meeting, when an attempt was made to get it chosen by the guardians *a few* days only before the advertisement appeared in the newspaper for tenders; this trick was for the time prevented by a clause in the Poor Law Act, which requires all things to be publicly advertised for. So *much* for the probability of a fair decision. No pretension is made as to forming an opinion on the cost or merits of the successful design; but a professional man who has seen it has stated that it could not be built for less than 30 per cent. above the estimated cost; and as to its merits, the building, *if* not a disgrace, will not be a credit to the guardians.

Having occupied so much of your valuable space, I will briefly allude to the sarcasms of Mr. Allom on the local architects, by agreeing with a "Guardian," that he, at all events, ought to be thankful, as the second premium was awarded to him by the three or four gentlemen above suspicion, on account of the artistical and picturesque effect given to his elevation (a talent for doing which is peculiar to architectural draughtsmen), and not for any merit in his plans, as a "Guardian" says they were reported to be deficient in the three great requisites of "*space, classification*, and *inspection*." If this is a fact, premium the second was unfairly given, and the architect who assisted in the selection must have toadied his betters, instead of expressing an opinion contrary to his personal interests.

With respect to the owner of the successful design, I will simply say that he lived, until within the last year, in the midst of the guardians, inhabiting the out parishes above alluded to, and with whom he was connected, encouraged, or employed, and that he is not an architect by education or by professional practice.

After entering so fully into the facts of this gross, but well-bolstered up job, I beg to add that if any man should again spend his money in seeking for public employment in public competition, he will deserve the unjust treatment which he is sure to get.

I am, Sir, &c.,

A Subscriber from No. I.

April 16, 1845.

CLIFTON UNION.

Sir,—My letter, which you published respecting the late competition for the Clifton Union, has, I perceive, called forth a reply from one of the guardians, in which the writer admits the report of the architect consulted to be most favourable to my plan, but states that I had omitted to name two important features expressed in the opinion (viz.), a deficiency of space, at a greater cost than that of the resident and successful competitor.

These are, indeed, most important features, and, if founded in fact, quite sufficient to justify these worthy gentlemen in congratulating themselves on the actual possession of an architect capable of astonishing us poor Londoners; he might have added, that I was in attendance to prove the correctness of my estimate had a hint been thrown out that it was doubted; and I *did* prove, in the presence of the board, that in the dormitories alone no less a space than 6,250 square feet was omitted in their calculations; shewing, beyond dispute, that every class had, according to their own data, the space required.

But it is not to speak of myself, or of my deep-laid schemes for giving the paupers the best possible ventilation at the least possible cost, that I now trouble you with this communication; it is for the purpose of making the numerous competitors conscious of the measure of justice they have had from this tribunal,—the high consideration in which they have been held as scientific men pursuing and practising the most useful and noble of the arts,—the courtesy which has been extended to them as gentlemen confiding in the honour of those into whose hands they intrusted their property,—the thanks voted (and publicly advertized) to those professional gentlemen who have thus nobly spent their thousand pounds in the

endeavour to help the union out of its difficulties; true it is, their difficulties appear to have been of a somewhat imaginary character, considering they were already in possession of the required assistance; but having thus called forth the energies of the profession, the board has determined to do the thing handsomely, and, if they cannot return them their money, will give them their thanks.

It is observed by this guardian of their honour, as well as of their poor, "that of all the architects who sent in plans, Mr. Allom has the least cause to complain." How distressing to witness the ingratitude of mankind! After selecting me as the object of their munificient gratuity of twenty-five guineas, leaving the other luckless twenty-nine with nothing but their thanks, to think that the individual whom they have thus honoured should persist in believing this money well spent in prying into their proceedings; every one will allow, that to stand up and be popped at with one's own powder cannot be a pleasant thing. I really blush when I reflect on my conduct.

"But," cries one of the luckless twenty-nine, "if their choice has fallen on this *acme* of perfection in the shape of classification, inspection, and space, why don't they shew it? Why is the light of their architect thus hidden from us; is he about to patent the invention and afraid that his ideas should be stolen." Oh no, my dear sir; listen to the long and the short of it.

I made a pilgrimage to that classic spot called Clifton Workhouse, Pennywell Road, Bristol,—you all know the address, and it will no doubt dwell in your memories. I went for the sole purpose of being enlightened on this very point; but here let me whisper that you have not been dealing with grocers and cheesemongers, whom by courtesy you call gentlemen when in office, but whom you never expect to act as such either in or out of it. No, no. I was told that these were the real and genuine sort: men who had been to school, and been taught manners; and some there were among them rejoicing in the proud title of patrons of the fine arts. Then was I glad; for I thought that no foul thing dare shew itself among such men; and with that I presented my petition.

Now, to those who are of a philosophic turn of mind, it will probably appear an easy task to explain the cause of the following effect.

Oliver Twist asking for more, never raised such a storm of virtuous indignation among the authorities of his workhouse, as burst forth from certain members of the board at the Clifton union when the simple request to see the successful design was made known to them; it is scarcely necessary to add that, astonished and confounded, scarcely knowing if a certain projecture of my own face was not lost in the sharpness of the contact, I returned with knowledge just as extensive regarding the object of my visit as at the outset of my journey, and having subsequently forwarded a letter, in which it was suggested that you might possibly consider yourselves entitled to a greater amount of good manners than was commonly conceded to paupers, an advertisement did appear a few days back in the *Times* newspaper, stating that a Bristol architect had carried off the palm, and that you might send for your THINGS; but, as a warning to all rebellious competitors for the future, it was agreed not to name the individual who carried off the premium.

I trust, therefore, that my professional brethren will no longer knock their heads together under the idea that their brains have been sucked by these worthies, but rather ascribe the above phenomenon to the air of the place in which they were congregated; and I earnestly wish them the enjoyment of a climate so congenial to their tastes, and a habitation so fitted for their deserts. Apologising to you, Mr. Editor, for taking up so much of your space,—I am, Sir, &c.,

THOMAS ALLOM.

14, Hart-street, Bloomsbury-square,
April 16th.

*** Another correspondent on this matter, wishes to know why the twenty-nine competitors have not had their designs returned, nor any official announcement of the decision, although several weeks have elapsed since Mr. Allom's first letter appeared. The same writer thinks the letter of "A Guardian" was intended to shew that Mr. Allom was also a favoured competitor, but he does not establish his position.

COUNTY LUNATIC ASYLUM FOR SOMERSET.

SIR,—I venture again to address you on the subject of the County Lunatic Asylum for Somerset. I have waited patiently in hopes that some of your numerous readers might have obtained information respecting the decision of the visiting magistrates, and have done me, and the rest of the competitors, the favour to communicate the same through the medium of your journal; but from their silence, I must presume that all is still in darkness.

I have had some thought of waiting on the county members to solicit the required information, and should have done so long ago, could I have obtained the sentiments or names of any of the disappointed competitors; but perhaps there are none but myself that have been weak enough to believe in the honour and integrity of county magistrates, so I will conclude with—Oh! you blessed ministers above, keep me in patience, and, with ripened time, unfold the evil which is here wrapped up in countenance.

Though an humble individual, I am ready to unite in the adoption of any plan that may be suggested likely to effect a better state of competition, and would devote my time and best energies in the cause.

I again call on the profession to act with vigour, and not to waste their time in writing their own particular cases, which apply only to things gone by, and inform and enlighten all those who may require the future aid of architects how to obtain it without a fee. I am of opinion that all the exposure and satire that can be brought to bear on committees who act with want of judgment or partiality will never effect the reform required. A combination with architects is what is required! is there no person in the profession with public spirit enough to offer the gratuitous use of his chambers for a meeting to discuss the subject?

I am, Sir, &c.,
A SUBSCRIBER TO YOUR WORK.

COMPETITIONS GENERALLY.

SIR,—Much has been written and appeared in the pages of your journal upon the subject of architectural competition, and many suggestions have been made with the view of correcting the evil universally acknowledged to exist, but not any appear to me worthy of adoption. In my opinion, the fault rests entirely with architects themselves, for as long as persons in the profession are found weak and foolish enough to enter into competitions as at present conducted, and waste their time and money in such fruitless enterprises, they richly merit the treatment they frequently experience. In those cases that have been brought before the public, through the laudable instrumentality of your journal, it has generally appeared that some *favoured one* has been deputed to carry out the work after inspecting and studying the designs, &c., so *kindly* and *gratuitously* forwarded by his more intelligent and enlightened brethren, during his pleasure, or until he has acquired sufficient information to be enabled to perfect and mature his own plan. The plan adopted at the Reading competition seems to me to be open to objections, or rather adds to the evil than otherwise, even if every competitor would attend, for I imagine few would feel disposed to travel far at a further expenditure of time and money, merely for the purpose of selecting the best design; nor do I think the competitors themselves are the most competent parties to do so, as they would enter upon the matter with peculiar crude notions of their own, imbibed during the execution of their designs. The present system of competition is conducted upon very ridiculous and erroneous principles, for the board, or committee of management, that have to select the best and most suitable design are generally composed of very heterogeneous materials, country gentlemen, merchants, tradesmen, &c., who, as a matter of course, have little or no knowledge of practical architecture, and are therefore totally incompetent to enter into the various merits of the designs submitted to them, and so decide impartially, as it often happens, if no favourite is in the way,—that they look more at the pictorial effect of the drawings, then their real and sterling architectural merits. It may be urged by those favourable to the present system, that it is the means of drawing out latent talent, but, on the other hand, I beg to observe that it also brings into the same arena incompetent pretenders, as alluded to by "A Looker-On" in your last number, and this at once accounts for the frequent failures and accidents we repeatedly hear of in the construction of buildings, both public and private, in this country. If this system of competition continues, I would suggest the propriety of the designs being submitted for the decision of the Royal Institute of British Architects, or a committee composed of that honourable body, as the most competent tribunal, and their decision should not be gratuitous, but upon payment of certain fees; this would insure the selection of the best design, and, as it would be tempered with justice and impartiality, our most able and talented men would think it worth their while to compete. In the same way, engineering works might be submitted for the decision of the Institute of Civil Engineers, and no architect or engineer ought, in justice to himself or the profession, to compete unless the promoters of the scheme would consent to such an arrangement. This would also be the means of still further extending the usefulness of these institutions.

Building competitions are also very erroneously and unfairly conducted. I think the system adopted by the Board of Ordnance appears to be founded on the principles of justice and equity; if work is to be well and properly executed, it is evident we ought to pay an adequate price for it, so that builders may be fairly remunerated for their labour; therefore think all building work should be contracted for at an equitable schedule of prices, subject to the fluctuations of the market price of building materials, and the work measured and paid for accordingly; this would check the spirit of reckless competition now too prevalent, every party would receive the full value for his labours, and work would be efficiently and substantially constructed, which is not the case at present.

Brecon. B. BAYLIS.

WORKS IN THE PROVINCES.

At the Bedfordshire Quarter Sessions, which commenced on Thursday week, on the motion of Lord St. John, it was determined to postpone for one year the proposed alterations in the county prisons, the estimated expense of which amounts to 20,000*l.*

The committee for the foundation of new parks in Manchester have purchased Lark-hill, near Pendleton, the late residence of W. Garnett, Esq. The purchase includes an area of seven acres, and the price asked by Mr. Garnett was 5,000*l.* but he ultimately accepted 4,500*l.* desiring the committee to consider the difference of 500*l.* as his contribution to the public parks. Lark-hill was erected at a cost of 10,000*l.* The subscription in Manchester for public walks, parks, and wash-houses had last Saturday reached the sum of 30,320*l.* 19*s.* 11*d.*

The contemplated improvements of the River Dun Company are said to be proceeding very satisfactorily. About seventy workmen are engaged in raising the embankment [illegible] feet higher than at present on each side of the canal from Stainforth. The quickwood fence alongside the hauling path has been removed further back, so as to allow of the present path being added to the canal. A considerable length of the embankment is already complete. The swing bridges, giving an open and uninterrupted communication to the sea, are nearly finished, and vessels with fixed masts can now come up to Doncaster without the least interruption.

In Wales, several new blast furnaces are being erected, and others are in contemplation. Sir John Guest is erecting one at Dowlais, and the Neath Abbey Iron Company have commenced building two at Cwn Neath. The spirited proprietors of the Porthcawl iron and coal works, Messrs. Mallins and Rawlins, are erecting another furnace at Cefn Cribbwr, together with twelve coke ovens, and a large number of workmen's cottages. At Coed Garth and Llwydarth, three new furnaces, coke ovens, blast engine, workmen's cottages, &c., are in the course of erection.

At Porthcawl, near Swansea, the Llynvi Iron Company have commenced building a new furnace, forge, and revolving mills at their works.

A marble mural tablet has been recently placed in Hanley Castle Church, near Upton-upon-Severn, to the memory of the Rev. George Turbeville, upwards of fifty years vicar and resident of that parish. This tribute of respect has been erected at the expense of the Hon. Gen. H. B. Lygon, M.P.

The foundation-stone of the intended church in the new district of St. John, in the parish of Wednesbury, was laid by Lady Emily Foley, on Thursday week. The site of this intended church was given, together with a donation of 510*l.*, by Samuel Addison, Esq. The edifice will contain one thousand sittings, one-half of which will be free. It will be in the early English style of architecture, having a capacious and lofty nave, with ornamental timbered roof.

The contractors of the Lancaster and Carlisle Railway, Messrs. Stephenson and Co., have undertaken the execution of the Caledonian line, as well as the Kendal and Windermere Railway. These gentlemen have on hand railway work nearly 350 miles in extent.

The Earl of Falmouth has contributed 50*l.* and Lady Bassett a donation of 100*l.* to the local fund for the extension and improvement of the Penryn Docks and Falmouth Harbour.

Earl Talbot, the Hon. R. Curzon, and Sir George Chetwynd, Bart., have contributed liberal donations towards the rebuilding of the ancient parish church of Armytage, Staffordshire, which has become much dilapidated by the course of time.

At the Essex Quarter Sessions, held last week, it was determined that the proposed extensive alteration of Springfield Gaol should be carried into effect; that the buildings be executed by contract; and that the money required for the purpose be raised on security of the county rates, to be repaid in thirty years, and borrowed in separate sums, as the committee may recommend. The estimates amounted altogether to 32,584*l.*

At Sudbury, the authorities, with the view of improving the town by their removal, have lately purchased two houses, for which the sum of 2,580*l.* was paid. It is now some years since the commissioners under the former Act made the first purchase, amounting to 300*l.*, with the faint hope that ultimately the whole of the houses, ten in number, then surrounding the church of St. Peter, might be purchased, and taken down. This desirable object, as far as relates to the purchase, is now completed, and the contemplated improvements, if carried out, will prove highly ornamental to the place.

At the Warwickshire Easter Sessions, held last week, a report from the committee on county prisons was presented. It appears that having examined and considered the five several plans for altering and improving the county prisons suggested to the Court at the last sessions, they came to a unanimous opinion in favour of adoping the one submitted by Major Jebb, for an entirely new gaol for the whole county, to be erected outside of the town of Warwick, but as near thereto as a convenient site may be found. On the motion of Lord Brooke, it was resolved to take the subject into further consideration at the next sessions.

At Weston-super-Mare a new pier is about to be erected after the design of Mr. Horwood, of Bristol. It is proposed to carry the pier out with solid masonry a distance of 396 feet; the roadway or surface being 17 feet wide, and at the end to extend it on either side, so as to form a promenade of 100 feet in length, and according at its back a shelter to vessels *in all weathers*. At the end of 396 feet from the main land the pier will terminate, but a slip will be continued, extending in the same direction to several feet below dead low-water mark, and on which a landing can be effected at any time. Towards the carrying the design into execution John Hugh Smyth Pigott, Esq., the lord of the manor, makes a noble gift of whatever land may be wanting for the object, and unbounded supply of stone, such timber as the hill will afford, and will take shares in the undertaking to the amount of 1,000*l.*; Mr. Hodge, Mr. Davies, Mr. Chalmers, Mr. Edgar, Mr. W. Cox, Mr. R. Parsley, and other gentlemen of the committee, will also take shares to the amount of 2,000*l.* more.

At Eastover, near Bridgwater, the new church of St. John the Baptist was opened on Wednesday week by licence from the bishop, the Ecclesiastical Commissioners being unable to make an immediate grant towards the endowment. Drawings of this church (which was designed and executed by Mr. Brown, of Norwich) have been selected for publication by the Church Building Society, as a favourable example of modern church architecture.

At Lynn, the foundations of a new church having been completed, the ceremony of laying the first stone was to have taken place yesterday, the Bishop of the Diocese officiating.

The *Leamington Courier* states that there is every probability of a Tennis Court being soon erected in that town. The cost of erection is estimated at 1,600*l.*, and the number of shares already taken amount to 1,300*l.*, the subscribers including Lord Leigh, Lord Brooke, Lord Howth, Lord Guernsey, Lord Lewisham, Sir C. Douglas, M.P., Dr. Jephson, and many other visitors and residents of distinction.

At Southend, the pier is fast approaching completion, it will be ready for opening by the middle of July. The old light-house has been swept away, not by the tide but by the hand of the improver, and the piles are all driven and the lower platform prepared for a convenient pier head.

The column about to be erected in Holkham Park, to the memory of the Right Hon. Thomas William Coke, Earl of Leicester, consists of a fluted shaft, whose base stands on a pedestal of four sides. The capital of the pillar, which is Composite, has at each angle the head and neck of a horned ox. A circular turret, supported by scroll buttresses, perforated with oval apertures, and embattled ornamentally, surmounts the abacus, or crowning of the capital; out of which rises a dome-like termination, with the figure of a wheat-sheaf on the top. The four sides of the pedestal are occupied with sculptured designs in *bas-relief*, allusive to the celebrated sheep-shearing and farming festivals held, during so many years, under the presiding auspices of that great patron of agricultural improvements.

A donation of 2,000*l.* has been contributed by a wealthy individual in the neighbourhood of Liverpool towards the erection of a new church in Toxteth Park, coupled with the condition that the Rev. H. M'Neile should be one of the trustees.

The parish church at Bawdeswell, Norfolk, having been rebuilt, was consecrated last Tuesday week by the Bishop of Norwich. The church, erected in the pointed style on a cruciform plan, with a south porch and bell-cote at the east gable, has sittings for 317 persons, of which 277 are free. The cost of the building was 1,400*l.*

At Manchester a new chamber of commerce is being formed. On Monday last a meeting was held at the Albion Hotel, when a committee of sixteen gentlemen was appointed for the purpose of framing the laws and regulations of the institution, to report to a future meeting, when directors are to be appointed, and the necessary arrangements made for commencing the proceedings of the association. About 150 individuals and firms, of all shades of opinion in politics, and including a large proportion of the leading merchants and manufacturers of the town, have already given their names as members of the new chamber. Such is the present activity in the building of houses, warehouses, railway extensions, &c., in Manchester and its vicinity, that so early in the season as the present, bricks have advanced, as compared with their value this time last year, more than 75 per cent.

At a meeting, held last week, of the authorities in Hull, a report from the surveyor containing various recommendations for draining the town was read, and will, without doubt, be carried into effect. The surveyor (Mr. H. Newton) concludes his report by saying that, "with these improvements you will be prepared to send a stream of water through every street in Hull, as often as the tides will allow; and, when completed, the town of Hull will not be surpassed in drainage by any town in the kingdom." The whole of the improvements suggested were estimated at 3,000*l.*, as several large drains would have to be made.

Messrs. Leahy, the engineers of the Cork and Bandon Railway, propose erecting a viaduct on a novel construction for the intended crossing over the mail-coach road and valley at Chetwynd, near Cork. The extreme height of the viaduct is 82 feet over the valley, which is passed by three equal spans, each 240 feet; the centre and the two abutment piers are of stone, in the Doric style. The construction is very simple and novel: the greater number of its parts are of uniform size and shape, and there is neither a mortice and tenon joint, or a spike or nail, in the entire structure, nor will there be any necessity of centering for its erection. All these peculiar features of the design will reduce the expense of its construction far below the usual cost of such works. There is no viaduct in Europe constructed on this principle, and if successful it will enable companies to construct railways in localities where otherwise they could not be attempted, and for this reason it promises to be of national advantage.

The work of improvement is steadily progressing at Yarmouth, and building and railroad schemes promise not only to be beneficial to the inhabitants, but profitable to those who are so ready to embark in these undertakings. Houses are gradually covering the building sites laid out.

THE IRON TRADE.

The usual quarterly meetings of the iron-masters at Walsall, Wolverhampton, Birmingham, Stourbridge, and Dudley, were held the week before last. The prices agreed upon may be quoted as follows:—

	£	s.	d.
Bars	12	0	0
Common nail rods	12	0	0
Rails	14	0	0
Hoops	13	0	0
Plates	14	0	0
Sheets	14	0	0
Pigs (Shropshire)	6	10	0
Pigs (Staffordshire)	6	10	0

There was a prevalent opinion that the last advance of 2*l.* was uncalled for, injudicious, and likely to prove injurious both to masters and men. This extraordinary price is, however, justified upon several grounds. The great advance which has taken place in the price of coal and limestone, combined with at least 25 per cent. increase in the wages of the miners, has unquestionably compelled the iron-masters to put a high figure upon their make. Coal at the present moment, owing to the prevalence of local strikes in certain districts, is extremely scarce, and in many other parts, where the men are apparently satisfied with the wages given, the miners do not work more than four days a week. The advance in the price of coal in consequence of the flourishing state of the iron manufacture and the demand of the colliers has not been less than 3*s.* per ton. Still, it is thought, that even the increased demand, great as it was, and the high price of materials, did not justify the advance in bars at one sudden step from 10*l.* to 12*l.* One singular reason, however, in addition to the more plausible ones already urged, has been given for this advance. It is stated, that it was suggested by some of the great firms with a view to stop further orders. This may appear somewhat absurd, but if good authority is to be relied upon, it is nevertheless true.

Several of the most extensive and influential iron-masters stated that "there was no intention to attempt a further advance—they were perfectly content with the present prices if they could be maintained." It cannot, however, be doubted, from the general complexion of the various meetings, that some misgivings as to the long continuance of the present prices have come over the minds of some of the great masters. The defeat or abandonment of many of the projected lines of railway—foreign competition, already sensibly felt in the market—and the great injury which the high price of iron has already inflicted upon the hardware trade, it is thought of necessity will cause a reduction. Another more powerful reason may be given for the probability of this result. The large speculators in iron—men who, for the last four or six months, have been hoarding up stocks with a view to a high price—seem to imagine that it has reached the maximum, and are beginning to bring it into the market.

With respect to Staffordshire pig iron, the opinion is it will fall. It will be observed that in the list given above, the prices of Staffordshire and Shropshire pigs are given as the same. So they were quoted in Birmingham

on Thursday. It was indeed stated that Staffordshire had been sold at 7*l.*; but the purchaser could not be ascertained. Now, the ground upon which a reduction in the Staffordshire is expected is the known superiority of the Shropshire pigs, till lately selling at 6*l.* 5*s.*, and now at 6*l.* 10*s.* It is thought that the Staffordshire makers cannot maintain an equality of price with their Salopian neighbours.

At the monthly meeting of the Glasgow iron-masters, held the 16th inst., the price of pig iron was unanimously fixed at 6*l.* per ton, being 10*s.* advance on the price declared at the last monthly meeting. The term of credit was reduced from six to four months. A few parcels were sold for immediate cash at 95*s.* to 97*s.* 6*d.*

LORD PALMERSTON ON SHIP-BUILDING.

In a recent speech on the navy estimates, Lord Palmerston introduced the following remarks:—"The first thing to be looked to with regard to the navy was the possession of a number of efficient ships—efficient, not only in number, but in quality. He thought the discussion of thisevening had shewn, if any doubt existed before, the necessity and expediency of calling in the aid of science with regard to the construction of ships. It was very well for the gallant admiral opposite (Sir George Cockburn) to say that during the last war, although our ships were considered clumsy, and of an unscientific construction, yet that with those very ships our sailors overtook the enemy and defeated superior force. This, however, did not prove the ships to be good; it only proved that our sailors were so expert, enterprising, and skilful, that with inferior ships they could outsail superior ships, whose crews were less skilful, and that our seamen triumphed over the difficulties to which they were exposed. The French vessels that were taken were universally admitted to be far superior to the ships by which they had been overtaken and captured. Although that might be a fair reminiscence of former glories, it shewed rather the superiority of our sailors than the good qualities of the ships of that day. It was well known to all who had turned their minds to the subject, that there was no problem in science or in mathematics more difficult to solve than what is the best construction of a ship destined for the purposes of war. First of all, it was not easy for the most skilful mathematician to tell the form of a solid body which was best calculated to go rapidly through a fluid. It was not an easy matter to say what would be the floating-line of a ship. It was not easy to tell beforehand the construction which would give the greatest steadiness to a ship; nor was it easy to say where would be the centre of gravity, or where would be the centre of impulse in the rigging, the ascertainment of which was as necessary for the purposes of the ship as the adaptation of the hull to make its progress through the water. A practical man could not do this, for he could not tell on what principles of construction these qualities depended. The scientific man could tell beforehand what, upon scientific principles, would produce the desired qualities: but if not assisted by an able practical man, conversant with stowage, arrangement, and trim, the scientific man alone would not be able to give such information as would afford a good ground for building. Then it was said the Admiralty were making experiments; that they had employed one man to build two vessels, and another to build three or four; and that they were ready to attend to every suggestion which might be made. That, certainly, was very praiseworthy, and, as far as it went, it shewed a desire to improve the construction of ships of war; but, with all deference to the Admiralty, he did not think they were possessed of that scientific knowledge which was the only element on which the results ought to depend; and instead of being content with the costly experiment of building large ships by persons who were only scietific to a certain degree, and who did not possess the whole of that knowledge which was essential to the subject, it would be much better to procure the assistance of the most eminent scientific men in the country. By combining their knowledge with the experience of practical men an important progress would be made in building ships, which would then be so constructed as to be likely to answer the purpose for which they were intended. The class of steam-vessels required the particular attention of the Government, and, he believed, that a great improvement would take place in their construction. The right hon. baronet said that in this respect our naval force was at least upon a satisfactory footing, and that our horse-power, compared with that of our nearest neighbour, was in the ratio of three to two. He (Viscount Palmerston) did not consider that to be altogether a satisfactory statement, because a comparison of the horse-power did not apply to the question, for if two parties had an unequal number of vessels for the purpose of warfare in a narrow sea, the superiority of horse-power might not counterbalance that inequality of numbers.

Correspondence.

THE FIRE AT YORK MINSTER, &c.

Sir,—Having read with much pleasure the interesting article of Mr. James Wylson on the late fires at York Cathedral, in which he has introduced a brief account of the incendiary Jonathan Martin, I feel induced to trouble you with this letter, as I knew Martin very well, as almost every boy in York did. In the year 1829, just about the time of the first fire, I was a little boy at school at York, and frequently saw Martin, who was in the habit of hanging about the different schools and public places, to pick up what he could, either by selling the printed accounts of his dreams, or by ballads, threads, tapes, knives, combs, and other nicknacks of similar value. In my estimation, he was quite as much "a rogue as a fool," for he knew pretty well how to drive a bargain favourable to himself; he used often to pay the school a visit, and as he was good natured, and did not mind being pulled about by the boys, he was no unwelcome guest, especially if he had any little novelty in his basket to tickle their fancy with, although it might perchance tempt them to spend more of the "needful" than they otherwise would have done.

His usual dress was that of a poor mechanic, over which he wore a clumsy, thick, felty-looking great coat, with a large cape and turn-up collar, reaching almost up to his eyes; he generally had a grizzly beard of a day or two's growth, which, combined with his old slouching hat and rolling walk, gave him altogether a very eccentric appearance. He used to be a frequent attendant at the Minster, where I have often seen him stalking about, during the enviable half-holidays, when I used to go there, more perhaps to listen to the music than for any other purpose.

I have seen him in all parts of York, and under all circumstances, both sober and under the influence of Sir John Barleycorn, to whose exhilarating friendship he had no particular objection.

I saw the fire, and never shall I forget it, as it was one of inconceivable grandeur, not so much from the vast quantity of flame it produced, as from the variety of complexions it assumed during its progress; it was remarkable for the volumes of thick, white, steamy smoke that it emitted, in consequence of the large amount of water thrown into it acting on the partially consumed stone, which seemed to steam up like unslacked lime.

The Minster yard was deep in water, and the effect of the number of men ranged in rows, handing buckets of water from one to the other, to supply the engines in the interior of the building, was strikingly grand, at least so it appeared to my boyish imagination; and as most of the engines had to pass through the water to get to the building, the picturesque effect was increased by the firemen standing on their engines as they rushed through it in their rapid course, one in particular, which arrived late (I believe from Leeds), being drawn by four white horses. The engine from the Cavalry Barracks, just outside the city, was one of the earliest that came up, it passed me on my road there, in Coney-street, surrounded by the soldiers running full speed with it.

I saw Martin once or twice after his capture in York Castle, as from family connections I had access there. It is, I believe, well known that a few days before the fire, he was heard to state that there would soon be a great fire in York, but as nothing was suspected, of course no further notice was taken of what he said, as he was a chattering gossiping fellow, particularly if he could get a patient listener to swallow all he had to say about his dreams and visions and religious creeds.

I left York a very few weeks after the fire, and have never since had the pleasure to look upon the restored glory of my native city; since then the busy hand of improvement has been earnestly at work, and swept away many of the old land-marks of antiquity, which as a genuine son of the *Eboracenti*, I feel disposed to regret, notwithstanding all the advantages the improvements may introduce within the ancient walls of time-honoured York.

J. L.

TERRA COTTA.

Sir,—Can you tell me were terra-cotta is to be obtained? I think a church has lately been erected at Bolton-le-Moors, Lancashire, entirely with that material. If you, or any of your correspondents can inform me if such be the case, and if so who manufactured the terra-cotta, you will greatly oblige

Yours obediently,

A Constant Subscriber.

*** The new church at Lever Bridge, near Bolton-le-Moors, an elaborate structure in the Decorated style, with a spire of open traccry, is executed entirely of terra-cotta. Mr. E. Sharp, of Lancaster, the architect of the church, under whose superintendence the moulds were made, would probably give any information that might be required. Mr. Fletcher, of Vale-Bank, near the church, superintended the preparation of the clay and other processes for the terra-cotta, and has since established works, we believe, for the manufacture of it at Ladyshore, near Manchester. A correspondent informs us that parties are about to commence the manufacture of this material near London. —Ed.

INTERCOLUMNIATION.

Sir,—I have lately observed the term *intercolumn*, and *intercolumns*, frequently made use of instead of intercolumniation, and intercolumniations. Which is the more correct mode of expression? neither Hosking nor Gwilt gives the term intercolumn at all in his glossary; and yet in speaking numerically of the spaces between columns, it seems to me more accordant with the analogy of language to describe them as so many *intercolumns;* intercolumniation having a more general and collective meaning, implying rather the *mode of spacing* the columns than the actual spaces themselves. I have not the means of referring to Britton's "Dictionary of Architecture;" but if I mistake not, he points out the distinction to be observed between intercolumniation and intercolumn, and the authority of so careful a writer ought to be decisive.

This may seem a very trifling matter, yet it would be as well to have it settled either one way or the other, if only for the sake of uniformity. I am, Sir, &c.

Inquirer.

*** Gwilt, Hosking, Britton, and the "Oxford Glossary," call the clear space between two columns an intercolumniation, and do not give the word intercolumn. The propriety of using the latter term was urged, if we remember correctly, by an able writer in the "Civil Engineer's Journal;" at this moment, however, we cannot hit upon the passage.—Ed.

Pews.—At a meeting held last week at Ipswich, to consider and decide upon the best means to be adopted for affording additional accommodation in the church, the following resolution was carried with only three dissentients:—"That it is the opinion of this meeting that the pews in the church should be taken down, and open seats, all similar in plan and general outline to the one exhibited to this meeting, be placed in their stead." Mr. Fonnereau, the gentleman who proposed the above, offered a donation of 200*l.* towards the contemplated alterations.

London Mechanics' Institution.—A meeting will be held in the Lecture Theatre of this Institution, on Wednesday next, for the purpose of promoting the erection of a new reading-room, &c. The Earl of Radnor will take the chair at 12 o'clock precisely.

Miscellanea.

Close Bed-Rooms.—Long experience has convinced me that nothing could be more conducive to public health, than the ventilation of our bed-rooms; multitudes of people never one single day, for years, rise refreshed in the morning, but always feel weary, oppressed, and unwilling to rise on awakening, though feeling lively, well, and unfatigued in the evening. The commonest of all the causes of this oppression and laziness, is the non-ventilation of our bed-rooms. I believe that this simple plan would entirely cure many apparently perennial chronic discomforts, make thousands rise early and refreshed, who now rise, or lie in bed, stupid, unrefreshed, and heavy; prevent innumerable head-aches and foul tongues; dissipate the gloomy thoughts and despondency with which so many rise to their daily tasks of body or mind; and cause many to start up active and alive, who never now feel refreshed, and who have, in fact, so many *attractions of cohesion* of comfort between themselves, their beds, and bed-clothes, that their unrevived spirits, from a want of pure air during the night, and their habitual irresolution, produced by a nameless ailment, of which they do not know the real cause, prevent their ever being able to practise a habit of early rising, as it requires too great a daily struggle, for which a want of feeling of internal habit, disqualifies them. In this way, the purity of the air of our bed-rooms would be as great at least, and probably much greater, than that of our sitting-rooms, which are pretty well ventilated by the constant opening of their doors, and the draughts of their fires; but even in these, the upper strata of the air are very imperfectly changed.—*Medical Times.*

Choice of Site for Towns.—The newspapers state that the small town of Graus, in Arragon, is threatened with annihilation. A portion of the conical rock at the foot of which it is seated has, from the effects of the thaw after the long-continued frost, begun to separate to the extent of 15,500 cubic metres, or 20,000 cubic yards. The whole of the inhabitants, seeing the impending danger, have left their houses, many of them with so much precipitation, that they have not stayed to take their furniture with them. An engineer, employed by the municipality, has surveyed the mountain, and reported that there are no means of preventing the fall.

Fatal Accident at Derby.—Last week a portion of the arch just erected over the Mill Fleam, in the Morledge, gave way, and buried four persons amongst the ruins, two of whom were found, after the lapse of an hour, dreadfully mutilated and quite dead. The other two succeeded in extricating themselves without much injury. This is the second fatal accident that has occurred in the erection of this arch: the first was about six months since, and caused the death of six persons.

Parks at Manchester.—A deputation, appointed by the local committee connected with these improvements, had an interview with Sir Robert Peel last week for the purpose of ascertaining to what lengths Government is disposed to go in assisting to carry out the object. The Premier said that he could not *at present* ask Parliament for a larger grant than 3,000*l.*, and that, on condition that a Government surveyor be sent down to inspect its disposal, and that 30,000*l.* of the local subscription be actually paid up.

New Episcopal Church in connection with the Sailors' Home.—A public meeting will be held on Wednesday next at Crosby Hall, Bishopsgate-street, for the purpose of taking measures to provide funds for this building, and endowing an Episcopal church for the use of seamen of the Port of London. The Earl of Haddington, first Lord of the Admiralty, will preside.

Stone Altar and Credence Table.—Both of these innovations have been removed from the Round Church at Cambridge, by the churchwardens, who received a monition to that effect from the Archdeacon at Ely. The church will, therefore, very shortly be re-opened for divine service.

Westminster Bridge.—Reports are in circulation to the effect that Westminster Bridge is in a very insecure condition, and that Mr. Barry will, after all, see it replaced by a structure more in accordance with the new State house.

Glass.—Mr. Ord, M.P., has obtained, by order of the House of Commons, returns of the amount of duties charged, and drawbacks paid, on glass, and of the quantities imported and exported, retained for home consumption, and remaining in bond, for the year ending the 5th of January, 1845 (in continuation of the sessional paper No. 200 of the year 1844). It appears from this paper that the following were the quantities of glass charged and the amount of duty respectively imposed on the different descriptions of glass in England during the year 1844-45, viz.:—Flint glass, 9,529,294lb., and 55,271*l.*; plate glass, 29,765 cwt., and 93,759*l.*; crown glass, 99,180 cwt., and 382,710*l.*; German sheet glass, 31,560 cwt., and 121,782*l.*; common bottle glass, 345,810 cwt., and 127,084*l.* The quantities exported upon which drawback was allowed were of flint glass, 11,277 cwt.; of plate glass, 116,955 feet; of crown glass in tables, 1,527 cwt.; of crown glass in panes, 6,661 cwt.; of German sheet glass, 7,656 cwt.; and of common bottle glass, 213,056 cwt. It further appears, that the quantities of glass retained for home consumption in the United Kingdom for the year 1844-45 were, of flint glass, 83,712 cwt.; of plate glass, 24,405 cwt.: of crown glass, 93,347 cwt.; of German sheet glass, 23,175 cwt.; and of common bottle glass, 193,108 cwt. The net amount of duty received thereon amounted to the sum of 645,715*l.* The amount of drawback or allowance on glass for the use of churches during the year 1844-45 was 1,343*l.* The quantities imported into the United Kingdom during the same period, from various countries of Europe, &c., were,—of crown or any window glass not exceeding one-ninth of an inch in thickness, 6,680 cwt.; of German sheet glass, white or coloured, 1,280 cwt.; of all glass one-ninth of an inch in thickness—all silvered or polished glass, of whatever thickness—and plate glass, however small each pane, plate, or sheet, 18,915 square feet (superficial measure); and of flint and cut glass, 2,883 cwt. The quantities exported from the United Kingdom of the same description of glass as those which we have already enumerated above were respectively, 6,241 cwt.; 906 cwt.; 16,971 square feet; and 1,448 cwt. The quantities of British glass exported from England in 1844-45 were,—of flint, 11,277 cwt.; of plate, 116,955 feet; of crown, in tables, 1,526 cwt.; of crown, in panes, 6,661 cwt.; of German sheet glass, 17,695 cwt.; and of common bottle glass, 213,056 cwt.

Transit through Egypt.—Mr. Galloway, of London, has made his report on the proposed Suez Railway. It is understood that he has offered to guarantee the completion of the work within eighteen months, and that the cost, including all, shall not exceed 350,000*l.* His report speaks favourably of the facilities which exist for the easy formation of a railway and for obtaining necessary materials along the line. It does not apprehend any serious inconvenience from the presence of drift-sand. It states the levels to be so moderate and gradual, that in only two portions of the entire line will embankments and cuttings of any serious extent be rendered necessary. It contemplates having the terminus from the river, at Boulac, and the other to terminate in a jetty, a little to the westward of Suez, and about a mile distant from the ships' anchorage; thus saving four miles in the communication between the roadstead and the shore as at present. The line as surveyed will be 88 miles.

Acoustics.—The temporary Law Courts with which Palace-yard and Westminster Hall are disfigured, and will be, it is supposed, for several years to come, are complained of on account of the difficulty with which sound is transmitted. An investigation into the cause of this might be advantageous.

Wood-Carving.—Mr. Jordan, late keeper of the mining records in the Museum of Economic Geology, has invented a new method of carving in wood by means of machinery, and has obtained a patent for it.

The British Association.—A public meeting was held last Tuesday at the Town Hall, Cambridge, for the purpose of appointing a committee to make preparations for the reception of the British Association in June.

Hungerford Suspension Bridge.—The opening of this bridge has been deferred till Thursday next, the 1st of May.

Testimonial to Mr. Britton, F.S.A.—A preliminary meeting to appoint a committee to carry out the proposed testimonial to Mr. Britton was held on Thursday last, too late in the day for us to report the proceedings in our present number. We shall allude to it next week, and in the meantime invite our readers to co-operate with the committee.

Manchester School of Design.—The Council have just announced their intention to hold during the vacation in August next, an exhibition of specimens of manufacture and industrial art, in connection with the drawings to be produced by the students in competition for the prizes.

New Appointment.—The Queen has been pleased to appoint John C. Millward, Esq., to be Assistant Civil Architect for the island of Mauritius.

Town-Hall, Colchester.—The new hall is to be opened on the 1st of May.

Tenders.

Tenders for church to be called the All-Saint's Church, St. John's Wood,—under the direction of Thomas Little, Esq., architect,—for the body of the church only.

Mansfield.....	£6,480	
Winsland.....	6,447	
Higgs and Son.....	6,266	..£6,136
Burton.....	5,878	.. 6,138

Separate amounts of the two lowest, shew the cost if executed in Kentish Rag-facing.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the supply of Materials to the Commissioners of the Metropolis Roads.

For providing, squaring, and laying new York Paving and Granite Curb, &c., for the Commissioners under the Bedford Paving Act, St. Pancras.

For various Engineers' and Joiners' Works required to be done at the new Workhouse, Birchfield-wood, Saubridge, Kent.

For the Masonry Work of several Viaducts and Bridges.

For performing the several works in building a new Workhouse at Tenterden.

For supplying her Majesty's Dock-yards with soft melting pig-iron.

For the supply and delivery in Bristol of about 300 tons of cast-iron Water-pipes, of various dimensions, from 7 inches downwards, with certain elbows, nozzles, &c.

For the formation and completion of a new Drain, being about eleven miles long, twenty yards wide, and five yards deep, for the Middle Level Drainage Commissioners. Also for the erection of a Staunch, several Bridges of wood with brick abutments, together with the necessary culverts, and other works.

For the performance of the Works connected with the erecting of the new Pier at Penzance.

For the erection of the Borough Gaol, Birmingham.

For the supply of 1,200 lineal yards of 11-16ths best attested, close, short-linked Chain.

For the erection of a Building in London for a highly-patronized purpose, at the estimated cost of about 30,000*l.*

COMPETITIONS.

Plans for a Church to be erected within the Borough of Kingston-upon-Hull.

Plans, sections, and elevations for a Terminus, and other requisite accompanying offices, for the Great Southern and Western Railway, Ireland.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At Ipswich: 15 Logs of Spanish, Cuba, and Honduras Mahogany, of superior quality and large dimensions; 4 pieces of Rosewood, 10 pieces of Cedar, and a few lots of Maple and Rosewood Veneers.

At the Timber-yard, opposite St. Giles's Church, London: 3,200 Pine Deals, Planks, and Battens, 840 Yellow Deals, 2,480 Spruce Deals and Planks, 120 Yellow and White Battens, 14,000 feet of three-quarter inch and half inch Pine Boards, &c.

250,000 Building Bricks, 40,000 Arch ditto, &c.; now at Sherborne Kiln, three miles from London.

At Patcham, near Brighton: a large quantity of Railway Materials; the whole of the Iron is of Staffordshire manufacture.

BY TENDER.

A Virgin Forest of Valuable Timber in Walachia. The principal part of the Trees is Oak. The said Forest may produce about 500,000 cubic feet of Timber.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, April 28.—*Geographical*, 3, Waterloo-place, 8½ P.M.; *British Architects*, 16, Grosvenor-street, 8 P.M.; *Medical*, Bolt-court, Fleet-street, 8 P.M.

TUESDAY, 29.—*Civil Engineers*, 25, Great George-street, 8 P.M.; *Zoological*, Hanover-square (anniversary), 1 P.M.

WEDNESDAY, 30.—*Society of Arts*, Adelphi, 8 P.M.; *Geological*, Somerset-house, 8½ P.M.

THURSDAY, May 1.—*Horticultural*, 21, Regent-street (anniversary), 1 P.M.; *Zoological*, Hanover-square, 3 P.M.; *Antiquaries*, Somerset-house, 8 P.M.

FRIDAY, 2. — *Royal Institution*, Albemarle-street, 8½ P.M.; *Botanical*, 20, Bedford-street, Covent-garden, 8 P.M.

TO CORRESPONDENTS.

"Lavinia."—*We feel greatly indebted for our correspondent's attention, and regret much that the drawings are not sufficiently precise for publication. They will, however, be useful to us in another way.*

"Patent Hand-rails."—*J. Melville, of 64, John-street, Fitzroy-square, will give information on the subject.*

"J. M."—*It is unnecessary for us to call, as we know your work, although we had forgotten the name.*

"W. J. S."—*We shall be glad to hear more of the proposed manufactory. We can hardly afford time to visit it until it is in operation.*

"B. B.'s" *suggestions shall not be lost sight of.*

"C. T.," Norwich.—*Next week. We shall be happy to hear from him, although we cannot promise space every week, and will gladly send him copies without charge.*

"New Church at Winchester."—*Several architects wish to know how many tenders were received, and what was the amount of the lowest.*

"A Builder."—*If you give the district surveyor notice of your intention to do certain works he will inform you if there is any objection to them. He is certainly not bound to give you information if the work is merely problematical.*

"J. Dale."—*Pulham's manufactory is at Hoddesdon.*

"E. M., a bricklayer," *is thanked for his information.*

"N. C."—*We fully agree with our correspondent, that "there are few practical subjects of greater importance than the construction of chimneys," with reference to the causes and remedy for their smoking, and that it is very imperfectly understood. His suggestion shall be considered. We shall be glad to receive remarks relative to it, also the names of any works upon the subject.*

"A Subscriber from the First," *next week.*

Received—*An Adherer to Stipulations. Proceedings of the Society of Arts.*

ADVERTISEMENTS.

SPACIOUS BUILDING GROUND in the heart of the City TO BE LET on a Building Lease. The site comprises Founders' Hall, Lothbury (extending from East to West 70 feet, and from North to South 30 feet), and a further space in connection with it, suitable for purposes of an additional entrance to the premises. Particulars may be obtained by applying at the Founders' Company's offices, or to J. B. Gardiner, Esq., architect, 4, Bank Chambers, Lothbury, where a plan of the premises may be seen.

NOTICE. — INVENTORS desirous of obtaining LOANS ON or of SELLING their INVENTIONS, or Patents, should apply to Mr. M. JOSCELIN COOKE, at the OFFICE for PATENTS, 20, Half Moon-street, London, where English and Foreign Patents are obtained, and Designs registered. An INDEX is kept for inspection of all Patents granted for the last century; also copies of every Patent of importance. Instructions to Inventors and a list of charges gratis on application.

OFFICE FOR PATENTS REMOVED FROM No. 16 TO 117 CHANCERY-LANE.

PRACTICAL ASSISTANCE GIVEN to parties taking Letters Patent, by Mr. J. WILSON, Engineer and Patent Agent. Every description of business relating to or connected with Patents, Registration of Designs, Patent Agency, &c., conducted at his offices, 117, CHANCERY-LANE, opposite Carey-street. Negotiations entered into with parties wishing to dispose of or purchase patented or registered inventions. Every necessary information may be obtained at the offices as above, where also may be had printed instructions (gratis), to which Mr. W. begs particularly to draw the attention of parties about to take out patents

Mechanical drawings of every description, original designs for machinery, models, &c., executed with dispatch and economy.

MARTIN'S PATENT CEMENT.
TO ARCHITECTS, BUILDERS, AND PAINTERS IN FRESCO.

STEVENS and SON, PATENTEES and SOLE MANUFACTURERS, beg respectfully to announce that this beautiful cement has now arrived at a degree of excellence far surpassing their most sanguine expectations. For all internal work it possesses a great superiority over every article hitherto in use; it is now being used extensively by Government in the British Museum and other public buildings. IT DOES NOT THROW OUT ANY SALT, but presents a beautifully plain and perfect surface, which may be painted upon dry work within four days without peeling. It is equally applicable for walls or lath, for mouldings, architraves, skirting, or flooring; and is admitted to form the best ground for fresco painting, having been used for many of the prize frescos lately exhibiting in Westminster Hall. It will bear an intense heat without cracking, and for hardness, durability, and economy, cannot be equalled.

186, DRURY-LANE, LONDON.

Agent for Liverpool and Manchester, Mr. R Part, 11, Atherton's-buildings, Dale-street, Liverpool.

STOCKTON LIAS CEMENT,

MANUFACTURED upon principles laid down in Major General Pasley's Essay on Limes and Cements.—It is of a beautiful Stone Colour, and of acknowledged superior quality, free from vegetation, does not crack, and is well adapted for every description of modelling and casting. It has been extensively used at the Earl of Macclesfield's, Ensham-hall, by C. Barry, Esq.; at Sir F. Shuckburgh's, Shuckburgh-hall, by H. E. Kendall, Esq.; for Works now in progress at Marbury-hall, Cheshire; and for many of the Mansions erected during last Summer in the vicinity of London.

WILMCOTE LIAS CEMENT,

Is of inferior colour to the above, from containing oxide of iron, but of very Superior Quality for Tunnels, Sewers, and Hydraulic Purposes; its use is stipulated for by Mr. John Roe, Engineer of Sewers, London.

GROUND LIAS LIME,

For Concrete, and every description of Hydraulic Work, for which purposes it has been used at Woolwich and Chatham Dock Yards, the London Docks, New Exchange, Hungerford Suspension Bridge, Westminster Bridge, Grand Junction Water Works, Holborn Sewers, Regent and Grand Junction Canals, Wood Paving Companies, London and Birmingham Railway Company, for Works in the Alster at Hamburgh, the Kiel and Altona Railway, and various Sea Walls, &c.

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Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

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The Builder.

No. CXVII.

SATURDAY, MAY 3, 1845.

SOME difference of opinion has existed relative to a requirement of the Metropolitan Buildings Act with regard to the construction of chimneys. Schedule F provides, that every chimney and chimney-stack, except angle chimneys, "must be built from the foundation to the top thereof, without any corbelling over, whereby any upper part of the brickwork of such chimney or chimney-stack shall overhang any lower part of the brickwork on the front thereof."

Many of the district surveyors considered that this interdicted *all corbelling whatsoever* in chimney-stacks, and that a chimney-breast in an upper room could not be made *wider* than the breast below, any more than it could be made to project further from the face of the wall.

The referees have now made an award which settles the question. A joint requisition was sent by the owner and the district surveyor with regard to a third-rate dwelling-house now building in Regent's-park-terrace. It stated, "That doubts exist as to the propriety of allowing jaumbs and flues to project from party-walls upon strong stone or iron corbels bearing partly upon the jaumbs and chimney-breast underneath, in order that the chimneys of the third stories (the one-pair floor) may be placed in the centre of the rooms, there being a difference in the depth of such rooms and the rooms of the story below." According to a plan and elevation of the chimney-breasts which accompanied the requisition, one of the breasts was required to extend in width twelve or fourteen inches beyond the breast below it. The referees determined that the chimneys in the third and fourth stories (one-pair and two-pair floors), and in the front room of the fifth story, as shewn in the elevation, might either "be gathered over in the brickwork, or be set over upon sufficient iron or stone bearers in the direction of the length of the wall to which the breast is attached."

We apprehend, although not needed in the particular case laid before the referees, that the breast in the second story of a building (ground-floor) may be gathered or set over in like manner *in the direction of the length of the wall*, as the clause in Schedule F, already quoted, simply interdicts corbelling, "whereby any upper part of the brickwork of such chimney or chimney-stack shall overhang any lower part of the brickwork *on the front thereof*."

The same Schedule, in continuation, moreover, provides for corbelling over not more than nine inches from the front of the wall or back to which the chimney shall adjoin, in certain situations: that is to say, above the ceiling of the third story (the one-pair floor, ordinarily), in buildings of the first-rate and extra first-rate; and above the ceiling of the second story (the ground-floor), in buildings of the second and third rates.

The question, What constitutes the *bonâ fide commencement* of a building? still occupies, occasionally, the attention of the referees. The following are the heads of two awards on the subject recently made:—

The first relates to six third-rate houses now building for Mr. Stewart on the west side of Norland-road, Hammersmith. The district surveyor stopped the works, on the ground that the walls were insufficient in thickness, and the footings insufficient in height. The owner contended that the surveyor had nothing to do with them, as they were commenced before the 1st of January last, and called upon the referees to direct the surveyor to withdraw his notice. The surveyor stated that the houses were commenced hastily, during the latter part of December last, and were carried up four feet in height in an unworkmanlike manner, and were left exposed to the weather without any drain, so that the work had become quite ruinous; that portions had fallen, and great part of the remainder had been pulled down. He said it was not a *bonâ fide* commencement because the buildings appeared to be essentially different from those first projected, of better character, and were constructed in part of another material: further, that if the referees *should* consider it a *bonâ fide* commencement,—the nature of the works now in progress, comprising "the rebuilding, enlarging, and altering the same," brought them under the control of the Act. The works referred to he described as, "Generally rebuilding the external walls from the footings and facing same in part with stone ashlaring: setting back the front wall to the centre house 4 inches, and laying new footing to part: increasing all the party-walls and their footings one-fourth in thickness: removing the additional buildings (which had been raised same height as the rest) in the rear of the two end houses: taking away the chimney-stacks and their footings from the external walls of the two end houses, and building two new chimneys with the party walls of the same; the two end houses are also to have an additional story, and the walls to be carried up doubtless, of an increased thickness."

The owner admitted that a considerable portion of the work, being injured by the weather, had been taken down.

The referees decided, that as the houses were duly commenced before the 1st of January, "and are now being carried on mainly in accordance with the same commencement, so as to evidence that the same was a *bonâ fide* commencement, the alterations stated are not such as to bring the said houses within the operation of the provisions of the said Act so far as relates to the original building of the said houses."

As it was a case of "reasonable doubt," they awarded that the expenses (3*l.* 9s. 2d.) should be paid by the parties in equal moieties.

The other case was in the Paddington district. The owner gave notice to the surveyor, November 27, 1844, of his intention to erect two second-rate dwelling-houses. He had previously prepared a concrete foundation, and ultimately completed the footings before the 1st of January last. The surveyor taking a particular view of a letter sent by the referees to Mr. Allen, of Rotherhithe, in January (see BUILDER, p. 37, *ante*), concluded that footings only did, not constitute *commencement*, and called on the owner to give a fresh notice. The owner, it should be said, had contracted with a bricklayer for the erection of the houses before he gave the first notice: and the surveyor did not doubt his "good faith."

The referees decided that as the footings "were completely formed and executed in a regular and workman like manner, such buildings must be deemed to have been commenced before the 1st day of January, 1845, and to be 'already built' buildings within the meaning of the said Act, and not within the operation of the provisions thereof, so far as they relate to the original building of such buildings."

It was awarded that the expenses (3*l.* 2s. 4d.) should be paid by the parties in equal moieties.

In reply to the inquiry of some correspondents, whether or not projections from external walls formed of timber and covered externally with incombustible materials would be conformable to the Act, we can mention that the referees have decided in the negative, in the case of a water-closet projecting from the back wall of a house in Dover-street, Piccadilly. The materials proposed to be used and declared inefficient,—were, timber framing and a covering of galvanized iron.

INSTITUTE OF BRITISH ARCHITECTS.

ON Monday, the 28th ult., a meeting of the Institute was held at their rooms in Grosvenor-street, Mr. H. E. Kendall in the chair.

Amongst the donations announced, were designs for churches and parsonage houses, published by the Prussian government, a work on the Greek Theatre, by Herr Strack, and ten guineas from Mr. Donaldson towards the library fund.

Mr. Fowler, who was the bearer of the German works, made some remarks on the buildings in progress in Berlin. Amongst the most important was an addition to the National Museum, whereof the construction was peculiar. The building is fire-proof, and displays a union of great lightness and great strength. In digging for the foundation they reached a stratum of infusorial earth, and this was made into cones and pots, with which to form the ceilings. The modern Gothic at Berlin he considered bad; in all other styles the buildings there were very satisfactory. The munificence of the government contrasted strongly with the parsimony exhibited in England.

Mr. James Thompson read a paper on the hagioscope and other parts of the chancel of Alderton Church, ten or twelve miles from Malmsbury, Wilts; but as we shall probably print the paper entire, we refrain from any notice of it here. A conversation on the uses of hagioscopes, or squints, took place, wherein Messrs. Scoles, Richardson, Godwin, and others joined.

Mr. F. J. Francis then laid before the meeting some remarks on encaustic tiles; and, after tracing the history of their manufacture in the East, Greece, Italy, and our own country, commented on symbolism, and found fault very properly with some of the absurdities in Durandus.

Earl de Grey, the president, has invited the members to a conversazione on Friday, the 9th inst. The council will have the honour of dining with his lordship previously.

CAMBRIDGE CAMDEN SOCIETY.—Sir William Follett and Professor Starkie have given an opinion in reply to a case submitted to them, that the dissolution of the Society cannot be effected except by the unanimous and expressed assent of *all the members!* As this is not likely to be obtained, the committee will be prepared to submit resolutions at the anniversary meeting on the 8th inst., to enable the society "to continue to subsist in the spirit of its original constitution, and consistently with duty, usefulness, and honour." Blank forms have been sent to all the members in order to obtain their opinion, but it seems quite certain that dissolution will not take place.

ECCLESIASTICAL ARCHITECTURE.

THE character of periodical reviews is at this time very different from what it was originally, when they did simply what they professed to do, namely, gave you a notion of the books named at the head of the article, and their own opinion thereon. You now find, in addition sometimes to this, and sometimes indeed altogether without it, the reviewer's own views on the *subject* of the works named, so that they present, in fact, a series of essays on the various topics successively brought before the public by writers. Thus in the present number of *The Quarterly*, "Vacher's Parliamentary Pocket-book" introduces a paper on Whig Tactics; "The Crescent and the Cross" a disquisition on the results of French ambition in the Levant; and the beautiful works of Mr. Gally Knight and the Chevalier Bunsen, a valuable and interesting essay, seventy pages long, on ecclesiastical architecture, more especially as regards plan.

Such of our readers as may not be able to see the Review in question will be glad to find a portion of this latter article in our pages; to those who *may* be able, it will serve as an inducement to obtain the whole.

The writer thus introduces his subject:—

"Your Jonathan Oldbuck, your staunch antiquary of the genuine plodding Gough and Stukeley school, who values architecture historically, and merely historically, escapes innumerable distresses by which Sir Visto would be crazed. He considers every ancient building as an ancient chronicle: Ordericus Vitalis in Caen stone, Gervasius Dorobernensis in Purbeck marble. He reads his tome for the instruction thereby imparted; he delights in it all. The inelegance of the composition offends him not, neither does he despise the rudeness or coarseness of the illuminations. Continued by successive annalists, he is untroubled by the want of uniformity in style. Each successive generation has added its chapter, its page, its paragraph, its line: speaking words from the soul of those whose bodies are silent in the grave. Though the handwriting may change, and the shape of the letters vary, and the method of narration alter, still your chronicle, like the community to which it belonged, forms one continuous whole. You, if you imbibe Oldbuck's spirit, read it on from year to year, from reign to reign, from century to century, through Anglo-Saxon and cloister-Latin, and cloister-Latin and Norman-French, and Norman-French and Chaucerian-English, as one authentic volume. You cannot bear that the smallest portion should be expunged, even for the purpose of being supplied by the most clever conjectural emendation. Still less would you wish that some ingenious popular literateur, acting abbot or prior, were to suppress the original, and recompose the whole in affected archaisms, so as to make the story look as he fancies it might have done, if compiled in the twelfth century. 'L'abito non fa il monaco;' he will not gain Anselm's sanctity by arraying himself in Anselm's cowl.

'Is it not a great blemish, Mr. Oldbuck,' says Sir Visto, 'that the front of our noble Minster should exhibit the deformity of unequal towers; the northern, rude, clumsy Norman, whose stumpy bulk contrasts so disagreeably with the delicate proportions of its southern companion?'

'By no means, Sir Visto; the rude, clumsy, northern tower is a certificated work of the times of the Conquest.' It is coeval with Archbishop Lanfranc. The tower constitutes one of the most authentic pages in our architectural history; if you tear the page out, the facts it tells you are lost.'

'Surely that perpendicular tracery, blocking up the circular arches of the solemn transept windows, should be removed, and the composition restored to its primitive simplicity?'

'You are quite mistaken. In its primitive state the transept was not simple: every capital and moulding being rich in gold and colour. By letting in more light, the blanched walls would only look more cold and crude, and at the same time you deprive the building of the instructive lessons this portion imparts; for I, Sir Visto, always view the material church as an emblem of the spiritual church, and the perpendicular tracery is to my mind a memorial of the era of Chicheley and Stafford, and Gerson and the Council of Constance, when so many changes were fermenting in Christendom. Were I reading to the collegers here, I should make them attend to such architectural features, as a branch of technical memory.'

'Well, Monkbarns, but what should be done with that diminutive gable; the debased Gothic of the Elizabethan era? Would you not restore the cathedral to its former lofty proportions?'

'By no means, Sir Visto; don't meddle: the walls have been so weakened by the demolition of the refectory and cloister which once adjoined them, that they could not bear their pristine altitude. You would ruin the building by such injudicious and cruel kindness. The whole pitch of the roof has been lowered to suit our modern mode of carpentry, and the choir could not now carry the beams according to their ancient elevation. The *king-post* and the *queen-post*, so essential to all such high trussing, have been very materially shortened by the alterations begun in the time of William and Mary. If you attempted to raise the cross-crowned pinnacle to the standard of William of Wykeham, it would tumble down.'

'Well, but Mr. Oldbuck, surely *you* will not plead for those misshapen porches and doorways, with heavy arches and contorted pillars, introduced by the masons of the age of Laud?'

'I do. Uncouth as they may be, they possess a decided ecclesiastical character: they are in keeping with the cathedral chaunt, They are more than mere ornaments; although both you and the utilitarian would strangely coalesce—so constantly do extremes meet—in casting them off. Our poor dear old church has been so hacked about, that Laud's additions have become incorporated in the original work. Cut them away, you will topple the whole edifice upon your head.'

Thus are the feelings of our antiquary displayed. There is no one vestige or memorial of past times, which he does not consider as appealing to the heart. The rays which, dimly discerned in the dark niche, beneath the battered canopy, surrounded the head of St. Erasmus' demolished statue, remind him of the error of the worship, but also of the indecent, nay sacrilegious violence with which it was removed. Refusing to replace the statue, he will not efface the traces of its existence. He seeks not to blot out the St. Christopher peering through the whitewash, the token of the simple faith of past ages, yet he abstains from restoring a portraiture which would be a mockery in our own.

The lead-work in the windows, describing the void outline of the figure which has been dashed out by the despoiler; the head in blank, and the hands in blank, and the long robe in blank, and the feet in blank, at the bottom of the blank by which that long robe is indicated, the ideal, as it were, of form, reproduce in his mind a far more true conception of the building in its glory, because they tell of the calamities it has sustained, than as if the absent stained glass had been replaced by the most glowing vitrifications of Willement or Wailes.

The sepulchral recess is closed by the elaborate trellise, quaintly knotted and contorted, rusty and broken, half hiding the tomb behind. Rusty and broken as the iron may be, Oldbuck advises that it should be let alone; he will not have the enclosure repaired, for with him, mending and marring are synonymous terms, nor will he clear it away for the purpose of giving a better view of the monument: he values the effect of mystery; and though he would not brighten up the curious workmanship of the old craftsmen of St. Eloi, he knows that if it were removed it would be sold in 'naval-store' shop for two-pence the pound.

That reredoss, erected during the short reign of Mary, may be inelegant, and inconsistent with the decorated tracery and the graceful foliage of the battered screen; but, executed in *graffito*, the drawing and hatching produced by scratching off the upper coat, so as to shew the black ground below, it is a valuable memorial of the short sunshine which gleamed upon 'the ancient worship,' as well as evidencing the spreading influence of ultra-montane taste. 'And if the reredoss be taken down,' says Oldbuck, 'I know that to the brokers it will wend its way, and our only specimen remaining of that species of art will be irrecoverably lost.'*

The heavy memorial of the age of our first Stuart, the knight in his stiff armour, the lady in her stiffer ruff and fardingale, block up a portion of the chancel and obscure the ancient Sedilia; but the knight was a benefactor to the poor: he founded the decayed hospital: perhaps the sight of his effigy may yet do some good, as a reproach to his posterity; if you demolish the incumbrance, as you call it, your Sedilia will still continue as unfilled as Banquo's chair.

Our antiquary will not relay the footworn pavements, where the sunken flag-stones mark the once frequent resort of the pilgrims along the aisle, nor, for the sake of trim neatness, mend and replace the altar-steps hollowed by the knees of the worshippers now gathered to their rest. 'Nay,' says Oldbuck, 'I reverence even the ponderous, robust, ample brown woodwork of the choir, with the hurlyburly festoons, coveys of merry plump cherubs, mitres which would give a headache to a wig block, croziers fit to fell a bull, and full-bottomed Corinthian capitals; for they do so put me in mind of the days of good Queen Anne, "Convocation," High Church and Dr. Sacheverell.' So Jonathan Oldbuck ponders and reasons, finding sermons in every stone, and deriving pleasure, and therefore profit, from every token of the successive generations who have worshipped within the consecrated walls.

Ill-judged was the allegory which placed the statues of painting, sculpture, and architecture as the mourners round the tomb of Michael Angelo. We do not pay due honour to Architecture if we consider her as the sister, and therefore the equal, of the mere imitative arts: she is their queen. We want a term to designate the intellectual rank of architecture, so closely connected with the imagination that we can scarcely term it a science, so entirely practical and subservient to our needs, that we can scarcely reckon it as one of the æsthetic arts. And yet the arts must all be coerced into the architect's service. Architecture, as a branch of human wisdom, constitutes a genus of its own. Sculpture and painting are entirely founded upon the imitation of nature, whereas the basis of architecture is utility—utility in every sense, from the lowest to the highest, whilst it is wholly conventional in outward arrangements and forms. Architecture may borrow many a principle from nature; but she consults nature for *lessons*, and not for *models*; and let us here hearken to our friend Mr. Cockerell, and listen to his exposition of this principle, in a passage as remarkable for its acuteness as its truth.

'Sir C. Wren reflected that the hollow spire which he had seen or built in so many varieties was, after all, but an infirm structure; and he sought that model which should enable him to impart to it the utmost solidity and duration. Simple was the original from which he adopted his idea. He found that the delicate shell called turretella, though extremely long, and liable to fracture from its base to its apex, by the action of the water amidst the rocks, was rendered impregnable by the central column or newel, round which the spiral turned. Therefore, in his spire of St. Bride's he establishes the columella in the centre, round which he forms a spiral staircase to the top, issuing on stages of arched apertures; thus giving us (if not the most beautiful) certainly the most remarkable and enduring spire hitherto erected.

'When Brunelleschi was charged with the erection of the dome of Sta. Maria, at Florence, of nearly equal diameter with that of the

* N.B.—The iron-work of the tombs of Queen Eleanor and Henry II. in the Abbey, having been torn down, was sold as old metal in the Almonry for two-pence a pound. The altar-screen presented by Queen Mary to the cathedral of Canterbury, having been ejected as rubbish (when Lanfranc's tower was demolished), the back panels, ornamented as above described, and in perfect preservation, were seen by us exposed for sale at a broker's in St. Martin's-lane. A provincial paper announces that 'Government intend to completely restore the tombs of Edward the Black Prince and Henry IV. in Canterbury Cathedral,' that is to say, to *destroy* them, and substitute nice bran new ones in their stead—for let words be fairly understood, no tomb or building can be *restored*, unless by previous destruction—witness the 'Lady Chapel' at St. Mary Overie, Norwich Castle, &c., &c., &c. The Tower of London is to be 'restored' to its 'primitive Norman aspect,' for which purpose the Board of Ordnance intend to demolish the only *genuine specimens* of old English timber buildings (the warders' houses) now remaining in London. *Repair, preserve, uphold* every building and every fragment—*demolish nothing*; but never listen to the siren voice of the *restorer*.

Pantheon, but at more than twice its height from the pavement, upon a base raised on piers, and by no means of the strength and cohesion of the original model, the Pantheon, it was apparent that in giving it the same solidity, the weight would be insupportable on such a foundation. How was this object to be accomplished? Brunelleschi reflected that the bones of animals, especially of birds, possessed solidity without weight, by the double crust and hollow within. But above all, he remarked that the dome which completes the architecture of the human form divine was constructed with a double plate, connected by the light and fibrous but firm walls of the hollow cancelli, so that strength and lightness were combined in the utmost degree. Brunelleschi followed this model in his dome of Sta. Maria; and the traveller now ascends to the lantern, between the two crusts or plates forming the inner and the outer Domes.

'Michael Angelo adopted this contrivance in the dome of St. Peter's; and almost all the subsequent domes are upon the same idea.'

In ornament, architecture must equally appeal to nature, to the graceful leaf, the binding tendril, the spreading herb and flowret bright; but the architect employs them all as elements and in combination. Even as the living body assimilates to itself the food which gives it growth, and the air imparting health and vigour, and above all bears in its countenance the expression of the vivifying mind, so does architecture render all the material objects of which the building is composed, and all the knowledge requisite for their combination, and all their elegance and symmetry, subservient to her own dominion and empire. Hence the magnificent conception of Vitruvius—every branch of human knowledge is needed to constitute the perfect architect: literature, design, geometry, optics, arithmetic, history, philosophy, music, medicine, jurisprudence, astronomy. There may be somewhat of Platonic mysticism in these Vitruvian opinions. Still we always find them cleaving more or less to the great masters of the art. They are founded upon immutable truths. Every structure becomes the living evidence of the knowledge, the manners, the opinions, and the feelings of mankind."

After examining Mr. Gally Knight's works, especially "The Ecclesiastical Architecture of Italy, from the time of Constantine to the 15th Century," the reviewer pays well-deserved tribute to the industry, ability, and munificence of the author. Mr. Knight's name is inseparably connected with the history of pointed architecture, to the illustration of which his labours have chiefly tended. In his first work "An Architectural Tour in Normandy," he completely controverted the statements of the Norman antiquaries to the effect that pointed architecture was fully developed there in the 11th century.

In the "Architectural Tour in Sicily," his main object was, further to investigate the origin of the pointed style. "From the facts which he collected, he ascertains that as soon as the Normans achieved their conquest, they employed, as Mr. Knight calls upon us to observe, a style hitherto wholly unknown in Europe. The conquest of Sicily was effected 7 years after the conquest of England—San Giovanni dei Leprosi was built in 1101, by Count Roger, in the time of Rufus. The other examples of the pointed style in Sicily, built by Count Roger's son, the first Norman king, were begun whilst Henry I. was still reigning on the throne of England. All these [illegible] in the pointed style of architecture, which gradually prevailed in all the sacred, civil, and domestic architecture of Sicily.

"The buildings, therefore, still existing in Sicily, prove first, that the Normans in Sicily employed the pointed style; secondly, that it was used in that island before it was used on the continent of Europe; and thirdly, that it was borrowed from the Saracens. But the Norman Sicilian style was not Saracenic style. Saracenic in its arches, it was Roman in its pillars and capitals, Byzantine in its cupolas and mosaics, Norman and Greek in its ornaments—a combination only to be found in Sicily, and natural there, from the mixture of the different nations.'

The fact, that the Sicilian Normans employed the pointed style at a very early period, and the presumption that such style was borrowed by them from the Saracens, being established, the question then is raised as to its mode of transmission, and Mr. Knight concludes by adopting the opinion so often advocated, that the pointed arch, borrowed from Asia by the Crusaders, was by them generally introduced into Europe."

The reviewer afterwards alludes briefly to the not less praiseworthy and important works of his Excellency M. Bunsen, and then proceeds in his own manner to indicate the development of ecclesiastical architecture in Western Christendom from its normal type, the Basilica of the Romans, and to trace the transitions that were made, until the judicial hall expanded into the Gothic glory of Cologne and Milan:—

"We cannot here attempt to investigate the causes destined to produce that alteration in the human intellect, of which the outward token was exhibited in the so-called decline of the fine arts. Symptoms of this altered course of thought were evident before the promulgation of Christianity, and proceeded with increasing rapidity as the new faith became triumphant. The problem of the great change which thus came upon the human mind is very intricate. Art may have lost its ancient elegance, but this mutation was nevertheless the necessary means for the wonderful development afterwards assumed by architecture, in producing a style, which, though not rendering others unchristian, was certainly more than all others congenial to Christian faith. One element, however, cannot escape notice. The antipathy borne by the early Christians to the fine arts, debased by the pollutions of heathen idolatry, can neither be denied nor concealed; and the same causes which prevented the cultivation of the arts ensured the degradation and subversion of their proudest and most splendid monuments. Excluding for the present the consideration of other agencies, the first paragraph in the rise of Christian architecture must narrate the fall of the structures devoted to the superstition, which it was the end of the Gospel to obliterate and destroy.

The heathen temples were doomed to inevitable ruin. Laws had been promulgated by Theodosius for their preservation; conducive to the decoration of the city, they might be perhaps rendered useful for the purposes of civil society. Some may have been thus respited, though not rescued, until the decayed remains crumbled to the ground; they were never respected or honoured by public opinion, and could rarely be adapted to the objects pointed out by the imperial law, without such alterations, as, in most cases, amounted to destruction. Others were accidentally preserved in desolate or secluded situations, in the forest or the marsh, or the mountain-glen, or on the shore, whence the inhabitants have been extirpated or chased away. Such are the columns of Pæstum; the heavens are yet as bright as when the garlands hung down from the ruined architrave; the sea as azure as when the waves were ploughed by the painted prows; the crushed herbs beneath your feet still send up their rich perfume. To the senses the works of art are still as noble, the works of nature as sweet and gay; but the whole scene mourns under the curse inflicted upon scoffing, lascivious, corrupted Hellas. Language, people, race—their very name has disappeared. The wasting pestilence still hovers, and will ever hover, marking the vengeance which has fallen on the deserted shore.

Few *temples* were ever adapted for the purposes of Christian worship: fewest of all in the capital of the Christian world. 'Of the Christian hierarchy,' says Gibbon, 'the bishops of Rome were commonly the most prudent and the least fanatic; nor can any positive charge be opposed to the meritorious act of saving and converting the majestic structure of the Pantheon.' In casting the account of the merits and demerits of the Christian hierarchy, such a pontiff as Gregory the Great would have been ill inclined to accept the encomium. In the *gergo* of Gibbon, 'fanaticism' is piety, and 'prudence' unbelief. The 'meritorious act,' thankful as we may be for the result, was a single item, by no means influencing the general balance of praise or dispraise; it was the solitary performance of Boniface IV.; it was an act from which no consequences resulted. With the exception of the Pantheon, we fail to detect any real example in Rome, of a temple which can be said to owe its *preservation*, in the *proper sense* of the term, to the Christian clergy. They had then no thought of the kind—they took no pleasure in such antiquities. They sought no credit for such care. Antiquaries, with eager zeal, have collected about ten examples, in which this preservation is asserted. Even in the cases which are least dubious, no further merit can be claimed for the hierarchy than the accidental preservation of a portico, a cella, or a wall, an encumbrance which it was troublesome to remove—a fragment which saved some expense, built up, concealed, marred, or deformed by the new erection to which it was unwillingly conjoined.

It could not be otherwise. In the early Christians, any participation in our modern worship of heathen art, would have been false and unnatural. All the opinions, all the habits, all the feelings, all the conscience of the early Christians strove against the preservation of the memorials of heathenism. Neither beauty nor convenience, if they had possessed the latter requisite, would, save in some few special cases, like that of the Pantheon, plead for the preservation of the relics of classical antiquity They considered the idols as accursed. No object which had in anywise been connected with the worship of idols, or could be supposed to have been employed in their service, was to be used without exorcism. Thus, in the ritual of the church of Durham, there is a form of prayer for hallowing the vase found in the Roman encampment, which could not be employed for any Christian use until subjected to such purification. Nor was this belief confined to the rude Northumbrian peasant, or to a barbarous age. Let us place ourselves before the portal of St. Peter's, fresh from the workmen's hands. Four months have been employed in removing the huge obelisk of Sesostris from the ruins of Nero's Circus to the front of the Great Basilica. Eight hundred workmen, toiling at creaking winch and groaning capstan, heave up the mass; whilst the breathless crowd watch the slow rising of the gigantic beam. It stops; when the one cry—'*aqua alle funi*,' which subjects the individual who suggests the happy expedient to the pain of death, enables the maestro to complete his task: amidst the thunder of the cannon, the 'guglia' stands firm and erect upon its basement. But is the work completed?—*No*: the trophy of the victory of Christianity over heathenism cannot yet be received as such, until all connection with its former slavery to the fiend has been destroyed. In solemn procession, the supreme pontiff exorcises the magnificent work, so long dedicated to the foul superstition of Misraim, and devotes it to the honour of the cross, performing the rites which were deemed to expel the evil spirit. Those who may not share in the belief which dictated these ceremonies, must, nevertheless, respect the sentiments contained in the simple majestic language, commemorating the consecration of the spoils of heathenism to the service of the cross—'Ecce Crux Domini—Christus vincit—Christus regnat—Christus imperat—Christus ab omni malo plebem suam defendat—Vicit Leo de tribu Juda.'

Thus did Pope Sixtus record his triumph. Yet there was a greater triumph felt by the zeal which taught the early Christians to glory in casting down the altars and the high places devoted to sin—deeming—we will not presume to judge whether rightly or wrongly—that such a testimony to the truth was imperatively enjoined upon them. By their deeds they contemned the temporizing policy of the emperors. They sought the actual and visible victory of literally erecting the temple of the Lord upon the ruins of the habitation of the demon. The statues were broken, to be buried in the foundations: hence few sculptures have ever been found at Rome which did not, like the Venus of the Medici, show, by their defacement and fractures, the aversion of which they had been the objects. Amongst the great congregation of the faithful, the distaste, the horrors excited by paganism—its structures, monuments, glories, charms—were unconquerable and paramount. Idols might have been removed, and the building consecrated by the rites, which, according to the primitive belief, would drive away the demon—yet no lustration

We quote from the report in the *Athenæum*. Why not Mr. Cockerell give us an authentic edition of his lectures?

could entirely heal the leprosy of the walls. The language of the Virgin Martyr was echoed in every heart—

'Your gods, your temples, brothel-houses rather;
Or wicked actions of the worst of men,
Pursued and practised. Your religious rites!—
Oh! call them rather juggling mysteries,
The baits and nets of hell. . . . .
Your Venus whom you worship was a harlot—
Flora, the foundress of the public stews,
And has for that her sacrifice.
Your Jupiter, a loose adulterer,
Incestuous with his sister. Read but those
That have canonized them. You will find them worse
Than in chaste language I can speak them to you.'

Whatever had been touched by paganism, seemed—and can we say unjustly?—to be reeking with impurity.

Whilst conscientious feelings thus deterred and repelled the early Christians from adopting the heathen temples for the purposes of Christian worship, the same feelings attracted them to holy ground. We shall see hereafter why the temples were wholly unfitted by their mere plans and arrangements for the celebration of the Christian ritual. But, above all, they were destitute of the associations by which devotion was nourished, and faith enhanced. Jove's temple crowned the Capitol: the structures devoted to the false gods shone above the palaces of imperial Rome: but the victories of faith had been won by pain, anguish, suffering, death: the altar was not to be raised amidst the haunts of men; the communion of saints was sought amongst the lone memorials of the departed."

FREEMASONS OF THE CHURCH.

April 29th.—Mr. George Perry, architect, in the chair. The following new members were elected:—Mr. Thomas Longman, Mr. John Brown, Mr. John Harvies, Mr. George Field, and Mr. John Wilks. The meeting came to a resolution that a petition should be presented by the vice-presidents to the two Houses of Parliament in favour of Mr. Ewart's bill for forming museums in large towns, and another in favour of forming a gallery for the preservation of British antiquities.

Mr. G. Aitchison, jun., exhibited a rubbing from a brass of John Knapp, formerly portman or mayor of Ipswich, and others from St. Mary, in the Tower, and St. Clement's. Also a drawing of a font in Waley Church, Essex, a small village church, some few miles from Walton on the Naze. Mr. Backhorne exhibited an ancient vessel discovered adjoining Old London Wall, at the back of Ludgate-hill, on digging for the foundations of some buildings lately erected there.

Mr. William Papineau delivered a second lecture on architectural chemistry. After recapitulating the substance of the former lecture, and dwelling shortly on the principles and laws of chemical attraction and affinity, he proceeded to the enumeration and classification of the elementary bodies, detailing the properties of each and their action and reaction upon each other, and the general laws by which they are divided into classes; and dwelling particularly on those of common occurrence and more nearly connected with the science of architecture.

He regretted that want of time allowed him only to give a cursory view of principles which he feared proved somewhat dry and formal to his hearers, but reminded them of the importance of a knowledge of theory to successful practice, comparing it to the foundation of a building, which, hidden and forgotten by the multitude, was nevertheless of vital importance to the security of the superstructure; the defective construction of the one producing flaws and settlements in the building, the neglect or imperfect acquaintance of the other producing doubt, indecision, and error in practice.

Episcopal Residences.—It appears from a Parliamentary paper delivered this session, that Episcopal residences have been provided in the dioceses of Gloucester and Bristol, Lincoln, and Ripon; in that of Lincoln at a cost of 14,788*l.*; and in that of Ripon at a cost of 14,611*l.* The cost of the Episcopal residence for the Bishop of Gloucester and Bristol cannot be stated, the building not being yet completed.

A NEW SYSTEM OF ARCHITECTURE.

Some time ago Mr. W. V. Pickett offered to impart to the Royal Academy his plan for a new system of architecture, provided they would pay him a certain large sum of money for the secret. The Academy refused the offered confidence, and the secret was tendered on much easier terms to the Institute of Architects. Being declined there also, the author first published an account of it in a book, and then, on the 23rd ultimo, brought his system before the Society of Arts. Not being in a position to give an opinion upon it, we content ourselves, for the present, with laying the author's own views before our readers, in nearly his own words:—

The leading principles upon which this system of architecture is founded, are, the adaptation of the law which governs natural forms, and the development of the peculiar properties of metallic bodies.

The highest order of beauty, united with the largest amount of utility, is universally allowed to be exhibited in the works of nature, especially in organic nature and in human form, and the attainment of the highest order of beauty, in conjunction with the most comprehensive amount of *utility*, is the true end and purpose of art in architecture.

The great peculiarity in natural organic form is, that its outlines are invariably determined by combinations and modifications of *curved lines;* and in the adaptation of this law, in the formation of the primary masses, compartments, and apertures of architecture, a higher order of beauty may unquestionably be attained than is possible to result from combinations of straight lines: and while the important purposes of shelter, comfort, and safety, are equally well attained, the additional *utility* and convenience of infinitely greater *cleanliness* is effectually secured, because the occurrence and junction of right angles, consequent upon all combination of straight lines, invariably occasions the harbour of dirt and insects, which are, with much trouble and difficulty, if, indeed, they ever can be, thoroughly eradicated. Utility unquestionably demands the partial occurrence of straight lines in building, and such are found conducive alike to beauty and utility in the organic constructions of nature. But nature does not inflict upon her creatures the trouble and inconvenience of direct and acute angles; and art, the highest art, in following, as it ever must, her footsteps, would also abstain from the introduction of the inconveniences and inferior beauty resulting from square forms and right angles in the primary arrangements of architecture.

Now, for the embodiment of forms determined by curved lines, and for general applicability to the purposes of architecture, metals are the most efficient and durable in substance, affording indeed greater facility for the production of forms of this description than any wherein the straight line prevails, in consequence of the liability of the latter to warp during the process of cooling, while their extraordinary strength and tenacity gives most ample occasion for the introduction of the whole range of botanical forms in the decorative arrangements of building.

In the architecture in question, the development of the properties of these bodies is proposed to be effected by the introduction of *hollow* walls or other primal masses, composed of scantling or tie-bars covered on either side with cast-iron plates, attached together by pins or rivets passing through each, and secured on the inner side by a nut or screw; while for all decorative features the imitation of the basso-relievo style of execution is abandoned as fitted only to masonry, and that which is transparent and primarily isolated is adopted. Such features are affixed to the walls by means of the necessary instruments for holding the parts together, viz. pins or rivets,—not closely affixed, because many disadvantages in respect to beauty and utility would result from such arrangement, but by a simple extension of the pin held a short distance in advance, whereby the beauty and cleanliness of the structure is most effectually secured; and by the introduction of suitable colour, combined with the natural agency of light, the shadows of these features become projected on to the primal masses, thereby creating an additional and interesting variety in effect altogether impossible of accomplishment in any other architecture.

Again, in obedience to that unerring maxim in architecture, "that real and apparent constructions should assimilate, the development of metallic properties will demand the general disuse of columnar support; because metals possess a power of suspension and capabilities of sustaining from within the walls of edifices, the weight of all such projective features as are required for the utilities of porticos or similar constructions in aid of general effect, without the intervention of any incumbent support of similar description to the column in masonry; and as the general character of the decorative features should be conformable to the nature of the primary constructions, the substitution of suspended features of pendentive character will form another marked distinction of this architecture. The author considers that, by his system, we may attain a higher order of beauty and a combination of effects different from those of any other architecture. We may have structures of greater cleanliness, whether on account of the non-absorbent properties of the material, the nature of the decorative constructions, and the peculiarities in primal form. We may have buildings perfectly fire-proof, and, from the circumstance of a stratum of air passing between the plates of the walls, cooler in summer, and warmer in winter, than any others. We may have them durable to the greatest extent; presenting the utmost facility in erection, and capable of being removed at trifling cost, and without the injury or destruction of their respective parts. We may have an architecture not necessarily demanding the application of metal in its primal parts, but equally with masonic art, employing brick, cement, and other factitious substances in place of its legitimate material,—an architecture adapted to the various requirements of domestic life and of modern society, at once perfectly practicable, and on many occasions more economical than any other; and above all, he contends, we may have that which the world has never yet had, a commercial architecture, opening new and untrodden fields for enterprise of almost every description, and enabling this country to become the great emporium of art throughout the world, by supplying the various nations of it with the productions of architecture.

We reserve to ourselves the right of expressing our own opinion upon this hereafter, should it seem desirable to do so.

NORFOLK CHURCHES.*

FOULSHAM.

We were gratified to notice that those connected with this spacious and handsome edifice have acted as conscious (which too many are not) that "all the comeliness we can give to God's house is *necessary*, if we would have his blessing." It was reduced to a ruinous shell by the calamitous fire which occurred here in 1770; but the devastation has been in degree repaired; we say in degree, because there are yet strong objections to the taste in which this has been effected. How truly has it been observed that "until within a very recent period, purity of design and character in our ecclesiastical buildings seems to have been well nigh banished from the land."†

This church is dedicated to the Holy Innocents, and consists of a chancel, a nave flanked by two aisles, a south porch, and a fine perpendicular tower situate at the west end of the nave; it contains only two bells.

The east window—we begin our survey with the chancel—comprises five lights, the mullions, which throughout the entire range are beaded, simply crossing on the head. The arch, which has labels both within and without, springs internally from jamb-shafts, two on each side, separated by a cavetto moulding, and having the capitals enriched with foliage. On either side appears a trefoiled niche under a decorated ogee canopy, adorned with crockets and a finial; but these are partially blocked by a vulgar painted dossel in the heavy style of the Stuart period. A large double piscina is found under foliated ogee arches, having the space between pierced by a quartrefoil; the orifices have disappeared. The sedilia are very fine; two clustered piers have their bowl-shaped capitals enriched with foliage; from these and their "responds" spring three cinquefoiled

* See Vol. II. p. 629.
† Markland's "Remarks," &c.

drop-arches, canopied by a like number of richly crocketted ogee labels with finials; the whole, inclusive of the piscina, being inserted within a square compartment, having its hollow moulding relieved with roses, and the spandrels carved in decorated tracery. The corbels under the labels exhibit male and female heads in the costume of the sixteenth century. The *benches* of the sedilia are lost, but a chair, with arabesque carving upon it, stands on the north side of the table—by the way a nowise eligible position; the altar rails are heavy and unsightly, the table a good plain oak one.

Over the sedilia occurs a beautiful pointed window of three lights, with fine geometrical tracery in the head, and supplied with label and jamb-shafts, like that over the altar. The chancel has a clerestory tier of windows, four on each side; they are of two foliated ogee headed lights "supermullioned" under depressed Tudor arches; we regret to add that the heads of these, as also of a three-lighted range in the clerestory of the nave, are without one redeeming exception blocked. The pointed chancel arch, which is recessed, chamfered, and beaded, springs from large half-round piers, each flanked by two smaller ones, with a broad cavetto between. The corbels of the original wall-pieces are carved with Lombardicks, having coronets over them. The meagre open roof, of low pitch with tie-beams, &c., was placed there towards the close of the last century.

A chancel seat, we hardly know how correct the designation, an open sitting, has lately been placed longitudinally against the south wall. With examples in two churches, each within an hour's ride, of what such seats ought to be, one is at a loss to account for the utter want of taste so prominently shewn here, for good material (oak) being so wretchedly perverted.

The rood-screen has wholly disappeared, unless indeed a quantity of *voluted* panelling, yet remaining in the vestry and elsewhere, formed portions of it; though on this we are by no means confident. The nave exhibits on each side four plain circular piers with bell-shaped capitals supporting equilateral double-faced pointed arches with chamfered soffits. The bases partake of Norman character, in form a bee-hive flattened at the sides into a square. The belfry-arch rises from large and small half-round piers; the architrave is composed of two sets of mouldings, the one continuous with the cavettos on the jambs, the other (quarter-round and filletted) springing from the encased shafts with plain moulded capitals. The timbers of the roof here are hidden by a coved ceiling, partially relieved at the extremities by scrolls, and at the spring of the arch by a large but inelegant cornice.

The polygonal pulpit, set on a mass of brickwork panelled in cement, with early-English arches, is reached through a portion of the ancient wood staircase. It stands on the south side of the nave, and has a *pendant* in the reading desk opposite. There is little to commend in the style of either, the perked up desk being only in too close keeping with the old taste of square and high pews, some of them lined and carpetted, which occupy the aisles. The nave is without a central avenue, being crossed by a range of hollow-backed seats—the cheerless portion of such as bear

"The trace of the sad trinity
Of want, and pain, and sin."

The pavement is of stone throughout.

The windows in the aisles, each of three trefoiled ogee lights, with vertical tracery inserted under a depressed Tudor arch, have the central divisions supplied with transoms intersecting the head which reaches a higher elevation than the rest. The aisles have modern sloped, or lean-to roofs, ceiled between the timbers. The font, situate at the west end of the nave, somewhat in advance of the belfry-arch, is raised on two low steps forming a precious octagonal platform. It consists of a circular marble basin placed on a modern stone pedestal, the latter spirally filletted, the other with Ionic flutings under a horizontal dancette band. The rim of the basin, which has not the convenience of a drain, is "returned" with an inverted edge. In Parkin's time there was "a neat font of stone with a modern cover, which opens below, and thereon are the four Evangelists painted." It is impossible to congratulate on the exchange.

The square tower, its outline varied by "franch" or diagonal buttresses at the west end, is divided into four stages by string courses, those under the parapet having grotesque gurgoyles in the centre: it has pinnacles at the angles, crocketted and panelled, with ogee arches. The embrasures of the parapet are in two stages, and are richly carved with quatrefoils, shields, and panels. The belfry windows, of three foliated lights under a pointed arch, are supermullioned; and square-headed windows in the third stage exhibit stone lattice-work of the same character. The west window, of four trefoiled lights, is inserted beneath an equilateral arch with the dripstone returned horizontally—a general feature here. The tracery, with exception of the head being pierced with a quatrefoil, and that the mullions cross each other, runs in vertical lines. The steeple has a newel staircase threading a semi-hexagonal projection at its north-east angle.

The south porch has been converted, by blocking the open archway, into a vestry, lighted by a single ogee-headed window on the western side. The south, or, as by this perversion, vestry door, has its jambs and the architrave above recessed and chamfered with continuous mouldings, the whole being set under a double-headed label rising from corbels, one of them a head in mascled armour. A triangular or gable-headed buttress, on the south side of the chancel, offers the first feature of the kind occurring in our survey.

"In the churchyard is an altar-tomb of stone, about six feet long and three high, and round this an inscription, which, for the antiquity of the letters, order, and disposition of them, has been engraved by the Society of Antiquaries, and is *Rob. art.* COL. LES. OEC. I. LY. HIS. VIF. Each letter has a coronet over it," a peculiarity already noticed in our remarks on the chancel.

C. T.

HUNGERFORD SUSPENSION BRIDGE.

In addition to the account of this work already given (p. 169 *ante*), we append the following valuable particulars taken from a paper on the subject read by Mr. Cowper on the 18th ult., at the Royal Institution.

This bridge consists of four broad chains, viz. two chains, one above the other, on each side of the platform; each chain consists of ten and eleven links alternately, and, near the piers of eleven and twelve. This increased strength is to meet the increased strain which takes place near the piers. The chain of the Menai Bridge is only five links wide, and the chain of the Hammersmith only six links wide; but the great breadth of the Hungerford chain (viz. eleven links, or about two feet), gives them great power to resist the effects of the wind, and thus to prevent vibration.

The two piers are in height	80 feet.
The central span between the piers (being 110 feet wider than the Menai bridge)	676½ ,,
The length between the abutments	1352½ ,,
Deflection of the chain	50 ,,
Length of each link (7 in. wide, 1 in. thick)	24 ,,
Weight of each link	5½ cwt.
(The connecting pins are 4⅝ inches diameter).	
The whole number of links	2600
Their weight	715 tons.
The number of links in the centre span	1280
Their weight	352 ,,
Width of the platform	14 feet
Height above high water at the centre of centre span	32½ ,,
——— near the piers	28½ ,,
(giving a rise of four feet in the centre. This gives additional height for the river traffic, and produces a graceful curve, and prevents any appearance of swagging.)	
The section of the chains at the centre of centre span is	296 sq. in.
——— near the piers	312 ,,

A square inch of iron *breaks* with 27 or 29 tons, but 17½ tons is taken as the *impairing* weight, *i. e.* the weight at which it begins to stretch; we have, therefore, for the weight the bridge will actually bear,—

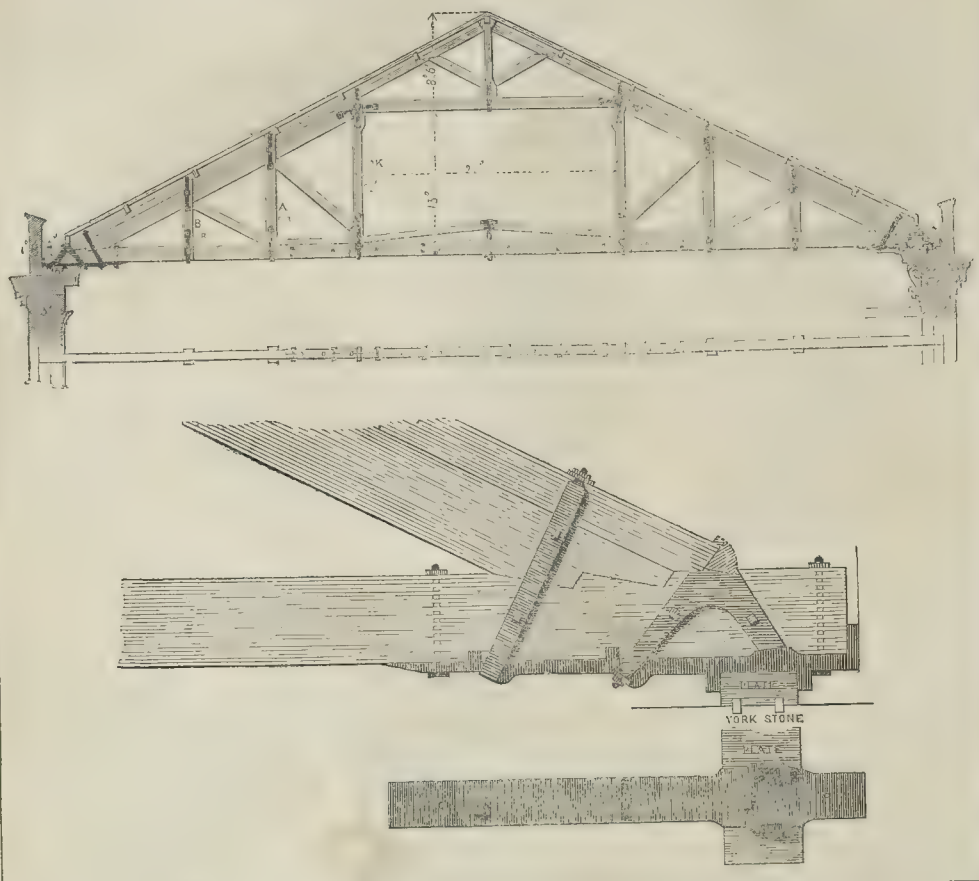
296 × 17½ tons = 5180 tons.
while 296 × 5 tons = 1480 tons.

is the greatest load that can be put upon it. This is taking a crowd standing close together to be 100 lb. per square foot. The entire weight of the chain, the platform, and a full load upon it, would make a load of about 1,000 tons on each pier, being about 8½ tons on each square foot of brick-work, or not quite 1¼ cwt. on each square inch. The chains are attached to large wrought-iron vertical plates at the summits of the piers: these plates are firmly bolted together, and also to a strong horizontal plate,—the whole forming what is called a saddle. The saddle is not fixed to the pier, but rests on fifty friction rollers, these rest on a thick iron plate, which is supported by a solid mass of iron and timber girders. The pier itself, being pierced with arches, may be considered to consist of four columns of brickwork; the girders, therefore, are so arranged, that no weight is thrown on the *arches*, the whole weight resting on the columns. The saddle is capable of moving 18 inches each way, equal to 3 feet entire motion; so that if either span were crowded the chains would adjust themselves, and the strain be still perpendicular upon the piers, and have no tendency to pull the pier over. The method of putting up the chains was thus:—Two sets of *wire* ropes, each consisting of three ropes, were hung from abutment to abutment over the piers, in the exact situation the chains were to occupy,—these *scaffold* ropes, as they may be called, being distant from each other equal to the length of the connecting pin. A few feet above the scaffold ropes, two other ropes were hung in like manner; on these traversed two light boxes, very much resembling a carpenter's bench turned topsy-turvy. These *cradles* as they are called, were connected together, and contained two windlasses, like those over a common well; these cradles held the workmen. A barge containing the links was moored under the cradles; four men in the cradles hauled up a link; and when they had raised it above the scaffold ropes, the connecting pin was put through, and the pin being allowed to rest on the scaffold ropes, of course supported the link. The cradles were then moved forward, and two links joined to the single link, then one joined to the two; the chain consisting, thus, in the first instance, of alternately two and one links. When this two-and-one-link chain was completed, the scaffold ropes were not required, the two-and-one-link chain forming, as it were, a scaffold for the rest of the links; and thus was this bridge erected *without any scaffolding* but these few ropes, and without the slightest impediment to the navigation, or a single accident. The bridge was opened to the public on Thursday, the 1st instant.

FALL OF A VIADUCT AT ASHTON.—One of the most distressing and extensively fatal accidents occurred last Saturday week at Ashton-under-line. The Ashton branch railway, now in progress of formation, and nearly completed, is carried over the river Tame, between Dukinfield and Ashton, by a viaduct of nine arches, and it was this entire viaduct that fell, arch after arch, like a row of nine-pins; precipitating, with the viaduct, between 20 and 30 workmen, who were upon it, chiefly excavators, engaged in filling up the spandrils of the arches with soil and gravel, for the permanent way. As to the cause of the catastrophe, those who are best acquainted with the works, say the arches were very substantial and well-constructed. It is stated that close to the arch which first gave way there is an "eye" of an old coal mine, which has long since been abandoned by the miners, and that some time ago the earth near this "coal-pit eye" was seen to sink, and that it was then stated that the foundations of the arches were unsound. An inquest is now sitting on the bodies of eleven persons who were killed; and it is feared that four more will be added to the number before its conclusion, that number being still missing, and supposed to be under the ruins.

FALL OF AN ANCIENT CHURCH.—On the 14th ultimo, the eastern wall of St. Julian's Church, situate in King-street, Norwich, fell, burying the communion table and one or two pews contiguous thereto. Fortunately no one was personally injured. This sacred edifice, one of the most ancient in the city, consists of a nave and chancel with a round tower.

ROOF OVER THE GREAT ROOM, EXETER HALL.



THE ROOF OVER THE GREAT ROOM AT EXETER HALL.

During the last three months, we have received from several correspondents a request to be furnished with the particulars of the roof which covers the large room at Exeter Hall.

In the annexed engraving Fig. 1 represents one of the trusses on a scale of 12 feet to an inch, and gives the plan of the underside of the tie-beam, shewing the scarf. The width between the plates is 75 feet 10 inches; the width between the walls 76 feet. The height of the roof from the underside of the tie-beam is 21 feet 6 inches. The trusses are placed at alternate intervals of 2 feet 6 inches and 9 feet. The following are the scantlings of the timbers used:—

		in.	in.	
Tie Beams		14½	by 7½	
Principals		14	.. 7½	
Longer Principals		8½	.. 7½	
Collar Beams		14	.. 7½	
Solid	Queens } out of English oak	8½	.. 7½	in the
	Kings } of the best quality	6	.. 7½	Shaft.
Braces		7½	.. 7½	
Upper ditto		6	.. 7½	
Purlins		7½	.. 4	
Common Rafter		5	.. 2½	
Pole Plates		12	.. 4	
Wall Plates		13½	.. 6½	
Hip		10	.. 2	
Ridge Piece		8	.. 3½	
Hollow Queens	A.	12	.. 4½	
Ditto	B.	10	.. 4½	

Figure 2 represents the foot of the truss with the iron-work at large. The strap and abutment piece are of wrought-iron, the remainder, tinted darker, is of cast-iron. We are indebted to Mr. Laurie, clerk of the works at Pentonville Prison, for the drawing from which our engravings were made.

We found no disposition at Exeter Hall to afford the slightest information, and owe no thanks to the officials.

FATAL ACCIDENT AT DERBY.

We mentioned in our last impression that a portion of the arch just erected over the Mill Fleam, in the Morledge, had given way, and caused the death of two persons, and that this was the second fatal accident that had occurred in the erection of the same arch, the first causing the death of six persons.

At the inquest, held last week, on the bodies of Mr. James Sims, the builder, and Edward Harlow, his apprentice, it appeared from the evidence of Mr. Harpur, the architect and surveyor to the corporation of Derby, that the centres of the arch had been improperly removed, and that he had cautioned the deceased Sims, the contractor, not to remove them in the manner he had done. He did not, however, interfere with Sims, as he considered that he had more practical information than himself, and he had a better opinion of his knowledge of building than he had of his own.

Mr. J. H. Stevens, of Derby, architect, was of opinion that the accident might arise from two causes—the extreme weight upon the crown of the two arches, and the pier being too weak to support the superincumbent pressure. He believed Sims to have been perfectly competent to perform the work if he had proper instructions."

The jury returned the following verdict: "Accidental death; but the the jury cannot separate without expressing their strong conviction that had the joint committee of the corporation and the commissioners appointed a competent and efficient engineer to superintend over Mr. Sims during the progress and in the execution of the works, and which, they think, after the warning the first accident had conveyed, they should have done, the accident which has since occurred would not have happened."

ANCIENT CAPITALS FROM THE SOANE MUSUEM.

The extraordinary collection of works of art left by the late Sir John Soane is now open to the public, and will remain so during May and June.* A delightful and instructive morning may be spent there, and we may perhaps before long offer to our readers the notes of a stroll through it, as an inducement to them to examine it for themselves.

The engravings on the opposite page, from sketches by Mr. Richardson, represent some examples from this collection, of a class of antique caps not generally well known. Fig. 1 is from a cast brought from Rome by Mr. Lee, and purchased at his sale by Sir John Soane. The original of figure 2 is not so perfect in *front* as it is shewn by the engraving. The lower leaves, copied from the side, are introduced so that the whole design may be seen.

* On application being made to the curator, Mr. G. Bailey, a ticket is forwarded.

ANCIENT CAPITALS FROM THE SOANE MUSEUM.



Fig. 1.



Fig. 2.

GEOMETRY OF ARCHITECTURE.

An inference from the third proposition of Euclid's elements of geometry supplies a most imple, ready, and useful method for drawing he radiating joints for the stones, &c., of large at circular arches whose centres are inconvenient, and which are supposed to be inaccessible.

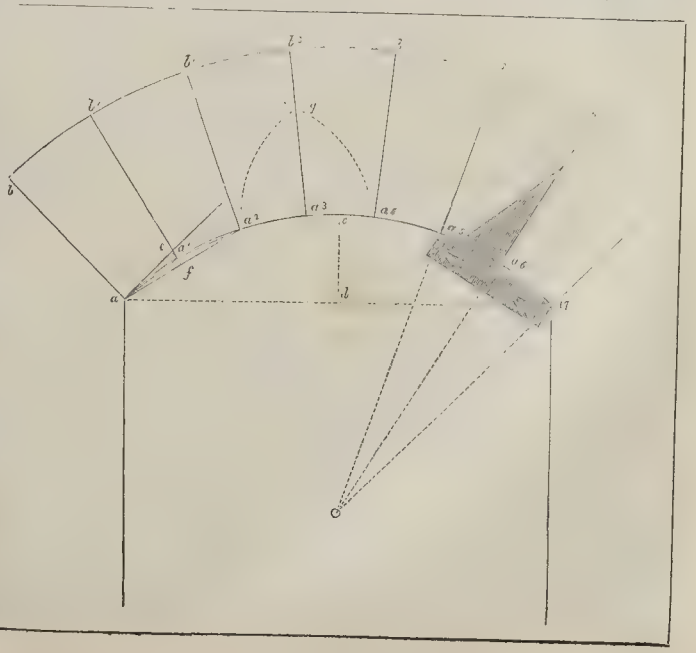
From points on the circumference of a circular arc, it is required to draw lines that shall e perpendicular to it at those points, and that all pass through the centre of the circle; ithout reference to the centre, or making use f any constructive lines for the purpose.

Let $a\,c\,a_7$, be a circular arc; $a\,a_7$, the chord f that arc, or the opening; and $d\,c$, the versed ne, or rise of the arch; let a, a_1, a_2, a_3, a_4, $_5$, a_6, and a_7, be the points for the joints of a eries of arch stones. To draw the joint $a_5\,b_5$: pply a parallel ruler, or straight edge, on the xt adjacent points from a_6 (that is, on the ord $a_5\,a_7$), slide a set square against the edge the ruler until the right-angled edge of the t square coincide with the point a_6, and draw e joint $a_6\,b_6$, which will be perpendicular the arc at the point of contact a_6, and also the chord at the point i; and it will also ra- ate to the centre of the arc. Find the centre which may be easily effected by producing e lines $b_5\,a_5$, $b_7\,a_7$, till they meet in o, which the centre of the arc. Produce $b_6\,a_6$ to o; d since the arc $a_5\,a_7$ is bisected in a_6, and e chord $a_5\,a_7$ in i, $a_6\,a_5 = a_6\,a_7$, and $i\,a_5 =$ $_7$, and $o\,i$ is common to the two triangles $i\,o$, $a_7\,i\,o$; and $a_5\,o = a_7\,o$; therefore the gle $a_5\,i\,o$ = the angle $a_7\,i\,o$ (*see Euclid* 8 *of* ; consequently, whenever the chord of an , or the arc itself, is bisected by a perpendular, it will radiate to and pass through the ntre of the circle. The joints $a_5\,b_5$, $a_3\,b_3$, $a_2\,b_2$, and $a_1\,b_1$ may be drawn by the ne process, by applying the ruler successively the next adjacent points as before.

Now, in order to draw the skew-back joints $_7\,b_7$, it will be necessary to find tangents the arc at the points a a_7. From the nt a set off $a\,a_1$, $a_1\,a_2$, at any equal dis- ces on the arc, and join $a\,a_2$, $a\,a_1$, $a_1\,a_2$. en with a as a centre, and radius $a\,a_1$, scribe the arc $f\,e$; make $a_1\,e = a_1\,f$, and w $a\,e$. Then, since inscribed angles, subded by equal arcs, are equal to one another, refore the angle $a_1\,a\,a_2$ = the angle a_1 $_2$; and the angle $a_1\,a\,e$ = the angle $a_1\,a\,f$, nto the angle $a_1\,a_2\,f$; therefore, $a\,e$ is a gent at the point of contact a. From the nt a draw the skew-back joint $a\,b$ at right les to $a\,e$; and proceed in the same manner for the skew-back joint $a_7\,b_7$. This problem of drawing a tangent to an arc whose centre is inaccessible, was first proposed and solved in the *Ladies' Diary*.

The applicability of this mode of finding the skew-back joints of circular arches is of manifest utility to plasterers and bricklayers, but more particularly to the latter, when forming the skew-backs of discharging and *counter* arches (*i. e.* arches over lintels, &c.); and were this method adopted and practised, it would prevent unsightly and weak arches from being formed, which too often is the case from a want of understanding the nature of their thrusts and pressures; for the joints of all arches should be perpendicular to the curve of the neutral axis which passes somewhere within the substance of the arch; but if the forces acting against the arch be very great, and the equilibrated curve corresponding to the pressure runs above the extrados or below the intrados, the material of the arch will yield, and very probably it may be thrown down. In reference to the skew-backs in question, it is desirable that their faces should be in the direction of the centre of the arc, in order to distribute and equalize the pressures, and to produce the greatest amount of strength. The true radiation of the skew-back may be obtained mechanically by simply setting off from the point a, on the *core* or centre, any two equal distances $a\,a_1$, $a_1\,a_2$; apply a line or plumb-rule from a to a_2, measure the distance under a_1 to the line, and set that distance above a_1 to e; then apply the line from a to e, and cut the skew-back $a\,b$ square from this line.

But the method of drawing the joints for the stonework of large flat circular arches for bridges, &c.,—and indeed its application in



very many cases may arise in practice,—will also be of much service to architectural and mechanical draughtsmen, as it will tend very materially not only to abridge their time, but will save a vast deal of unnecessary trouble, and obviate the necessity of drawing the joints from the centre of the circle; or, by taking a_2 a_4 as centres, and with a radius greater than half a_2 a_4, describing arcs intersecting in g, and then drawing the joint from a_3 through g, and so on.

JOHN PHILLIPS.

INSTITUTION OF CIVIL ENGINEERS.

APRIL 22nd.—Sir John Rennie, President, in the chair.

The discussion upon the atmospheric railway system was renewed, and continued throughout the evening to the exclusion of every other subject.

The principle of the basis of Mr. Stephenson's calculations, that the maximum uniform or mean velocity was attained, appeared to be conceded; but a question had been raised upon what was termed an inconsistency in the experiments, which was the attainment of a steady height of barometer with an accelerating velocity. In order to subtantiate the view, that a maximum velocity had never been attained, the steady height of the barometer, and the principle therein involved, was disputed, while an acceleration, made up by grouping a number of the velocities registered in the tables, was advanced as an inconsistency, amounting to a proof that the height of the barometer could not have been steady. The fallacy resulting from any arbitrary grouping of these registered velocities, in any of which on error of eight miles per hour might exist, was shewn by a comparative analysis of the grouping. If column No. 4, in the tabulated experiments, was grouped into divisions of five observations in each, an acceleration of 1·60 would be shewn; but if the division be made into groups of four observations in each, a *retardation* of ·8 would result. This clearly shewed that either an acceleration or a retardation might be established from the same figures, depending upon the method of grouping them, which was entirely arbitrary. This test, therefore, of the amount of acceleration was considered nugatory. On the other hand, it was proved from the experiments of Mr. Stephenson and his assistants, corroborated by those of Mr. Bidder, that a perfectly steady height of barometer was maintained, and could be observed with the greatest accuracy, when there was nearly a balance between the power and the resistance, and therefore no forces were in operation to cause an undulation of the mercury.

As to the comparison between starting with a low amount of vacuum, and the getting up the steam under a locomotive, and then starting as soon as the steam would move the piston, it was contended that the raising the steam of the fixed engine ought equally to be taken as an element of the comparison if any deduction was drawn from it. In a similar comparison of the time required to attain a maximum speed by locomotives, on ordinary railways, it was shewn that it was rather a chemical than a mechanical question, depending upon the intensity of combustion in the fire-box, which would be at a minimum when the engine was stationary, and that it required a certain time to produce a sufficient amount of combustion to attain velocity; therefore the comparison was inadmissible. A balance, by figures, was established by Mr. Bidder, of the power given out and that observed by each of the resistances: from which balance that amount due to acceleration was ascertained, and it was shewn that this amount could only cause a certain amount of acceleration, which was all given out before the end of the experiments at Dalkey; and while the barometer was nearly uniform the acceleration was little more than was due to the progressive diminution of leakage.

NEW INVENTIONS.—A meeting will be held at the Islington Literary Institution on Thursday, the 8th of May, at 8 o'clock, for the exhibition and explanation of new inventions. The secretary will be happy to receive models &c. for that purpose if sent free of carriage prior to the 7th May.

THE DIFFICULTIES AND OBSCURITIES OF THE METROPOLITAN BUILDINGS ACT.

SIR,—Having by your courtesy been permitted recently to occupy so large a space in your columns, I had hoped that the remarks hazarded, principally upon points I conceived to be without the operation of the Act, would not have induced remark or comment on the future operation thereof. But feeling two points of difficulty to press very inconveniently as to the course to be adopted in practice, viz., the lack of declaration as to the reading put upon certain clauses by the official referees, and the obscurity of other clauses, where it would be unreasonable to expect either them or the district surveyor to give an intelligible reading thereof, I would suggest what appears a reasonable course to adopt in aid of the steps apparently intended to be taken by the note to your correspondent "Scrutator," in your journal of the 19th instant.

The Act is a public one, and I contend any party has perfect right to read for himself, and so read with a desire to conform to its enactments: I do not believe he would find let or hindrance from any constituted authority. That some men in new districts have offensively, in "litigious and unwise proceedings," exercised their "little brief authority" is quite true. Let them be met with firmness and fair argument; this evil will soon cure itself; and I quite believe that both referees and "the able and right-judging men," of whom you speak as district surveyors, will be very glad to come to a fair and intelligible understanding with their professional brethren, and those interested in the operation of the Act. The course I therefore would suggest is, at a timely moment, let a meeting be called, through the medium of an advertisement in your columns, perhaps aided by a leading article. At such meeting appoint a special committee to receive for a given period all communications: such committee, from the mass of evidence they will receive from parties who conceive themselves aggrieved, and taking up other points of apparent difficulty, viewing the whole with unbiassed minds, would be prepared to request a meeting with the official referees (which I feel satisfied would be accorded), and upon a fair and impartial statement, request them to issue a circular to the district surveyors as to their equitable decision or opinion upon the several points submitted to them *seriatim*. Having already assumed this authority in respect of matters in operation before the 1st of January, for all matters subsequently (being distinctly clothed with large equitable powers, and being the appellant court in case of difference), it would appear not to be probable that any district surveyor would venture to oppose his opinion to such a dictum, and the public would be too thankful to have such an authority as their sheet anchor.

In such a discussion I am fain to think, all parties would gladly avail themselves of the opportunity of drawing the attention of the legislature to the repeal or considerable alteration of many clauses. The referees and district surveyors can have no object in being at issue with their neighbours, and much good may be done by courteous communication. As a key to the kind of information that would be useful to such a proposed committee, I will give the evidence I have upon a few out of the number of difficulties that appear to present themselves.

From the part I have taken in the subject some professional men have asked my opinion upon the construction of schedule D. part 2, as to laying bond timber into walls, their doubt being strengthened by the district surveyor declining to give an opinion, which I think he was quite justified in doing. The paragraph alluded to states, "and every plate, lintel, bond, corbel, being of wood, and every wood-brick laid into any external wall, and all ends of joists, of girders, and of the heads and sills of partitions running into any external wall, must be fixed at a distance from the external face of the wall of four inches at the least." This would appear to be clear and intelligible: the point of difficulty is raised by the concluding paragraph: "But no timber must be laid into any external wall in such manner or of such length as to render the part of the wall above it wholly or in great part dependent upon the wood for support, or so that any such wood might not be withdrawn without endangering the safety of the superincumbent structure, except in the case of brestsummers." I am surprised that any doubt should have arisen on this point, but it is a matter better set at rest as proposed. My reading would be; the first enactment is clear and positive—adopt it. Will any district surveyor be bold enough to demur to it? the *onus probandi* of danger would be with him, as contemplating the very unusual course of withdrawing bond-plates or joists. The Act permits the erection of nine-inch walls, and has suggested no new mode of construction to render unnecessary the laying ends of joists into such walls: the exception in favour of brestsummers would appear singular, as they generally have a considerable superincumbent weight. Let a district surveyor object in any case to so laying timber in a nine-inch wall—*ex uno disce omnes*—no timber can be laid in such a wall, which would be an absurdity.

A difficulty has arisen in the minds of several professional men having works in operation under written contract, in consequence of section 9 declaring that, "the difference of the costs and expenses of the works when performed according to the provisions of this Act, and the works as stipulated for in such contract" are subject matter of reference. I consider this one of the most equitable clauses in the Act, viewing it as I do. It can have no relation to any written contract in respect of the completion of works commenced before the 1st January, and thus taken altogether out of the operation of the Act; but I can imagine not an extreme hypothetical case, where its operation would be essentially equitable. A party has entered into a written contract to build six houses of similar character and cost; three were so far progressed before the 1st of January as to be irrespective of the Act: the other three, not commenced, would come within its operation, and for want of conformity would be induced a larger outlay. The difference in such a case to be assessed by the district surveyor, or if disputed, by the referees. Here would appear a broad principle of justice: the contractor who probably had taken the contract with prospect of small gain, ought not to be the sufferer by a change in the law of the land he could not contemplate.

I regret not being able to accord the same merit to sec. 10, relating to the modification of building leases, which I fear will lead to serious mischief and litigation; but being a question rather for those learned in the law, I will not attempt to discuss it, nor at present refer to other similar points of difficulty, but urge each party to make out his own catalogue of complaints as the first step to inquiry.

I would close these remarks by drawing attention to what would appear a serious difficulty in carrying out the intended operations of the Act as to schedule H. relating to "drains into sewers." This section is very imperative, but owing to the reservation of powers by sec. 51 to commissioners of sewers, will, I fear, in large districts be found perfectly inoperative. The question of sewage in densely-populated districts is now a subject of public interest, hitherto not sufficiently understood; it appears to be a matter more peculiarly addressed to our attention as in connection with house-drainage, and it is with deep regret I feel myself bound to declare, that enormous sums in large districts have been so unscientifically expended, as to prevent the possibility of the sewers being rendered available for house drainage; thus throwing an insurmountable difficulty in the way of carrying a portion of the Act into effect, which contemplated the health and comfort of a neighbourhood. It is a subject at a future period I propose to intrude on your columns.

GREENWAY ROBINS.

NASMYTH'S PILE-DRIVER.—The first experimental trial of this invention was made at Manchester on the 19th ultimo. From want of space a 14-inch pile of 16 feet in length was employed; this the machine drove 15 feet into hard ground with twenty blows, at the rate of 65 blows per minute. Two of these machines will very shortly be in full action at the great steam dock about to be constructed by the Admiralty at Devonport.

CHARITY IN MARYLEBONE.—No less a sum than 1,500*l.* has been distributed among the poor during the past twelvemonth by the district societies of this parish.

THE OLD SOCIETY OF PAINTERS IN WATER COLOURS.

This collection, consisting chiefly of landscapes, is, on the whole, most unexceptionable. The artists in general have evidently struggled hard to surpass their competitors of "The New Society."

The lion is certainly Cattermole's "Benvenuto Cellini defending the Castle of St. Angelo," (300). For breadth, animation, and effect, this picture has hardly been surpassed in water-colour drawing. The figure of Benvenuti is extremely fine, well drawn, and magnificently coloured in the miniature style of scene painting, belonging only to this artist. Some plate on the left is very effectively painted. "The Visit to the Monastery" (330) by the same, is an exterior vying in beauty and excellence with No. 300.

"Instruction" (142), by J. W. Wright. A fine subject well treated. The two children are very beautiful, and the drapery broad and well cast, but the distance does not sufficiently retreat.

The next picture to it, by Copley Fielding, "View of Lancaster from the Coast," is a lovely drawing, remarkably sunny and rich in colour. "Danseneu on the Lahn, Morning" (175), by T. M. Richardson, jun., is a most beautiful picture, equal to Fielding. Other landscapes by this artist are remarkably fine and well studied.

"The Holy Well" (40), by Alfred Fripp; a clever and bold attempt, with much of the character and treatment of the same subject by Topham. The head of the girl to the left, and indeed the whole figure, is very nice, but the other girl with upraised face, though full of expression, strikes us as being deficient in drawing. His "Irish Mendicants" (152), displays mind and considerable feeling, more particularly in the old man, the hands of which are well drawn; the children are not so good. This artist's colour is prejudicial to his pictures by the strong predomination of cold, slaty greys.

"Romish Devotion" (10), by W. Hunt, is a most beautiful work; expressive pathos and unaffected simplicity are the leading excellencies of this perfect production; it is certainly Mr. Hunt's *chef d'œuvre*.

26. "Berne, Switzerland, Morning as it sometimes awakes among the Alps," by J. D. Harding. A fine landscape, broad and effective; the sky somewhat exaggerated.

"Café de la Place, Rouen" (30), by S. Prout. An elaborate and well-arranged drawing.

"A Cloudy Day" (112), by D. Cox, is a bold, fine sketch. Total disregard for any thing like prettyness and adherence to truth and nature are the strong characteristics of this artist. The same may be said of the "Corn Field" by Paul De Wint (221).

Frederick Taylor's "Counting the Game Bag," is a beautiful sketch, the effect of which, produced by a few vigorous touches, is wonderful. "The "Interior of a Cow-house" (3), "Ploughboy and Cart-horses" (23), and "Gipsy Girl" (268), are three other excellent specimens of his happy and bold style.

57. "The Coast of Antrim," H. Gastineau. Bold attempt full of beauty, but wants depth of decision in parts.

"Scene in the South Downs" (92), by Copley Fielding, affords an excellent example of the clever management of mist rolling between the distant mountains.

Harding's "Beilstein on the Moselle" is a beautifully subdued bit of warm colour.

"Eagle's Nest, Glengariff." A clever landscape, the mountains in the distance well managed.

"View from Bolton Abbey" (188), by George Fripp, a masterly piece of colour and effect, but the golden warmth of the sun deteriorated by the excessive coldness of the greens.

91. "A Cast-away," by Oakley, is clever, but rather forced and theatrical. 139. "A Dreamer," by the same, is much better, and is scarcely less his best picture.

97. "Oratory, Naworth," by S. Rayner, is an exceedingly bold and clever drawing, very much in the style of Cattermole, shewing great power of execution. 91. "Lanercost Priory" is rather heavy, but very powerful.

Mr. Bentley has distinguished himself in (95) "An Indiaman lying-to," "Wreck on the Rocks of Elizabeth Castle, Jersey" (46), "Ballyshannon, Donegal" (117), and many other capital landscapes and marine pieces.

85. "House of the Francs Bateliers, and Church of St. Nicholas on the Canal of Ghent," W. Callow, is a capital picture, the best of this artist's many good works.

108. "Sunset, an effect from Nature," by F. O. Finch, is a very clever work in his style.

119. "Sir Roger de Coverley with the Gipsies," by George Harrison; A fine, rich landscape, the avenue of trees most effectively painted. 129. "Deserted," by the same, a good idea well treated.

178, "The Weary Travellers," by J. M. Wright. Clever, but monotonous and flat in colour.

206. By J. Stephanoff, is "an amalgamation of Museum Studies," and a most elaborate piece of work it is. Nos. 202 and 204, by the same, are very indifferent pictures.

210. "Hollybocks," by V. Bartholomew. Nature itself, or rather a reflection in the looking-glass. 222. "Fruit," by the same, is perfect.

217. "Second Cabinet of Isabella d'Este," Lake Price. A most elaborate and beautiful drawing.

Another fine architectural drawing is (232) "Dumbarton Castle, on the Clyde," by S. Prout.

252. "Room in Gate-house, Kenilworth," by Joseph Nash, is one of his best.

The fruit pieces and flowers by Hunt are delicious; and two little pictures, 234, "Writing," and 266, "A Paper Lantern," are full of his usual natural truth, humour, and originality.

293. "Ill Omens," by Wright, is an exquisite morsel, though the flesh is rather too pink. "Love and Hope" is another beautiful bit in his peculiar style.

Mackenzie, the two Evans's, Turner, Scott, Palmer, Morison, and Glennie have some excellent productions.

There are a few pictures that deserve censure, but we do not desire to find fault: we leave off while we can without offending.

MUSEUM OF ARCHITECTURE AND THE DECORATIVE ARTS.

Sir,—I am very glad to see that you have urged the importance of a Museum of Architecture. The want of such an institution is much more felt by the artisan than by the architect's clerk; the latter has generally the opportunity of referring to his principal's library and collection of casts, whilst the former has seldom any thing else to refer to than the small collection of engravings, &c., which his slender means may enable him to gather together; and even these he is seldom able to classify, and is left entirely to his own judgment to select the good from the bad. The museum spoken of in your journal would be exceedingly useful and a very great boon, as far as it goes, to all engaged in architecture and decorative art, but would be still more so if it comprised specimens (either originals or casts) of the different styles of ornaments used for decorative furniture—such as the different periods of the French, the Italian, Renaissance, &c., and classified as proposed for the architectural antiquities. Such a collection and classification would be of immense service to the decorative workman; he would then have an opportunity of correcting his taste and judgment, and of executing his work in perfect keeping with the style required. I speak feelingly upon this subject, as I have long felt the want of such a collection; for although from practice I may have a tolerable idea of the different styles, still, from the want of correct data, one cannot always be certain of the detail. A knowledge of the varieties cannot be correctly obtained from books; indeed there is but one that I am aware of, that makes any attempt to define the styles (Page's "Acanthus,") some of the examples in which are rather wide of the mark.

I trust you will not allow the subject to drop, and that through your influence a petition to Parliament for the promotion of this object may be drawn up.—I am, Sir, &c.

April 23rd, 1845. J. B.

Royal Commission of Fine Arts.—A notice has been issued by command of the commissioners to the effect, that works of art intended for exhibition are to be sent to Westminster Hall on or before Saturday the 7th of June.

LIST OF NEW PATENTS RELATING TO ARCHITECTURE, ENGINEERING, &c., GRANTED FOR ENGLAND.

Furnished by Mr. A. Prince, of the Office for Patents of Inventions, Lincoln's-Inn Fields.

[six months for enrolment.]

William Henry Fox Talbot, Laycock Abbey, Wilts, for improvements in obtaining motive power, and in the application of motive power to railways. March 3.

Alexander Gordon, Westminster, for an improvement or improvements in producing motive power, by the action or agency of heat, and in the application of that power to purposes of locomotion or navigation. March 3.

Robert Frederick Browne, Knightsbridge, for certain improvements in the construction of chairs and couches. March 3.

George Selby, Birmingham, for certain improvements in the manufacture of pipes or tubes of that class or kind which are formed by welding skelps of wrought iron. March 8.

John Blyth and Alfred Blyth, of Saint Ann's, Middlesex, engineers and copartners, and George Parker Hubbuck, of Ponder's-end, Middlesex, engineer, for certain improvements in steam-engines, steam-boilers, and machinery for propelling vessels, which improvements in steam-engines and steam-boilers are for the most part applicable to the purposes of steam navigation, but are also applicable to other purposes for which steam-engines or steam-boilers are or may be used. March 13.

Thomas Dunn, of Manchester, engineer, for certain improvements in, or applicable to, turn tables, to be used on or in connection with railways. March 13.

John Ainslie, Redheugh, near Dalkeith, North Britain, farmer, for a certain improvement or certain improvements in the apparatus and arrangements for the manufacture of tiles and similar articles from clay, or other plastic matter. March 13.

Pryce Buckley Williames, of Llegodig, North Wales, gentleman, for certain improvements in the manufacture of artificial stone. March 17.

John Cleaveland Palmer, of East Hadham, Middlesex, U.S., gentleman, for certain machinery to be used in manufacturing certain kinds of tools for boring wood or various other substances. March 17.

Augustus Coffyn, of Paris, gentleman, for improvements in pumps. March 17.

Henry Samuel Rayner, of Alfreton, Derbyshire, gentleman, for certain improved means of preventing accidents to carriages on railways and common roads. March 18.

Richard Weller, of Capel, near Dorking, brick and tile manufacturer, for improvements in the manufacture of drain and other tiles and pipes. March 27.

Joseph Conrad Marie Baron de Liebhaber, of Paris, in the kingdom of France, for improvements in blasting rocks, and other mineral substances for mining and other purposes, and in apparatus to be used in such works. March 27.

Baths and Washhouses for the poor.—The committee have nearly concluded the purchase of a site for the first model establishment on the north side of Whitechapel, between the new street and Aldgate church. A working model of the selected design has been prepared and will be shortly submitted to the subscribers. It is said, that arrangements will be made to enable the very poor who cannot afford any payment to wash gratuitously during the summer. We learn from the newspapers, that an experiment has been made at the Eastern Asylum for the Houseless Poor which has satisfactorily proved that the very lowest of the poor will gladly avail themselves of facilities for personal cleanliness. On the evening of March 29, the apparatus, consisting of a boiler and tanks, with two hot baths (convertible into vapour baths), six wash tubs, and a drying closet, through which a draught of hot air is driven with great velocity, was first used. At first there was some reluctance on the part of the inmates to use the baths; but as soon as they had felt the refreshment of the warm water and clean clothes, they eagerly availed themselves of it. During the first five days eighty-six persons bathed and washed; during the last five (the apparatus having been used nineteen days altogether) the number was 391—the total being 987.

Correspondence.

DISTRICT SURVEYORS.

SIR,—I fully agree with your correspondent "Scrutator" as to the despotism desired to be exercised over builders by the district surveyors, or at least by those in the new districts. I have myself experienced great inconvenience from the manner in which the clerk to one of the new surveyors (who acts by deputy) performs his duties. If he sees a barrow of bricks or mortar in front of any house in his district, he makes it his particular business to catechise the labourers as to what they are doing. On one occasion he was told that they were cleaning and repairing some drains, and was not persuaded that such was really the case until he had leave to go in and see for himself. On another, he walked into a house where a bricklayer was engaged taking out a range, and seeing that the man was repairing part of the chimney jaumb, which was found to be defective, he expressed much displeasure that no notice had been given to him before the work was commenced. The man replied that his master was not aware that it was necessary to give notice of such work; but the clerk said, his master had no right to think, *that* was *his* (the clerk's) place, and he wished to have notice in *every* case of works to be begun.

This gentleman also requests that a drawing may be submitted to him of any works proposed to be done in his district, which would certainly in some cases be desirable as well to the builder as to the surveyor, if the latter would say before the works were begun or estimates given, what part of the proposed works he perceived were contrary to the Act, and which he could not, therefore, allow to be executed; but all practical men will see the inconvenience and trouble occasioned by it in many cases where the job to be done is but trifling. For instance, I received an order to put up an outside spring-blind to a shop-front in the same surveyor's district, and, in course of conversation, asked him whether there was any objection to it? He said he could not allow it to be fixed at more than ten inches distance from the front wall of the house. I afterwards saw that he had allowed one to to be fixed on the cornice of another shop which projected some two or three feet, and on representing it to him, he replied: "That shews you the folly of my answering questions abstractedly, you must send me a notice and a drawing of what you propose to execute, and I will survey the place;" which, I suppose, also means that he will demand a fee for the same, and thus add considerably to the expense of a very trifling work.

Now, if all the district surveyors were to perform their duties in the same vexatious manner, the Act would become the oppression of all persons concerned in building operations; and I think that no time ought to be lost in calling a public meeting of the trade to consider the means of defending themselves from such arbitrary proceedings. I would wish, however, to bear testimony to the fair conduct of all the old district surveyors with whom I have come in contact since the commencement of the new Act, as they have all appeared willing to assist and advise the builder rather than to oppress him, and to endeavour to increase their fees at his expense. I am, Sir, &c.,

A SUBSCRIBER FROM THE FIRST.

POSITION OF ENCLOSURE WALLS IN KENT.

SIR,—Will you have the courtesy to answer the following question, and by so doing clear up what I conceive to be an erroneous view of the law of freehold property, and settle a most important object to all engaged in building?

I hold certain land in this county, and am about to build a boundary wall in place of a hedge and dike which at present divide my land from the adjoining (which is arable). Of course I wish to take in all the freehold, and to build to the extent of my bounds; but I am told that "dike room" must be left for the purpose of ploughing the adjoining land, so that three feet in width along the extent of the boundary of the freehold must be left unoccupied for the convenience of the ploughmen of the adjoining occupier, in order that he may plough the land to the extreme boundary. I wish, Sir, to be informed whether the common law maxim, "a solo usque ad cœlum,' is, or can be, contravened by what I think may be termed "ploughman's law."

By giving your opinion on the above, you will not only render an essential benefit to builders and building proprietors, but confer a favour on one who is at present

Kent, April 24, 1845. A NONSCRIBER.

*** We know nothing that would lead us to suppose our correspondent can be prevented from enclosing the whole of the land which belongs to him: we should not hesitate about doing so.—ED.

ST. THOMAS'S CHURCH, WINCHESTER.

SIR,—In reply to the inquiry which appeared in your last, I beg to say the lowest tender delivered for St. Thomas's Church, Winchester, was, as I have just heard, between 6,000*l.* and 7,000*l.* exclusive of the materials of the old church.

The advertisement for designs stated, that a church was required to cost 4,000*l.* If the amount I have named is correct, great injustice must have been done to the other competitors, as I cannot imagine that any but a very young and very green architect would, without additional means being placed at his disposal by the committee, have prepared a design which has so far exceeded the stipulated amount. I am, Sir, &c.,

AN ADHERER TO STIPULATIONS.

P. S.—Can you tell me why Mr. Elmslie's design was sent in, in the name of his clerk, Webbe?

TERRA COTTA.

SIR,—Having seen the letter on the subject of terra cotta in THE BUILDER of the 26th instant, I beg to state, that as Mr. Sharpe has no connection with my works, it is scarcely fair that he should be troubled with questions which the manufacturer (and he alone in many instances) can best answer. I shall therefore be glad to reply to any communication on the subject, addressed to me, Ladyshore, Bolton-le-Moor, where I established extensive works *in order to manufacture* the terra cotta for Leverbridge Church, and where I am now engaged, along with various other works, in preparing material for another church now building at Rusholme, near Manchester, also designed by Mr. Sharpe.

I take this opportunity of correcting an erroneous impression, which appears to be conveyed by the amounts published in the "Companion to the British Almanac" and the "Illustrated London News," by stating, that no "immediate superintendence" by the architect of any branch of the manufacture is now, nor has ever been, necessary to secure the correct execution of any work in terra cotta from plans drawn in the ordinary manner.

I am, Sir, &c.,

JOHN FLETCHER.

Ladyshore, Bolton, April 29, 1845.

*** We have received intimation that G. and C. Bishop, of 3, Benet's-hill, Doctors' Commons, have specimens of the Ladyshore terra cotta, and will give any information that may be required.—ED.

TESTIMONIAL TO MR. JOHN BRITTON, F.S.A.—At the preliminary meeting of the friends of Mr. Britton, held on Thursday, the 24th ult., to consider the best means of testifying their appreciation of his valuable labours, a committee of fifty gentlemen was formed, with power to add to their numbers; and it was resolved to adjourn till the 10th inst., and to invite the co-operation of all persons who are friendly to the object. The committee comprise Messrs. W. J. Booth, E. W. Brayley, F.S.A., H. Broadley, M.P., F.R.S., W. Brockedon, F.R.S., A. Burgess, F.S.A., W. H. Ludlow Bruges, M.P., L. Cubitt, W. Cubitt, T. Cubitt, J. G. Children, F.R.S., G. Corner, F.S.A., Peter Cunningham, T. L. Donaldson, C. Fowler, W. J. Donthorne, T. Grissell, G. Godwin, F.R.S., Nathaniel Gould, John S. Gaskoin, J. E. Gray, F.R.S., J. D. Harding, W. Hosking, F.S.A., W. Herbert, Dr. Ingram, Dr. Knapp, T. Longman, The Rev. J. Mitford, J. B. Nichols, F.S.A., H. W. Pickersgill, R.A., L. Pocock, F.S.A. Dr. Rees, F.S.A., Lieut. Stratford, F.A.S., The Rev. E. Tagart, W. Tooke, F.R.S., The Rev. T. S. Turnbull, M.A., W. Wansey, F.S.A., T. Unwins, R.A., W. Tite, F.R.S., The Right Hon. Thomas Wyse, M.P., &c.

Miscellanea.

METROPOLIS IMPROVEMENTS.—The Commissioners of her Majesty's Woods and Forests have, during the last few days, issued their plans for the erection of the houses in Endell-street, between Broad-street, St. Giles, and Long-acre, the gas and water-pipes having been laid down and the sewers constructed. The fronts of the several houses are to be "architectural elevations" of a uniform appearance, and "no objection will be made to buildings of the style known as Elizabethan." The ground excavated, if required by the commissioners, is to be deposited to fill up the low ground around the Millbank Prison. All the pieces of ground to be let on lease, for a term of eighty years from Midsummer day 1845, at a rent of one peppercorn for the first year, and at such rent or rents for the remainder of the term as shall be agreed upon; and the lessee is to forfeit all right to the lease unless the carcass of each house be completed by or before Christmas-day, and the houses and all other buildings be rendered fit for habitation by or before Midsummer-day, 1846. The lessee is to reimburse the commissioners for the expenses incurred on account of building the vaults and sewers, and for paving the street, at the ratio of 70*l.* for a frontage of 114 feet 6 inches, or in lieu thereof 35*l.* rent per annum. The width of the street is to be between 50 and 60 feet.—*Times.*

COST OF GAS.—From various experiments recently made by Mr. Lumsden, of Monkwearmouth, he found that one ton of coal, which cost 16*s.* produces thirty bushels of coke, twenty gallons of tar, and 9,000 cubic feet of gas. If this is correct, and if we apply the result of these experiments, it will be found that the quality of coke and tar produced from a ton of coal amounts exactly in value to the price of the coal used, and that the 9,000 cubic feet of gas, sold to consumers at its present price, yields to its fortunate makers, the gas companies, a profit of not less than 3*l.* 7*s.* 6*d.*

GLASS PIPES.—Mr. James Hartley, of Bishopwearmouth Glass Works, has, after extensive experiments, succeeded in establishing the practicability of making glass pipes, suitable for the conveyance of gas or water, and has it is also said, proved that pipes, stronger than the ordinary metal ones, and much cheaper, may be made of glass.—*Mining Journal.*

THE CITY MUSEUM.—At a recent meeting of the Common Council, Mr. Ashurst brought up the report of the City Lands Committee, to whom had been referred the subject of the appropriation of part of the crypt at Guildhall for a museum. The report, which was ordered to be printed, stated that the clerk of the city works had certified that an outlay of 2,000*l.* would be necessary to effect the purpose contemplated.

SITE FOR BATHS.—At the same meeting Mr. Alderman Johnson presented a petition from the Committee for Establishing Baths and Wash-houses for the Labouring Classes, praying for a lease of part of Farringdon Market, next Shoe-lane, for the term of sixty years, at the yearly rent of 100*l.*, at 2,500*l.* premium. On the motion that the petition be referred to the Market Committee, a lengthy conversation arose, in which the majority of the speakers, though friendly to the establishment of baths, and to the general objects of the petitioners, were opposed to the appropriation of the site solicited for the establishment, on the ground that it would interfere with the improvements in the locality, with a view to improve the traffic in Ludgate-hill and on Holborn-hill. The motion was in the end negatived by a large majority.

ARTIFICIAL STONE.—Mr. Frederic Ransome, of Ipswich, has obtained a patent for the formation of artificial stone. This *desideratum* is accomplished by chemical process, of a novel description. The materials used are flint, or granite, or marble; and these when pulverized and worked up, form a thick silicious paste. This paste so produced, is placed in moulds of any given design, and upon being subjected to the action of an oven, the contents of the moulds become vitrified; thus the most compact and beautiful designs in slate, or granite, or marble, are produced, applicable alike for ornament as for more substantial purposes; the material is said to be fully capable of withstanding all atmospheric changes, and is durable as flint

NEW CHURCHES.—At the monthly meeting of the society for promoting the enlargement, building and repairing of churches and chapels, held last week, grants were voted for the erection of new churches in the districts of Rainow, in the parish of Prestbury; Homerton, in the parish of Hackney; Ramsbottom, in the parish of Bury; Chapeltown, near Sheffield; Melplaish, near Bridport; Bishop's Sutton, near Bristol; and Bensham, in the parish of Gateshead. Towards rebuilding the parish churches of Wolsingham, near Durham; Woolsthorpe, near Grantham; Fairlight, near Hastings; Great Musgrave, near Brough; and Kingsweare, near Dartmouth. Also towards increasing the accommodation by various means in the churches at Broughton, near Manchester; Gorlestone, near Yarmouth; Nailshead, near Bristol; Brompton Rolp, near Wiveliscomb; and East Knoyle, near Hindon.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—The rival bodies are coming into closer collision. In consequence, as we learn, of the pressing invitations received from Winchester by the committee appointed at the general meeting held in London, they have determined to adhere to the original plan and hold their congress there in August. Lord Albert Conyngham has consented to preside. The meeting advertised by the other party is proposed to take place in September. Now is the time for all those who desire that the society should not be wrecked, and are not mere partisans, to come forward and declare they will not attend either meeting, unless a coalition be brought about. A statement to that effect, signed by a hundred members of the association would surely induce both committees to pause before they risked failure.

ST. MATTHEW'S CHURCH, GOSPORT.—The foundation-stone of this church was laid in the presence of a large assemblage of persons of all ranks, by the venerable Archdeacon Wilberforce, assisted by the neighbouring clergy, on Thursday, the 10th ult. The site was presented by her Majesty's Honourable Board of Ordnance, together with land for extensive national schools. The style of architecture is the early English; Mr. Benjamin Ferrey is the architect, and Mr. D. Nicholson of Wandsworth, the builder.

RESTORATION OF STEPNEY CHURCH.—An effort is now making to restore and enlarge the old parish church of St. Dunstan, Stepney, which has long been suffered to lie in a state of neglect and dilapidation. To carry out the proposed objects as they ought to be, the sum of 4,000*l.* will be required, and as it is not possible to raise the whole amount among the inhabitants, the public at large have been appealed to for assistance.

NOTICES OF CONTRACTS.

We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the works required in the extensive enlargement of the Liverpool Workhouse for the several trades as follows:—Excavating and Brickwork, Masonry, including flagging, Joiners and Carpenters, Work, including Ironmongery, Plumbing and Glazing, Smith's Work, Slating and Plastering, and Painting.

For taking down part of the present County Gaol of Lincoln, and erecting a New Building on the site thereof, with airing yards and other requisites.

For building Sewers in Helmet-court, Wormwood-street; Sweet Apple-court, Bishopsgate-street; Bell Court, Houndsditch; and Garden-court, Leicont-lane; for the Commissioners of Sewers of the City of London.

For the reparation of ten houses in Houndsditch.

The whole to be finished by the end of August.

For the maintenance of the Birmingham railway between the Euston and Rugby stations.

For the erection of an office for the Manchester and Leeds Railway Company.

For building a school-room in London near the Ranges.

For the supplying of such quantities of Broken Guernsey Granite as may be required by the Board for Repairing the Highways in the parish of Kensington.

For the supply and delivery in Bristol of about 300 tons of cast-iron Water-pipes, of various dimensions, from 7 inches downwards, with certain Bends, nozzles, &c.

For the Masonry Work of several Viaducts and Bridges.

For the formation and completion of a new Drain, being about eleven miles long, twenty yards wide, and five yards deep, for the Middle Level Drainage Commissioners. Also for the erection of a Staunch, several Bridges of wood with brick abutments, together with the necessary culverts, and other works.

For the performance of the Works connected with the erecting of the new Pier at Penzance.

For the erection of the Borough Gaol, Birmingham.

For the supply of 1,200 lineal yards of 11-16ths best attested, close, short-linked Chain.

For the erection of a Building in London for a highly-patronized purpose, at the estimated cost of about 30,000*l.*

COMPETITIONS.

Plans for a Church to be erected within the Borough of Kingston-upon-Hull.

Plans, sections, and elevations for a Terminus, and other requisite accompanying offices, for the Great Southern and Western Railway, Ireland.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

The timber and other trees now standing upon the estate at Woodseaves, Salop. By order of the Lord Chancellor made in the cause "Dickin *v.* Barker."

At Mitchell's Farm, near Saffron Walden. A fall of 68 famous Oak, and six Ash timber trees with the top wood.

250,000 Building Bricks, 40,000 Arch ditto, &c.; now at Sherborne Kiln, three miles from London.

At Patcham, near Brighton: a large quantity of Railway Materials; the whole of the Iron is of Staffordshire manufacture.

BY TENDER.

A Virgin Forest of Valuable Timber in Walachia. The principal part of the Trees is Oak. The said Forest may produce about 500,000 cubic feet of Timber.

TO CORRESPONDENTS.

"J. P.," *on the Art and Construction of Brickwork, next week. We shall hope to find more* information *in succeeding articles.*

"W. Couch."—*We have received the specimens of "stone embalment," and shall be glad to learn something of the process and cost.*

"Consumption of Smoke."—*A correspondent wishes to learn the most simple and efficacious mode of consuming the smoke from the furnaces of a boiler or large copper, and will be glad to receive particulars from patentees.*

"Building Materials."—*A correspondent suggests that returns of the market price of building materials in various districts of the country would be valuable. We shall be glad to receive such from provincial correspondents.*

"H. B." *must give notice to the district surveyor before he constructs the furnace. The earthen chimney tube, as pointed out, would not be permitted. There does not seem to be any reason why the furnace should not be built in the position of present stove. The* 8*th clause of schedule F. must be looked to.*

"F. A."—*There is unfortunately no royal road to a knowledge of arches and vaults; it must be gained from many sources. Our correspondent will find Ware's "Tracts on Vaults, &c.," and Gwilt's "Treatise on the Equilibrium of Arches," valuable assistants. The last part of the transactions of the Institute of Architects contains an important paper on the subject by Professor Willis.*

"J. E. G." *shall appear; we are obliged to our correspondent.*

"W. M." *is thanked for the suggestion; we will look to the paper in question.*

"Semper Idem" *next week.*

"T. A.;" *the reply seems unnecessary.*

"M."—*Plans are to be sent in on or before the* 8*th inst. Further information can be obtained from the Rev. R. Kemp Baily, B.A., Hull.*

Received:—"*Dolman's Magazine,*" *No.* 3; "*The Literary Journal of the London Mechanics' Institution,*" *No.* 2; "*The Medical Times for April.*

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, May 5.—*Entomological*, 17, Old Bond-street, 8 P.M.; *British Architects*, 16, Grosvenor-street (anniversary), 8 P.M.; *United Service Institution*, Whitehall-yard, 9 P.M.; *Chemical* (Society of Arts), Adelphi, 8 P.M.; *Medical*, Bolt-court, Fleet-street, 8 P.M.

TUESDAY, 6.—*Linnæan*, Soho-square, 8 P.M.; *Horticultural*, 21, Regent-street, 3 P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.

WEDNESDAY, 7.—*Society of Arts*, Adelphi, 8 P.M.

THURSDAY, 8.—*Royal*, Somerset-house, 8½ P.M.; *Antiquaries*, Somerset-house, 8 P.M.; *Royal Society of Literature*, 4, St. Martin's-place, 4 P.M.; *Medico-Botanical*, 32, Sackville-street, 8 P.M.

FRIDAY, 9.—*Astronomical*, Somerset-house, 8 P.M.; *Royal Institution*, Albemarle-street, 8½ P.M.; *Philological*, 49, Pall Mall, 8 P.M.

SATURDAY, 10.—*Royal Botanic*, Regent's-park, 4 P.M.

ADVERTISEMENTS.

LIFE ASSURANCE.

THE BRITISH MUTUAL LIFE ASSURANCE SOCIETY entertains proposals of any description from 20*l.* upwards, involving the contingency of human life, and offers the following advantages to its members.

A BONUS ANNUALLY (in shape of low Premiums), equal to those of other offices, granted every three, five, or seven years, and

THE PROSPECT OF A LARGER BONUS than can possibly be obtained at those offices, in the peculiarly beneficial mode adopted in the distribution of the surplus.

Prospectuses and every information may be had on application at the office, 17, New Bridge-street, Blackfriars.

SPECIMEN OF TABLES.

Age.	Annual Premium for £100.	Age.	Annual Premium for £100.	Age.	Annual Premium for £100.
20	£1. 15s. 8d.	40	£2. 14s. 9d.	60	£6. 6s. 7d.

CHARLES JAMES THICKE, Resident Secretary.
17, New Bridge-street, Blackfriars.

NOTICE TO INVENTORS.—OFFICE for PATENTS of INVENTIONS and REGISTRATION of DESIGNS, 20, Half-moon-street, Piccadilly. Patents obtained for the United Kingdom and Foreign Countries; Designs registered; printed instructions, containing the charges, forwarded gratis; and every information given by application, if by letter pre-paid, to Mr. M. Josselin Cooke, 20, Half-moon-street, Piccadilly.

OKER.—B. R. WRIGHT begs to inform Builders, Paperstainers, and the Trade in general, the prices for Native Oxford and Washed STONE OKERS, at his Oil and Colour-warehouse, 27, Castle-street East, Oxford-street:—Native Oxford Oker, 21s. per cwt, or 18*l.* per ton; Washed Stone Oker, 14s. per cwt., or 12*l.* per ton; Plasterers' Oker, 7s. per cwt. A liberal discount to the trade.

DUTY OFF ORNAMENTAL WINDOW GLASS.

CHARLES LONG begs to inform his Friends and the Public, that he can now supply Ornamental Glass at 1s. 3d. per foot superficial, and having just built two of the largest Kilns in London, is enabled to execute extensive Orders with unprecedented dispatch, 1, King-street, Portman-square.—Terms, Cash only.

DUTY off WINDOW GLASS.—On April the 6th, Squares stouter and of better make than formerly for Glazing purposes at 6d. per foot.

NURSERYMEN, MARKET GARDENERS, AND OTHERS requiring Small Glass, will find a greater variety of sizes (a large Stock of which is constantly on hand) than is kept by any other house in London, from 4d. per foot. Flattened Sheet, Stained, Fluted, the BIRMINGHAM Sheet Plate (superior in all respects to every other make), and Ornamental Glass of every description. Complete Lists of Glass, Lead, Colours, &c., at ready-money prices, may be had (gratis) on application to R. Cogan, at the Western Glass, Lead, and Colour Warehouse, 5, Princes-street, Leicester-square, London.

SURVEYORS, CONTRACTORS FOR PUBLIC WORKS, and the TRADE generally, sending specifications of quantities required, will receive by return of post an invoice at the very lowest cash prices.

A parcel of very Superior Spruce Oker, suitable for PLASTERERS AND PAINTERS, to be sold at 6s. per cwt.

HIP TILES to suit slate roofs in colour; Ridges, with plain or rebated joints, roll tops, and vertical ornaments; drains, many sizes, with plain or socket joints; paving in squares, hexagons, octagons, &c., different colours; roofing, in Grecian or Italian styles, other devices also, or plain; conduits, which do not injure pure water; fire-bricks and tiles; clinkers, and out-door paving; sundry wall-coping, garden-borders, chimney-tops; also tubular and other flues of peculiar material. No agent, but a depôt at WHITEFRIARS, and 22, WATER-LANE, FLEET-STREET, LONDON, under Mr. PEAKE'S personal care, to supply genuine TERRO-METALLIC goods at fair prices as per quality.

The TILERIES, TUNSTALL, STAFFORDSHIRE, are near the centre of England, whence boats are sent direct to any inland place; or to the Mersey for the coasts, the colonies and elsewhere.

OFFICE FOR PATENTS REMOVED FROM No. 16 TO 117 CHANCERY-LANE.

PRACTICAL ASSISTANCE GIVEN to parties taking Letters Patent, by Mr. J. WILSON, Engineer and Patent Agent. Every description of business relating to or connected with Patents, Registration of Designs, Patent Agency, &c., conducted at his offices, 117, CHANCERY-LANE, opposite Carey-street. Negotiations entered into with parties wishing to dispose of or purchase patented or registered inventions. Every necessary information may be obtained at the offices as above, where also may be had printed instructions (gratis), to which Mr. W. begs particularly to draw the attention of parties about to take out patents

Mechanical drawings of every description, original designs for machinery, models, &c., executed with dispatch and economy.

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TO ARCHITECTS.

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Stangate, near Westminster Bridge, Jan., 1845. I. FARRELL, Secretary, Seyssel Asphalte Company.

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*** In proof of the necessity of the above advertisement, it may be mentioned, that it has come to the knowledge of the Directors, that in certain works which have been executed by Messrs. Curtis, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

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MANUFACTURED upon principles laid down in Major General Pasley's Essay on Limes and Cements.—It is of a beautiful Stone Colour, and of acknowledged superior quality, free from vegetation, does not crack, and is well adapted for every description of modelling and casting. It has been extensively used at the Earl of Macclesfield's, Ensham-hall, by C. Barry, Esq.; at Sir F. Shuckburgh's, Shuckburgh-hall, by H. E. Kendall, Esq.; for Works now in progress at Marbury-hall, Cheshire; and for many of the Mansions erected during last Summer in the vicinity of London.

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At R. Greaves's Works, Stockton, near Southam, Warwickshire, and at No. 2, South Wharf, Paddington, London.

KEENE'S PATENT MARBLE CEMENT.—The Patentees of this composition beg to refer to the British Museum, the Royal Exchange, the new works at Bethlem Hospital, Greenwich Hospital, and the Coliseum in the Regent's Park, as buildings finished or in progress, in which Keene's Cement has been used as an internal stucco. Its superiority to common plastering consists in its extreme hardness, and the rapidity with it dries, which qualities fit it to receive paint or other finishing sooner than other water Cement.

When employed for skirtings, architrave, and other mouldings, in place of wood, it checks dry-rot, is impervious to vermine, prevents the spread of fire, and is more economical in its application than the material for which it thus becomes the substitute.

Confirmation of these statements is to be found in the almost universal adoption of Keene's Cement for Skirting and Hall flooring in the new houses on the Hyde Park Estate, where its application is to be seen to the fullest advantage.

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The high polish and marble-like hardness of which this Cement is susceptible render it the most suitable material for the manufacture of Scagliola.

Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

Depôt in Liverpool, 36, Seel-street, James Woods, Agent.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application to MANN and CO., SOLE AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOUR STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the suction, thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, producable by no other Paint whatever. It is cheap in its application,—and may be used by any Painter, in any climate, even in the most exposed Marine situations.

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CUNDY'S MARBLE AND STONE WORKS, PIMLICO.

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T. J. Croggon respectfully informs the Trade, that that which he offers, is the ONLY PATENT ASPHALT FELT, and that which has been extensively used by the most Eminent Architects. The New Committee Rooms of the House of Commons are entirely covered with it. There is no other "Patent Asphalte Felt Manufactory" in the United Kingdom than that with which the advertiser is connected; the Trade and Public generally are therefore particularly requested to send their orders to

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The Builder.

No. CXVIII.

SATURDAY, MAY 10, 1845.

THE first Monday in May is waited for with eagerness and anxiety by a large number of persons. That section of the public who regard with interest the progress of art in this country look to the opening of the Royal Academy for an assurance that our painters, sculptors, and architects, are advancing, and pass up the staircase full of curiosity, and impatient to see what has been done. Many amongst them, by the operations of the Art-Union, have acquired the right of purchasing a picture, and, excited by a desire to have an early choice, and obtain what may really be a prize, enter with greater anxiety and stronger feelings of interest. But the class to whom this Monday is of the greatest moment is, of course, the artists themselves; the 800 producers, in the present instance, of the 1470 works exhibited; to say nothing of a large body of persons who, having had their own productions refused, pay their shilling and enter depressed, to discover, if it may be, what they are inferior to their more fortunate contemporaries.

Amongst the authors of the accepted work, the rising, the risen,—enter many beating hearts on that Monday, when they are to learn whether the result of the chief part of the past year's labour has been appreciated, and is likely to produce a return, or that his time has been thrown away. The failure of an artist at the public exhibition, let it be remembered, is, in nine cases out of ten, a failure for a *year*; and, according to the position of his picture in his statue, is his chance of success. Many a pang have fine spirits suffered, hardly recovered from in some cases, on that first day: such pangs as those who are not in the same position are quite unable to conceive of. We remember the case of a young artist last year, which shews the effect of disappointment and wounded self-love on some minds. He had produced an admirable work; and was the labour of the year, and went to the extent of his power. By accident rather than design, it was condemned to the "octagon room,"—the black-hole, as it is expressively called, and was as much put out of public view as if it had remained in the artist's study. So affected was the painter by the entire destruction of his expectations that it was produced, that he immediately sold all that he had and left the country. We are free to admit, that we have no great faith in genius which is depressed by the first difficulties that occur, but there are few minds that can withstand repeated mortifications and disappointment, and the object of our remarks is to assist in awakening those on whom the onerous duty devolves of hanging the pictures at the Royal Academy, to the great responsibility attached to the office, and to induce greater care and graver consideration to it than is sometimes given.

We would at the same time bid those who consider the treatment they receive not equal to their merits, persevere in their endeavours, and shew their real power by overcoming difficulties. An estimable member of the Royal Academy writing recently to one who had been rejected by that body as a student, urged truly, that it would be much better in the end than if he had been admitted on the first trial; and cited various mortifications he had himself experienced, and the advantages which had resulted. At the conclusion of his letter, he says,—"There is a little song on this subject, the burden of which is 'try, try, try, again.' The wisdom of this ditty so struck my mind when I first heard it, that even to this moment whenever I am thwarted in a good object I sing 'try, try, try, again;' and this we earnestly recommend to all our young readers.

The present exhibition at the Royal Academy, although wanting in the works of some of our best artists, and abounding in portraits, especially in the principal room, to an extent greater than usual, must be regarded as very satisfactory. Of first-rate works, pictures of high class, there are few, perhaps we ought strictly to say none; but in the next grade there are many of great excellence, to which we shall hereafter point attention.

The architectural room contains 138 drawings belonging to that subject, mixed up as usual with heterogeneous oil-paintings,—shipping, burlesque portraits, the Queen opening Parliament, and Austrian pilgrims. Few of the elder members of the profession are exhibitors on the present occasion. Messrs. H. E. Kendall, jun., Railton, Thomas Little, Gwilt, Wyatt and Brandon, Wigg and Pownall, Cottingham, Mocatta, E. B. Lamb, Owen Jones, Beazley, Douthorne, Derrick, &c., have drawings, but, as a whole, the collection offers no great claim for attention. We shall speak of it more at length next week.

For the illustration of our present number, we have engraved, from a drawing made for us by Mr. Richardson, No. 1,222, the Interior of a new portrait gallery now being erected at Drayton Manor, the seat of Sir Robert Peel, Bart., by Mr. Sydney Smirke, which is especially interesting, as being intended to receive representations of the most eminent men of the day. The length of it is 90 feet; the walls are to be covered with green silk of a diaper pattern, and the ceiling grained oak and touched with gold. The floor will have an inlaid Elizabethan border composed of various woods.

ANCIENT MODELS.

"You, then, whose judgment the right course would steer,
Know well each ancient's proper character."

Of all the difficult inquiries which have so long delayed the elucidation of the principles of design, no one question in the wide field of æsthetics has presented obstacles so insurmountable as the correct definition of imitation, and the exact analysis of the extent to which it is valuable in architecture. The injury, which the art sustains during the present hiatus in its progress, is not lessened by any general attempt to unravel its fundamental principles; to balance and estimate the exact and relative importance of the antiquarian, the creative, and the purely matter of fact, and to bring about a state, in which the imitation of ancient models shall be an aid to art, rather than its object. It may well be said, that in all the freaks of fancy which have prevailed under the name of taste, the world has never beheld a state so singular and unsatisfactory as that at present existing. The whole of Europe seems bent on producing structures, which may cheat the observer into the belief, that he has before him the works of another century, and there is no style at this day which we can call our own. It is not only that we shew an entire lack of invention, but we are not consistent even in imitation. From Grecian to Italian, Italian to Gothic, with short reigns of Louis Quatorzine and Cinque-cento, we change our fashions as often in architecture as in hats.

The architecture of Greece, transplanted to Rome, became national, and the only style for imitation among a people comparatively deficient in inventive genius. Not long confined to the reproduction of Grecian temples, and the adaptation of columns plundered from their original sites, it became essentially different in treatment and in character, and now remains the most complete exponent of the characteristics of the people. So, had we any system, even in imitation; had we no more than one or two styles, and were not led away by every new fancy, however opposed to the end in view, we might hope to find accurate imitation the forerunner of a style characteristic of the nation and the age. Exact imitation, even of objects the most beautiful, is not the highest quality in art, but it is the first and firmest stepping-stone to excellence. That imitation should be the first aim of the artist, we have the opinion of Sir Joshua Reynolds, who said that "by imitation only, variety and even originality of invention is produced." The choice of style is now regulated by no principle whatever; the same description of edifice may one day rise in the Italian as to-morrow in the Elizabethan, and often under the hand of one architect. We are but students and experimenters, but have not the convictions to which experiment should lead.

We assume that the architect will well consider the purpose and object of his design, for unless these be his main endeavour, it cannot be doubted that the result of his efforts in the *art* will be incomplete and unsatisfactory. The practice of architecture has palpable and paramount objects; these must be arrived at ere the *art* of architecture is called into being, or this itself will be defective and spiritless. By many it has been argued, and with some shew of reason, that the origin of all beauty is in utility, but in architecture, which has other objects besides the gratification of the eye or even of the understanding, it must especially be allowed that art holds the second place, though it thus acquires a peculiar grace, which it would not have possessed in another mode of treatment.

"Still follow sense, of every art the soul,
Parts answering parts shall slide into a whole,
Spontaneous beauties all around advance,
Start e'en from difficulty, strike from chance;
Nature shall join you; time shall make it grow
A work to wonder at."——

But, while we assume that the purpose of the edifice is the first matter for the architect's notice, it unfortunately does not follow, that all are agreed as to the objects in view. The various influences, under which the Church of England at present exists, render it necessary for the architect of every work to choose one of two courses, and with the certain prospect, that in pursuing one he will meet with all the enmity of the advocates of the other. Therefore, till the views of all as to the mode of celebrating religious worship are identical, it will continue to be the greatest injustice to condemn an architect for exact imitation of a particular style, when such imitation is often best fitted to meet the ends proposed by his employers. It is true that the reproduction of Gothic churches has sometimes rendered it difficult to distinguish the architecture of the nineteenth from that of the thirteenth century, but let the requirements in a place of worship be once determined, and another century may commence in the progress of ecclesiastical architecture.

The objects and destination of the edifice being provided for, one of two causes might tend to a characteristic style; one—the complete oblivion of every thing we now possess, and a recurrence to the actual wants of man—is manifestly beyond our influence; but a complete investigation of every style of architecture, and the adaptation of all beautiful features, which do not militate with each other and with the actual requirements of the building, should lead to originality, and to the highest efforts of genius, unless analogous principles, evolved by the most able investigators in all the paths of art and science, are erroneous and devoid of foundation. It was an unalterable truth long before the time of Reynolds, that "by being conversant with the inventions of others, we learn to invent, as by reading the thoughts of others we learn to think." "There can be no doubt but that he who has the most materials has the greatest means of invention; and if he has not the power of using them, it must proceed from a

feebleness of intellect, or from the confused manner in which those collections have been laid up in his mind." Therefore to the architectural student, who is confused with the number of varying subjects open to his investigation, we would say:—let no style be deemed valueless, but choose that one as your chief model, which is best adapted to the requirements in view, and bears the character which you would wish to impress upon your works; discover the rules of art by careful examination and comparison of existing examples, always observing the precise intention of each. A theory which would banish precepts and data from our notice, with a view to originality, is inconsistent with all investigation, and would name education itself a thing valueless and baneful. The present imitation of Gothic architecture is at least better than the state of that style a few years back, when not only were the principles of pointed architecture, but the universal principles of art, caricatured and destroyed. Our present knowledge is meagre compared with what it may become when the immense number of churches in England have been examined and classified; our defective knowledge is the cause of the mere reproduction of old churches; but the day is at hand when originality will be as much the characteristic of modern Gothic architecture as of that of the middle ages. Therefore examine, study, and compare the Gothic churches of England; you will discover "more things than are dreamt of in some men's philosophy," and matter which lies not in books and portfolios. Gothic architecture is not to be acquired entirely at the office or the museum, but in the open air, and under the aspect of Nature, the creator and inseparable companion of the art.

E. H.

ON THE ART OF CONSTRUCTION IN BRICKWORK.

No branch of the constructive arts is of greater magnitude and importance than that of bricklaying. Yet we are assured, and can testify from experience, that no trade stands more in need of improvement than this does. Persons of known ability from their habits and experience, have written upon and improved almost all other branches of the building art, and the constructive art of brickwork has been but very little noticed. The poverty of bricklayers' knowledge is a proverb, and is a disgrace to them. Bricklayers and brickwork have always of late years been considered of minor or secondary importance, and this is not to be wondered at. They scarcely have any knowledge whatever of the *general* arts of construction; beyond the mere routine of the scaffold, and packing and piling bricks upon each other, they very rarely attempt to soar. The public-house is their infected haunt. There they spend a great portion of their time and more of their money, revelling in drink, which impairs their faculties, and keeps themselves and their families always in beggary. We believe that if a series of cheap publications were thrown in their way, treating upon practical and the most necessary and striking problems of theoretical geometry, and the most approved methods of geometrical construction, as also an abridged treatise of practical mechanics, made plain, and divested of all technical phrases, but more especially a well-written, well-digested treatise upon brickwork, they would be induced to purchase them, and would become interested in their contents. This would lead to habits of study, which beget inquiry; and from thus understanding how interwoven are all the arts of construction, how dependent one thing is upon another, they would strive to improve themselves, and to execute work soundly and properly.

The desire of the writer is to give, if possible, an impetus to the introduction of a better system of executing brickwork, and to create among all parties, but bricklayers more particularly, an inquiring spirit for the attainment of so needful a purpose. Disposition in this, as in other matters, is every thing; where a person is not disposed to do any thing it is not all the advising or telling in the world will induce him to do it; but create the disposition, and the object is better than three parts attained. If we can induce a disposition in bricklayers to execute work soundly and properly, that is all that need be done; the thing will then work its own cure. It is impossible that some of the present ill-constructed dwellings can last many years; they will ever be in want of constant and extensive repairs, and, in consequence, the parties into whose hands they may fall, will be disposed to encourage better work, and that of a more durable description. Let every bricklayer who has the welfare of his trade at heart strenuously apply himself to its improvement; study the excellent and approved specimens and methods of his art which lie scattered around him, and endeavour to raise it to what it was in former times, namely, an art. We feel assured that there are at the present time throughout England, many bricklayers who are eminently qualified to impart this knowledge; and if any one thinks he has more knowledge on this subject than the generality of his fellow workmen, let him apply himself to the laudable task of freely communicating it. No matter how trifling the item of information may be, the aggregate, when collected and properly edited, will be of value, not only to the bricklayer, but to the whole building profession.

It is well known, and the history of past nations and people confirms the fact, that a general taste for the arts and sciences has a considerable tendency towards civilizing and elevating the moral character of the population. Whatever subject a man may be employed upon, if there be any thing in it which requires more than mere ordinary skill and contemplation, he immediately, when encouraged, seizes the opportunity, and throws his whole energy and spirit into it, becomes increasingly interested in its perfection, and endeavours to produce a work that shall rival all former productions. In olden times, when architectural adornment was sought for in the art of brickwork, extreme pains were evinced on the part of workmen not only to give the exterior work a clean, neat, and close appearance, but at the same time the arrangement of the bond of the interior of the walls, so as to produce the utmost strength and security, was strictly attended to, as is evidenced on observing the disposition and arrangement of the bricks in old walls. And in those times the art of brickwork was considered of primary importance, and its details and neatness of execution were to the architect as well as to the workman, a peculiar source of study and gratification.

Bricks when properly made, well-burnt and sound, and when properly laid, are equally as good, strong, and durable for walls as stone. In all alluvial countries where clay is abundant, and where stone is scarce and not easily to be obtained, good, sound, and ornamental brickwork appears to be indigenous and general. Very many and important buildings throughout the continent, but more especially those in Italy and the south of France have their various moulded forms and rich details of columns, pilasters, capitals, architraves, friezes, and cornices executed in brick. Many parts of the finest compositions of the old Italian and French architects are executed in the same material: it is wreathed into forms so elaborate and the workmanship is so clean, neat, and regular, as not to require the assistance of any exerescences of plastering to work it up, or to improve its appearance. And without going further than our own country, specimens of beautifully-executed brickwork may be seen in various parts where the soil has afforded the proper material for the manufacture of bricks.

Many parts of the ornamental details of the works of Wren, Inigo Jones, Vanburgh, Chambers, and indeed of many other architects since them, have been executed in brickwork, without the least dependance upon base, villainous cement-veneer. Beautiful specimens of excellently-executed ornamental brickwork may be observed in and about the metropolis. The back courts of Greenwich Hospital—the works of Jones and Wren—present most eminent examples of arched work; as also Chelsea Hospital, another work of Wren's. Although now in a dilapidated condition, Old Chelsea Church had originally considerable pretensions as an excellent piece of brickwork; indeed the whole neighbourhood of Chelsea affords very many well-executed examples, and more especially along Cheyne-walk, fronting the Thames.

Kensington, too, has its fair share of good brickwork, but by far the best specimens of it in this neighbourhood are the exteriors of Kensington-palace, and the conservatory in the gardens contiguous. This latter may be approached and closely examined; and again and again, its beautiful well-performed work cannot fail to strike one with astonishment when compared with the villainous, falsely called brickwork executing at the present time about the metropolis. The only fault to be observed in this beautiful piece of brickwork is in the key courses of the niche heads at the north-west angle of the building; and this must have arisen from a default in the *templet* mould used in forming the other courses. But more respecting this division of the art of bricklaying hereafter. Other examples of good old brickwork may be observed at Marlborough-house, the screen in front of Burlington-house, Piccadilly, Spring-gardens, St. Martin's-lane, and at the back of the Admiralty, all in the neighbourhood of St. James's park, and the several streets in the immediate neighbourhood of Covent-garden, exhibit fair examples of this kind of work. Good specimens may also be seen scattered about in and around the City, and to the eastward of London. The fronts of several houses in Lincoln's Inn-fields, and some piers there, present some very excellently executed work.

But no where in and about London, is there any thing in this department of the building art that can vie, or excel the beautiful specimens of well-executed ornamental brickwork that are to be found in and around the Temple gardens, between Fleet-street and the Thames. A few hours spent here in contemplating these examples cannot be otherwise than both gratifying and instructive, and would teach bricklayers, if architects would give them the opportunities, to imitate the work. But it may be said that such work requires much time in its execution, and costs a great deal of money. Granted; but no work to be properly done can be performed without them. And, not a better argument can be brought forward in its favour, and as to its ultimate cheapness, that (although the present specimens may be worn with age, and what is not?) that they are nearly, if not quite, as firm, sound, and perfect as when they first passed out of the hands of the bricklayers; while the plastering or veneering on walls requires an incessant expenditure of money to keep it decent and in repair. How often do we see beautiful moulded and neat brick fronts of old houses in the metropolis being covered with a coarse veneer of wretched cement no better than mud, tinselled and tickled up to please the fancy and taste of the present time; thus blotting out the abilities and handiwork of our forefathers, which ought rather to be allowed to remain, or restored as it was executed, for workmen to contemplate and imitate, and improve upon it if they can.

In order that brickwork may be executed in a properly bonded, neat, and superior manner it is necessary that much time and labour should be spent in its performance; but according to the present system of execution, by competition and on speculation, he who can execute the greatest quantity of work, without any attention or reference whatever to its character for quality and stability, in the least time, is considered the best and most useful workman. At the present time, the custom among bricklayers is, that he who will offer to execute work at the lowest possible prices is sure to be encouraged by employers, and thus obtains the work; and in consequence of this debasing practice, each and every one who is striving to obtain employment is lowering the prices of work, and cutting his fellow tradesman down. The general result of this mode of proceeding is, that after commencing a building, the bricklayer finds he cannot perform the work soundly and properly for the prices, and in order to make it pay him, is induced, at the hazards, to execute the work improperly from a desire to get as much money as possible. This, then, being the case, as well as to make the workmen earn their wages, they are forced to execute work in a hasty, careless, rotten and insecure manner. This method of proceeding begets a recklessness in the general execution, and, in consequence, good work properly bonded is seldom, or never executed.

JOHN PHILLIPS.

*** We shall be glad to receive remarks and information on this subject from practical men, details of fire-work, &c.—ED.

ECCLESIASTICAL ARCHITECTURE.*

We continue our notice of the valuable article on this subject in the current number of the *Quarterly*.

"It has been doubted whether we possess any Christian edifice at Rome belonging to the age of Constantine. The late Mr. Hope places the earliest in the reign of Theodosius. This is a misconception, in consequence either of his supposing that the sacred structures of the Constantinian era which still exist were heathen temples, or of his forgetting that a baptistery was essentially a church, though not commonly called by that name. In Italy, every baptistery and every chapter-house has its altar; we believe, that, with respect to the latter buildings, such was equally the case in England.

We are, however, very deficient in information as to the architecture of the Greek and Oriental churches. This deficiency, we trust, will be supplied by the increasing energy of our travellers. Asia minor might, without doubt, supply far more facts than have hitherto been obtained. Ecclesiastical archæology ought to be investigated with the same cheerful diligence which Mr. Fellowes has exhibited with respect to Hellenic and Lycian antiquity. One very remarkable specimen we possess in our own dominions. It is the portal of the church at Corfu, erected by Jovinian, A.D. 364, known only by means of an imperfect drawing given by Dr. Walsh.

Reverting, however, to the influence of hallowed locality, the first and earliest Christian churches of which we can form any clear idea, either from actual plans or existing remains, are the *sepulchral churches* of the Constantine age; we commence our series by the most remarkable monument of the Christian world.

In the florid description of Eusebius, we find an elaborate yet confused notice of the sacred buildings raised by Constantine at Jerusalem. The panegyrist exalts our notions of the munificence of the founder and the splendour of the structures: yet amidst his rhetorical phrases, we obtain only a vague conception of their ichnography. The Chevalier Bunsen has bestowed an ample commentary upon the difficult text, whose words, as we have observed, convey but an indefinite conception of the architectural arrangements. This information must be sought elsewhere, and we possess it. But it is not through the medium of the writers of Rome or Byzantium that we have been presented with the ground-plot, which, however rude, removes all uncertainty as to the type presented by the Church of the Holy Sepulchre, or the plan according to which it was formed.

Whence do we obtain this knowledge? Would it be guessed that we derive it from regions covered by almost impenetrable obscurity? Are we to seek our records of the monument raised by Constantine, amidst that opprobrium of our historical research, the Pictish race, or to obtain the solution of our doubts from the enigmatical Pictish realm? Amongst the shadows of past times, are there any more visionary and unsubstantial than Taran MacEntifidic and Brudei MacDeirly, who flit before us like beings of another world? Yet it is in the remotest, the most secluded of the Western Isles, amongst the Pictish race, and from the Pictish wilds, that the knowledge, denied elsewhere, is obtained. Iona shines in the midst of Cimmerian darkness. Here flourished Abbot Adamnan, so distinguished by his participation in the great Paschal controversy, A.D. 705; and he supplies the architectural antiquary with the knowledge so much desired. We owe the information to a singular contingency. After a long pilgrimage and continued residence in the Holy Land, a Gaulish bishop named *Arculphus*, driven to the Hebrides, became the guest of the Culdee monastery. Here he related his perils, describing the holy places he had visited; and the *Libellus de locis sanctis'* contains his narrative.

Rarely has any work been transmitted with more peculiarity and authenticity. Adamnan wrote upon his tablets from the actual dictation of the stranger; the notes so taken became the book we now possess. The Holy Sepulchre, as might be anticipated, was the main object of Adamnan's curiosity; and, in addition to the verbal description, Arculphus drew a plan of the buildings upon the tablets with his own hand."

* See p. 206, *ante*.

A copy of this plan is given, and affords some curious information:—

"From its sanctity and celebrity, the holy sepulchre became the primitive type of all the other churches of a circular form. It has been considered by most antiquaries, that the circular temples of ancient Rome, such as that of Vesta and the somewhat hypothetical Minerva Medica, constitute the models for the circular church; but this supposition, though plausible, is quite untenable. The outline proves nothing. The circular shape would naturally suggest itself for buildings in which a sepulchre was to be the chief object; and there is a most essential difference in the type of the circular temple and the circular church, demonstrating that the latter *cannot* have been copied from the former. The temple has its detached columns *on the exterior, supporting an entablature;* the church has its detached columns arranged *in concentric circles within, connected by arches springing from the capitals*, forming one or more aisle or aisles.

Such was the church which Constantine raised over the tomb of his mother Helen, now called the Torre Pignaterra; but the ruin now exhibits nothing but rude brick walls, and we gain no knowledge beyond the fact of the adaptation of the form.

More perfect is the church of Sta Costanza, the burial-place of Constantia, daughter of Constantine, of which Mr. Knight has given an excellent engraving, plate iii. Some have supposed it to be an ancient Temple of Bacchus.

'This opinion is principally founded on the mosaics with which the ceiling of the aisles is adorned, and which represent vine-leaves and grapes. But the vine is a Christian emblem, and is so frequently introduced in the decoration of Christian places of worship, that little weight can be attached to this circumstance. The architecture of this building is in conformity with the style of the time of Constantine, and not in conformity with that of a much earlier date.'

The plan bears as much resemblance to that of the Holy Sepulchre as could be needed or expected in an edifice of contracted dimensions. But it shews how that edifice had become a type; and, except in the duplication of the pillars, it approaches closely to what we must suppose the Round Church of Cambridge to have been, before the erection of the modern chancel.

San' Stefano rotondo is the largest of the ancient round churches now existing, and the most perfect example of structures erected according to this type. The plan shews how very closely the model of the Holy Sepulchre was followed. It has been supposed that portions were added by Pope Nicholas V.; but from the comparison with Adamnan's plan, we cannot doubt that he merely repaired what had stood before. The earnest zeal exhibited by antiquaries to rescue any work of architecture from the reproach of Christianity, has induced them to contest for this church the honour, also claimed for Santa Constanza, of having been a heathen temple. Few indeed, especially of the Italians, are disposed to abandon its primitive dedication to Faunus, instead of the protomartyr. In this opinion they persist, though every part and feature of the structure—the difference of size in the columns, the coarse workmanship, the ill-fitted capitals and deficient bases, and above all, its total dissimilarity to any classical building—all its characteristics fully prove its original destination. The period of its dedication (467—483), by Simplicius, is well attested. Still it remains a question whether he did more than reconstruct, or perhaps enlarge, an edifice previously existing on the same site.

We cannot pursue the history of round churches, especially as connected with the Knights Templars, from whom it is impossible to disjoin them. We can only remark here, that the Templars affected the round or octagon form in Italy just as in England, as is evidenced by the church of the *Santo Sepolcro* at Pisa, anciently belonging to the order.

Round churches seem, from the scanty remains and still more scanty descriptions, to have been common in Scandinavia. An obvious conjecture would be, that the type was borrowed from Byzantium, through the medium of Russia; but from the only example of which we possess a delineation, namely, the round church at Soroe, we are certain that they are exactly in the Romanesque style of Western Europe. Soroe is a circular building, with a chancel; the arches which connect the columns are of the usual semicircular form. There is a similar church at Thorsager (the Field of Thor) in Jutland, and four in Bornholm. Greenland displays the foundations of similar round structures, erected by the extinct Scandinavian colony. A very remarkable building at Newport, in Rhode Island, is now supposed to be the remains of a church erected by the Scandinavian discoverers of Vinland, whose further progress in the new continent was so mysteriously withheld. The structure, as it now stands, consists of a circular colonnade; the pillars being connected with circular arches. Without entering into discussion, which could not be satisfactory unless accompanied by accurate drawings, as well as a survey of the style of masonry, which *alone* could decide the question, it appears to us, on the face of the engravings published by the Copenhagen Antiquarian Society ('Mémoires de la Société Royale des Antiquaires du Nord,' 1840—1843), to be entirely dissimilar to any structure which we can imagine to have been raised by the pilgrim fathers of New England.

Whatever exaggerated extension may have been given to the principle of symbolism, it is nevertheless quite clear that this species of allegory, suggested by Scripture, did prevail in the primitive Christian structures. Thus we have seen that the Church of the Holy Sepulchre was supported by twelve pillars and lighted by twelve lamps. There were also twelve pillars in the adjoining Church of the Resurrection, upon which twelve lamps were placed, or suspended, in honour of the twelve apostles. From some analogy, not so easily perceptible, the octagon form was considered as peculiarly applicable to the baptistery:—

'Octochorum sanctos templum surrexit in usus:
Octogonus fons est munere dignus eo.
Hoc numero decuit sacra Baptismatis aulam
Surgere, quo populis vera salus redüt.'

And the octagon—the outer walls being often converted into a circle—constitutes the germ of those buildings so characteristic of the ecclesiastical architecture of Italy—we mean the detached baptisteries."

After describing the baptistery of *San Giovanni Laterano*, the writer continues:—

"We now approach the Gothic age. In Italy, the custom of considering the cathedral, for many purposes, as the sole parish-church, continued unaltered; and with the one parish, the one baptistery. Whilst, therefore, the main type of the baptistery was retained with religious fidelity, still the accident of locality, or the influence of individual genius, or caprice, occasioned several marked varieties. Parma thus possesses a splendid baptistery of a very singular character. Mr. Knight's engraving (vol. ii., plate xxiii.) gives an accurate representation of the exterior of this edifice; the interior, from its peculiar complexity, as well as from the height and proportions of the building, would almost defy the artist's skill. It was completed, except as to the vaulting, between 1196 and 1216, from the designs of Antelmi. The exterior is an octagon, but within it offers sixteen sides, formed by working in the thickness of the wall. The details of the architecture are very remarkable: for whilst the general forms are Romanesque, you observe, as it were, a species of inroad of Gothic taste, which preponderates in the upper tier of arches by which the exterior is surrounded. The portals below are Romanesque, of a fine character; whilst in the intermediate stories there are Gothic pillars, connected by architraves, upon what may be called the classical principle, though wholly without the classical form.

The detached baptistery continued peculiar to Italy, and perhaps hardly any example can be found beyond the Alps, except in our own island. Elgin furnishes the solitary instance where the octagon baptistery, in the most graceful Gothic style, groups with the cathedral, whose deformed and neglected ruins relate the calamities which the church of Scotland has sustained.

Whatever beauty the circular form may possess, it is, taken singly and simply, most unfit for the Christian liturgy: and whatever interpolations are made, detract from the simplicity

and unity from whence its charm arises, without rendering it appropriate for the service of the altar. Hence it never became a favourite in the west. Though the circular is unsuited in itself for a Christian church, yet if employed as a *part* of the plan, and connected with other members, it is susceptible of the highest excellence. Great difficulties, however, attend its application: the Byzantine architects may claim the merit of first attempting to work the problem, never entirely solved until Wren's transcendant talent raised our metropolitan cathedral:—

'An entirely new form for churches was, at an early period, introduced at Constantinople. The oblong was shortened into a square, with a view to the noble addition of the dome, which the Byzantine architects had now learnt how to support. This plan, especially after the creation of St. Sophia, became a favourite in the east, and was adhered to, in those parts, with the greater tenacity, in consequence of the schism which subsequently took place between the Pope of Rome and the Patriarch of Constantinople. There was to be a difference in every thing. The Greeks insisted upon the square form of their own inventions, whilst all the nations who continued to acknowledge the supremacy of the pope continued to employ the long form, which was persevered in at Rome.

'The Greek plan was, in course of time, introduced into Italy by the Greeks themselves, in such parts of that country as remained in the hands of the Greek Emperor, and in the north by the Venetians.'—*Intr.*, p. iii.

Mr. Knight's observations with regard to the antagonism of the eastern and the western churches, are entirely correct. Except when favoured by peculiar political relations, it is remarkable how little influence was exerted in Italy by Byzantine art. Ravenna and Venice are almost the only localities where we may trace any decided imitation of the type of Constantinople. Indeed, there was little to be gained. Deduct mere barbaric splendour — barbaric, perhaps, in the truest meaning of the word— and there is a spirit, genius, energy, in the rudest churches of Latin Christendom, wanting in the most sumptuous edifices of the Greeks. The very buildings reflect the characters of their respective communities. Nor is it less important to remark, how entirely uninfluential are the noblest works of art in eliciting a corresponding talent amongst those who are accustomed to behold them. To judge of the lessons which the productions of Phidias and Praxiteles imparted to the Byzantine artists, look at the 'tre ladri,' the group inserted in the angle of the church of St. Mark! Had it not been for later interpolations, San' Vitale, at Ravenna (plate ix.), would have been the most perfect Italian specimen of the Byzantine type.

'This church was erected in 547, by Julianus, the treasurer, at the command and with the assistance of the Emperor Justinian.

The plan at once reveals its Eastern origen, and its affinity to that of St. Sophia, which had been erected at Constantinople a few years before. Instead of a Latin basilica, it is an octagon supporting a dome; not, however, unprovided with the addition of the indispensable absis. This plan must have come direct from Byzantium, and was the first appearance of the Byzantine style in Italy.

The chief architectural novelty and leading feature in this building is the dome. No vaulting of any kind had ever been hitherto employed in the roofs of churches, much less that most skilful and admired of all vaulting, the cupola, or dome; a mode of covering buildings perfectly well understood by the Romans, but discontinued as art declined, and, for the first time, reproduced by the Greek architects of Constantinople, in the instance of St. Sophia. If it is difficult to support the downward pressure and outward thrust of ordinary vaulting, how much more is required when the pressure has to be resisted at every point, and the circle above has, as is frequently the case, to be connected with the square below! This was accomplished, in the construction of St. Sophia, by means of what are technically called *pendentives;* brackets, on a large scale, projecting from the walls at the angles, and carried up to the base of the dome. At San Vitale, which is not a square, but an octagon, a series of small arches is employed, instead of pendentives, but acting upon the same principle. By this expedient the dome is united to the body of the edifice. The thrust has then to be resisted by the thickness of the walls; and the downward pressure to be supported by arches and piers. In most cases the pendentives are exposed to view; but at San Vitale the mechanical contrivances are concealed by a ceiling. It was always an object to diminish the weight of the dome; and, with this view, materials of the lightest kind were employed in its construction. Sometimes a sort of pumice-stone was used. At San Vitale the dome is composed of a spiral line of earthen vessels, inserted into each other; and where the lateral thrust ceases, and the vertical pressure begins, larger jars are introduced in an upright position.'

A long interval elapses before Byzantine architecture reappears in Italy; for once only, but with expiring splendour:—

'The plan of St. Mark's, like that of Santa Sophia is a Greek cross, with the addition of spacious porticos. The centre of the building is covered with a dome, and over the centre of each of the arms of the cross, rises a smaller cupola. All the remaining parts of the building are covered with vaults, in constructing which the Greeks had become expert, and which are much to be preferred to the wooden roofs of the old basilicas.

Colonnades and round arches separate the nave from the aisles in each of the four compartments, and support galleries above. The capitals of the pillars imitate the Corinthian, and are free from the imagery which at that time abounded in other churches of Italy. It is computed that in the decoration of this building, without and within, above 500 pillars are employed. The pillars are all of marble, and were chiefly brought from Greece and other parts of the Levant. Whilst St. Mark's was building, every vessel that cleared out of Venice for the east was obliged to bring back pillars and marbles, for the work in which the republic took so general an interest.

The defect of the interior of St. Mark's is, that it is not sufficiently light. The windows are few in proportion to the size of the building. Rich, therefore, as the interior is, it is gloomy to a fault, in spite of the brilliant rays of a southern sun.'"

The reviewer then proceeds to investigate more closely the causes which rendered the plans of the heathen temple, and the sepulchral church, inconvenient or inappropriate for the general purposes of liturgical worship, and lead to the adoption of another type, more adapted to the Roman ritual.

FALL OF YARMOUTH SUSPENSION BRIDGE.

It is our painful duty this week to record the distruction of the suspension bridge at Yarmouth, accompanied by a scene of horror which baffles all description. This distressing and almost unprecendented calamity, involving the death of upwards of 100 persons, took place on Friday afternoon, the 2nd inst., and was occasioned by the breaking of one of the principal chains of the bridge, caused by the weight of an extraordinary number of persons being thrown on one side of the structure for the purpose of witnessing the absurd exhibition of a theatrical clown drawn by four geese in a washing-tub.

An inquest is now sitting on the bodies of the unfortunate sufferers, and doubtless competent persons will be examined touching the quality of the material of which the bridge was formed, as well as the mode adopted in its construction. The bridge was erected by the late Mr. Robert Cory in lieu of the ancient ferry across the Bure, of which he was possessed, and was opened on the 23rd of April, 1829. The chain on either side is attached to four pedestals or piers, also of iron, and fastened to abutment stones.

In April, 1844, in contemplation of increased traffic to the railway, in order to afford sufficient width for carriages to pass, a platform for foot passengers was erected *outside the bars on either side*, it being the intention of the proprietors, on completing an arrangement with the railway company, and obtaining an Act of Parliament, which has been applied for this session, to erect a new arched stone bridge.

It is to be hoped that Government will follow out the course they wisely adopted a few months since with respect to the accidents at Oldham and Northleach, and issue a commission of scientific and practical men, to investigate the character of the construction in all its bearings; and it is matter for consideration whether they should not forthwith appoint a permanent board of competent persons to inspect all such and similar constructions before they are opened to the public.

It is due to the architect under whose direction the bridge was originally erected to mention, that he was in no way connected with the recent enlargement. In a letter from that gentleman which we have seen, and (although not intended for publication), venture to quote, he says, "I have minutely examined the bridge and the broken fragments, and I find that the main chain broke near the pier, from *a flaw in the interior of the bar* of which it is composed, which no human eye could see or any foresight could enable any one to discover. The fracture did not occur at the parts where the greatest weight was, nor was the weight equal to what the bridge had often sustained.

We all know that the axle of a railway carriage has given way from a similar cause after having stood all tests that human ingenuity could apply, as likewise chain cables break from similar defects in the annealing or moulding of the iron."

HOUSES FOR THE LABOURING CLASSES.

The best means of improving the dwellings of the poorer classes of the population occupies at this time the attention of many. The effect of the residence on the habits, and of the habits on the morals, is beginning to be understood, and there is a very general desire abroad, in the words of the Duke of Norfolk, "to put the poor man's house in order." At Birkenhead, opposite Liverpool, where a town with docks, sewers, public grounds, and other far-sighted arrangements, is rising with singular rapidity, an experiment is being made which merits attention. By the operations going on, great numbers of workmen have been brought to the place who require dwellings. The Birkenhead Dock Company have viewed the matter broadly: they have taken into consideration not merely profit and loss, but the comfort of the inmates and the welfare of their neighbours, and the course they have adopted, as we learn from our contemporary, the *Spectator*, is as follows:—"They have found it a better economy to build large houses rather than cottages; they have adopted a plan prepared by Mr. Charles Evans Lang, of London; and the buildings are now in progress. The ground which they are to occupy lies between two of eight streets that meet in a circus, and may be described as a triangle; across which, from street to street, houses are erected in rows, with alleys between; there is a school-house at the apex of the triangle, and in the centre of the circus a handsome church. Each row resembles what in Scotland is called a 'land,'—a pile four stories high, comprising several distinct houses, each house having a public staircase communicating with the several 'flats' or stories; each flat divided into two separate dwelling-places. Each dwelling contains a 'living-room,' two bed-rooms, and a 'yard.' The living-room is capacious, and well-arranged for ventilation and comfort: on one side are the entrance-door and the door into the yard; on the next side, near to the entrance are the doors into the two bed-rooms; on the third side, opposite to the bed-room doors, is the window; and on the fourth side is the fire-place: nearly the half of the room, towards this fourth side, is left without any door or other opening, so that the hearth is removed from direct draughts. In this room there is a gas-pipe, for light. The 'yard' is a sort of scullery, but comprising the sink, coal-hole, dust-hole, &c.; in short, all the 'domestic offices,' packed into a very close space, but fitted with conveniences not always found even in the houses of the middle-classes. Up the whole height of the building is a shaft, with which pipes from each yard communicate; at the top is a cistern with a preparation for keeping it full, to the extent of 1,000 gallons of water; from which, independently of individual use, a stream can be at pleasure made to rush down the shaft, carrying away the *ejicienda* into the sewer, into which the shaft runs below. There is in

that respect the most complete means for securing tidiness, decency, and health. The independent run of water will be a guard against many of the evils even of individual negligence; but it is inconceivable that with such conveniences the humble tenants should not acquire the better habits that await on opportunity. At the top of the building is an 'airing flat,' in which all the families whose dwellings open into the common staircase will have the right to dry their clothes. There is, we believe, some means of regulating the temperature of the whole pile of buildings: at all events there are appliances to secure thorough ventilation; and the whole structure is fire-proof. The external aspect of these dwellings for the poor is handsome, and even imposing; in a style so ornate, as quite to relieve them from the aspect of alms-houses; to which, indeed, they bear no sort of resemblance. Now it is calculated that this kind of house-property will 'pay,' even as a commercial speculation: with all this convenience, salubrity, and comfort for the tenant, and let to him at the rent which he usually pays,—the landlord, too, settling all rates and other charges, so that the tenant will pay for the whole house, its gas-light, water, taxes, rates, and all, one fixed weekly charge,—with all these unwonted comforts and facilities, the tenant paying no more rent than he is used to pay for bad lodging elsewhere, the landlord will yet reap a profit of 8 or 10 per cent. on the capital invested. In the present instance, that is not the whole advantage derived by the landlords, the company; for they will find great immediate convenience in the concentration of their workpeople, and great benefit may be expected by all who have a stake in the town from the improved salubrity and the high character which these far-seeing plans must secure for it. The experiment may prove to the speculative builder, that he could provide for the humbler classes a very superior kind of accommodation at a profit to himself; it may teach those classes what they should obtain for their money."

At Liverpool, we observed a short time since a file of houses for the poor, several stories in height, called Kent-terrace, of which the upper stories were approached by means of a general balcony around the outside of each floor, with steps from the road at the two ends of the pile of buildings.

ARCHITECTURAL MEMS. FROM THE COUNTRY.

The first stone of the new church at Lynn was laid by the Bishop of Norwich last Saturday week. The design is by Mr. Salvin; the contractors are Messrs. Bennett and Son.——At Windsor Castle for several days past, between 30 and 40 carvers and gilders have been engaged in embellishing several of the private apartments occupied by her Majesty and Prince Albert when the court is residing there. Very extensive excavations have just been made on that portion of the north-terrace which is nearly opposite the George the Fourth Tower, for the purpose of forming large coal vaults, to communicate with the interior of the castle, so as to enable the coals to be delivered without, as at present, the waggons being driven across the quadrangle. After penetrating to the depth of between 20 and 30 feet, an immense passage, through which a portion of the drainage was conveyed from the castle, was discovered, leading, as it is supposed, to the river. In order to form a communication between the intended new coal vaults and the castle, it would be necessary to cut an opening through the main external wall—an operation which, it is supposed, if carried into effect, might not be unattended with some danger; consequently, a morning or two since, just after the labourers had arrived, an order suddenly reached them to discontinue the works for the present, and they have not been resumed.——At a special meeting of the committee of council of the Queen's Hospital, Birmingham, held a fortnight ago, it was resolved to erect additional buildings in connection with the hospital. A subscription was then entered into, the Reverend Dr. Warneford heading it by a donation of 500*l.* The intended new buildings will contain eight wards for the accomodation of 50 patients.——At Weymouth, a spot of ground has been selected, and a subscription opened, for erecting a building on an enlarged and improved scale, for an Eye Infirmary in St. Mary-street; very liberal donations have already been made, among which that of a lady, distinguished for her philanthropy, stands prominent, being for no less a sum than 400*l.*——Very extensive measures are being adopted by the inhabitants of Liverpool, towards improving the sanitary condition of their town. It has long been a disgrace to the corporation, that while expending thousands upon the decoration of public buildings, they neglected those true and vital interests which do not meet the eye.——Several new church schools are about to be immediately commenced in the eastern districts of Leeds. Mr. Sugden, of Pontefract-lane, has given the site for one in the York-road, and Mr. Rhodes, of Farnley Hall, has given a donation of 200*l.* towards erecting a school in the Leylands.——Yesterday week, the Bishop of Ripon laid the first stone of a new church and schools, for the newly formed district of St. Andrew, East Moor, Wakefield.——The government has purchased the lands of Broomhill, near Glasgow, for the erection of cavalry and infantry barracks. The price paid for the property is said to amount to nearly 30,000*l.*——A pedestal 14 feet in height, surmounted by a bust of Sir Walter Scott, has recently been erected at Perth.——James Foster, Esq., has signified his intention of giving the sum of 500*l.* towards the erection of an hospital in the neighbourhood of Stourbridge, and an annual subscription of 50*l.*——There are about forty new cemeteries projected at present in Scotland.——The committee appointed for the purpose of raising funds for the establishment of public walks and baths in Leeds, have determined upon holding during the present month a public exhibition of works of art, models of machinery, specimens of natural history, &c., and with this view they have issued a circular calling upon those who are friendly to the undertaking and capable of assisting, to lend them, for a period not exceeding three months, articles suited for such an exhibition.——Yesterday fortnight, St. Mark's Church, at Swindon, was consecrated by the Bishop of Gloucester, who took occasion to say that he had entered upon the ceremony with heartfelt gratification, from the peculiarly singular and novel circumstance connected with it, that this was the first church which was purely of railway origin.——At a recent meeting of the Ripon Diocesan Board of Education, an inspection took place of the plans, specifications, and estimates of the proposed new Training Schools, which had been prepared by Mr. Andrews, of York, and subsequently submitted to and approved of by Mr. Railton, of London. The committee having carefully considered the same, determined upon appointing an efficient clerk of the works to superintend their erection, and, with a view to invite public competition, to advertise as publicly as possible for tenders. The cost of the erection was estimated at 8,000*l.*, exclusive of 1,250*l.* for the site.——At a meeting of the Ipswich corporation, held last week, Mr. J. L. Clark, architect, proposed to fit up an apartment as a commercial news-room, for the reception of publications and for the transacting of business connected with the port, entirely at his own expense. The Mayor said this was a very spirited offer on the part of Mr. Clark, and he was deserving of the encouragement of the council, and of the patronage of the public. He hoped the council would permit Mr. Clark to have the apartment he required, for a year, at a pepper-corn rent.——The Sheffield and Manchester Railway is fast approaching completion. From the last report it appears that it will be opened during the approaching July. In the engineering department, conducted by Mr. A. S. Jee, under the consulting superintendence of Mr. Locke, there are features of considerable boldness. The viaduct over the vale of the Etheron is of three arches, of 150 and 130 feet span, supported by stone piers, built on rock, and 130 feet in height. The next work of magnitude is the viaduct across Dinting Vale, near Glossop, of five arches, each 125 feet span, and length 500 yards. It crosses the vale at a height of 125 feet. The greatest work on the line is the tunnel at Woodhead, running through three miles of mountainous country, at a depth of 600 feet. The great difficulties encountered in its construction have tended to retard its completion; more than four-fifths of the whole is now arched, and the remainder has a drifting through it.——The Educational Board, in connection with the Diocese of Ely, held a meeting last week, at which it was announced that the new schools at St. Ives, towards the erection of which the committee had granted 100*l.*, were nearly completed, and would be soon opened. The school at Stilton, which has been delayed for some months, in consequence of a difficulty respecting the site, was reported to be in course of erection. Applications were made by the Rev. Yates Fosbrooke for a grant towards the erection of a schoolmistress's dwelling-house at Hurst, to meet a liberal donation on the part of the Lord of the Manor; and by the Rev. H. Randolph for an additional grant for Abbotsley schools.

PROCEEDINGS AT ST. PAUL'S CATHEDRAL.

Sir,—It was with feelings of deep regret I perceived that the stone-work under the western portico of St. Paul's Cathedral was being besmeared with paint, and I hope, by making it generally known through your widely-circulated journal, to cause some person in authority to remonstrate with the dean and chapter, or to bring it under the notice of their architect, Mr. Cockerell, so that we may not have its ornaments filled up with putty, nor its stone-work reduced to one monotonous tint of rusty yellow.

It is painful on entering this cathedral to have those feelings aroused which it was founded to repress; but its dusty monuments, its whited walls, the insolence of its vergers, and the careless way in which the service is performed, make us look to the dean and chapter, whom we find, instead of emulating the deeds of their ancestors, resolutely opposing every effort, however noble or disinterested, which has been made to embellish or beautify this sacred structure, whilst they have concurred with every measure to spoil or desecrate it; and there is not a single instance of any attempt on their part to carry out the intentions of its illustrious architect, nor even to uphold it in its pristine integrity. The opportunity of adorning it with paintings was lost when it was nobly and patriotically offered, and at a time when it might have been executed with the greatest ability, its stone-work, so beautiful and so free from stain, was covered with whitewash, and is now hideously blackened and disfigured. And had not the public outcry caused those Brobdignagian braziers to be removed whose pipes deformed its windows, another coat of whitewash would have been applied, so that while they are redeeming ornaments with penknives by inches, they are covering up cunning work, infinitely more beautiful, by acres.

Though the bequests of Sir C. Wren, and other pious persons, have never been applied to enriching the dome with mosaic, filling the windows with stained-glass, nor to finish the altar with marble, with brass, and with gold, let them not mar the beauty of its exterior with paint, nor spoil the delicate beauty of those ornaments which the tooth of time has scarcely impressed; let them not endeavour to honour their sovereign by dishonouring the temple of their God: let them make some little effort to prevent the desecration or decay of that structure which was built for the promulgation of the truths of His religion. One of the first bishops spent his whole fortune in erecting the former edifice. His successors enjoy the lands and the revenues, but leave the sacred edifice to the tender mercies of the painter, the whitewasher, and the putty-man. And I would appeal to the public also and ask who has a heart so void of feeling, or who has an eye so dull, as not to have been struck with its sublimity? or on passing its sacred threshold, whose soul has not been elevated to the praise of that Deity whose mercy, like the glow of the sun-beam, is revealed by the smiling face of Nature, whose power is charactered in flame by the lightning, and thundered by the billows of the deep. Let him, then, strive to save from defilement this glorious achievement of art—this crown of our city—this monument of the wisdom of our countryman, bestowed on him by God for his own praise!

I am, Sir, your obedient Servant,
G. A. J.

Trinity-square, 5th May, 1845.

SIR ROBERT PEEL'S PORTRAIT-GALLERY AT DRAYTON MANOR.*



(DESIGNED BY MR. SYDNEY SMIRKE, F.S.A.)

ON THE HAGIOSCOPE AND OTHER PARTS OF ALDERTON CHURCH, WILTS.

BY JAMES THOMSON, M.R.I.A.

It is remarkable that there should exist no early historical record of Alderton Church, Wilts, as there are strong indications that it must have been one of the most ancient ecclesiastical structures to be met with in an English *village*.

I say *village* because I would not venture to extend my observation beyond that limit. I use it in contradistinction to those which exist in towns and cities, where it frequently happens that erections are made of a more massive and enduring character than are to be found in villages.

With respect to the village in which it is situate, I beg to quote the words of our justly celebrated antiquary, John Britton, who in his "Beauties of England and Wales," published A.D. 1814, thus refers to it:*

"Alderton, or Aldrington, is a village and parish situated to the westward of the Fosse-way,† on the confines of this county with Gloucestershire.

According to the Parliament returns of 1811, the parish contained twenty-nine houses and 153 inhabitants. This manor belonged for upwards of three hundred years to the family of the *Gores*, several of whom were knights or persons of distinction. The old manor-house, *which is still standing*,‡ is situated to the north of the village church, and is now the property of a family named Hedges.

Thomas Gore, an antiquary, and a political writer of considerable note in the seventeenth century, was born at the manor-house of this village, in the year 1631, and received the early part of his education at Tetbury, in Gloucestershire. In 1647 he removed to Magdalen College, Oxford, and afterwards went to London, and entered himself a member of the society of Lincoln's Inn. He soon, however, quitted the metropolis, and retired to his patrimonial estate at Alderton, where he followed the bent of his inclination by devoting his attention to the study of *antiquities and heraldry*. In the latter branch of knowledge, indeed, he became one of the greatest proficients of his age, and published several works on the subject written in Latin. Among these was 'A Catalogue of the Writers on Heraldry, with a Prefatory Discourse of Arms and Armoury,' which was first published in London in 1668, and again at Oxford in 1674. Mr. Gore, being considered a man of talent, influence, and property, was nominated high sheriff of his native county for

* See p. 217, in present No.

* Vol. xv., p. 2.

† This Fosse-way is one of the Roman roads which pass through Wiltshire, being a branch of the *Julia Strata*, extending from Beckford, is continued through Bannerdown, Easton Grey, across the turnpike-road between Tetbury and Malmesbury to Cirencester.

‡ That was in 1814; it is now entirely gone.

the year 1680, and filled that station with great respectability, and with the most scrupulous regard to the just execution of its duties. The times, however, in which he lived, had been too boisterous to be assuaged in the short period which had intervened from the era of the Restoration, especially under a monarch so regardless of public opinion as Charles II.

Mr. Gore was censured by many of the county gentlemen for want of loyalty, because his conduct in office was directed by moderation towards those of the republican or Whig faction. This reproach induced him to vindicate his principles and character in a work entitled "Loyalty Displayed, and Falsehood Unmasked," published at London in 1681. After that he scarcely survived three years, having departed this life at Alderton, in March, 1684, where he was buried among his ancestors in the parish church. He left behind him a variety of MS. compositions relative to heraldry, and considerable collections on the antiquities of Wilts."

This brings me to speak of the church itself, which is dedicated to St. Giles, of whom, according to MSS. in the British Museum, it is said that St. Giles was an abbot of the 8th century, and mentioned in the Anglican Kalendar, as by birth an Athenian of noble extraction, called in Latin Ægidius, who visited France in 715, where he remained two years with Cæsarius, Bishop of Arles; that he lived in retirement as a hermit, and is said to have been nourished with the milk of a hind in the forest, and that the King of France discovered him in hunting by pursuing the chase of that hind to his hermitage, where it had sought for shelter at his feet.

The king afterwards built a monastery on the site of his hermitage, and made him an abbot. He died in his eightieth year, and was buried in his own abbey.*

In the Golden Legends, his emblems are a hind, with its head or its fore feet on his lap, and a branch of a tree sprouting before him, the thorny bush not to be penetrated. And in Callcott's Images the hind is by his side, and an arrow has pierced the hermit in his thigh.

Now, there seems much probability that this church (and doubtless several others), was founded soon after the canonization of St. Giles, say about the 9th or 10th century, when the history and merits of the saint were yet fresh in the minds of those whose occupation it was to do honour to his name. I am led to this conclusion by several authorities. We have seen that the saint was a resident of Arles, in France, between which place and England there had been frequent intercourse from even a much earlier period than I have mentioned.

It is recorded in another work, also edited by Mr. Britton,† that so early as A.D. 314, at the synod of Arles, three British bishops attended, viz., Ivor, or Eberus of York, Restitutius of London, and Adelphius, or Gourleon, and at a later period, but still earlier than the date I have referred to, viz., in the 7th century, it appears that the monasteries, both of Malmsbury and Gloucester,‡ existed. It is therefore not too much to imagine, from its local position being not more than 10 or 12 miles from Malmsbury, and the existence of its Norman porch, that this was an early outpost of those Christian missionaries.§

The porch consists of two slender columns, nearly but not quite disengaged from the jambs of the door; they have capitals formed as in imitation of the stems of trees, just at the point where the limbs branch off, terminating in a square and filleted abacus. These columns support a semi-circular arch having very beautiful moulded chevron or zig-zag ornaments interwoven at right angles with each other. This brings me to explain the general features and condition of the church as it appeared in the spring of 1843, and is shewn by the annexed plan. It then consisted of a nave, about 40 feet by 17 feet internally, aisle about

* St. Giles is esteemed the patron of cripples from his having to be cured of an accidental lameness, that he might be enabled to mortify himself more completely. September 1st is the day marked for the commemoration of this saint.

† "The Chronological History of Christian Architecture in England, London 1826," and quoted from "Stillingfleet's Origines Brittanica," and "Foules on the Origin and Purity of the Primitive Church of the British Isles."

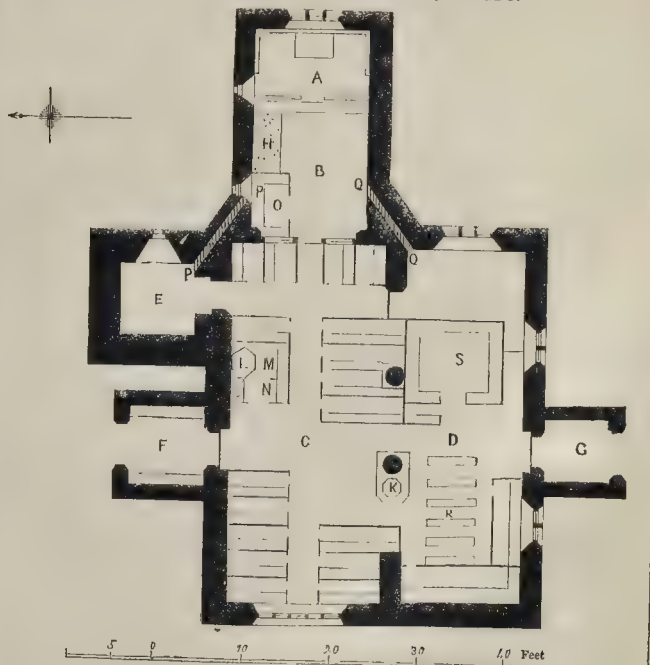
‡ See Fox, vol. i., p. 147. Monastery of Malmsbury, by Maldelphus, a Scot, about the year of our Lord, 640; Monastery of Gloucester, by Ulforus and Ethelred, brethren Aldelburga, an abbess, A.D. 679.

§ It still remains in the diocese of Gloucester.

EXTERIOR VIEW OF THE HAGIOSCOPE.



PLAN OF ALDERTON CHURCH, WILTS.



A	Communion-table.	E	Tower and Belfry.	K	Font. L Pulpit
B	Chancel.	F	North Porch.	M	Reading Desk.
C	Nave.	G	South Porch.	N	Clerk's Desk.
D	South Aisle.	H	Altar Tomb.	O	Clergyman's Pew.

PP	Hagioscope.
QQ	Hagioscope.
R	Childrens' Forms.
S	Churchwarden's Pew.

40 feet by 14 feet, a chancel about 22 feet by 13 feet, a square tower and a north and south porch.

The nave and aisle were, and still remain, divided by three early pointed arches resting on Saxon (or I should rather consider them Romanesque) pillars, having moulded caps and bases, but without carving, and the whole supporting a roof of solid oak, which also is still preserved. There were also windows of all dates, from the early cusped mullion down to the latest perpendicular.

The Chancel, to which I have more particularly devoted attention, was, I think, singular in some points, and curious in all. It had such a mixture of dilapidated dignity in its old features, and clumsy introduction of new ones, as to make one wish either that there were no such officials as churchwardens at all, or that they should be men of better minds.

The oak screen was not less remarkable for the strength and construction of its framework, than for the lightness and beauty of its carving. The massiveness of the *former* enabled it to withstand the effect of time or the rude hand of man; but of the finer parts only enough remained to indicate what it must *have been*, and enable the artist to develope them anew; some of these were found "used up" in other parts of the church "to patch a wall t' expel the winter's flaw." It consisted of three principal divisions, the two sides being divided into five compartments, each with moulded mullions, the lower ones inclosed with pannels, and the upper ones open and terminating in very beautiful tracery. The middle compartment had an old ledged door, borrowed apparently from some outhouse in the neighbourhood, for it did not even fit the place. It was fastened by a padlock, and served to secure the miserable appendages of the church. These compartments were surmounted by a very bold cornice, in the hollow of which a rich vine-leaf ornament, strung as it were together by a twining rope or cord, was introduced. The top was quite bare, but had a groove, and by chance I met with two or three pointed finials, the *tenoned* end of which upon trial was found to correspond with it.

I must not omit to mention a mistake into which I was likely to have been led by the ledged door just alluded to. It seemed very natural that a screen with a doorway should have a door, and I had proposed one to be made of corresponding character with the rest of the screen, and thought it worked out exceedingly fortunate, as it would just admit of three similar compartments: when I came, however, to examine how a door had been originally applied, I found not only that there had been no door, but that it had not been designed to have one, and that two grooves existed in the side posts, shewing that the head of this opening had also been finished by tracery, to which I subsequently found a sufficient clue. These grooves did not come down more than about 12 or 14 inches from the top, and there abruptly stopped.

I come, therefore, to the conclusion that this aperture, if it had any inclosure at all, had some kind of curtain. The chancel also contained some very interesting monuments of the *Gore* family, before mentioned, who once possessed the manor of Alderton. *One* of these deserves particular notice, and an *altar tomb* of more ancient date. This latter (probably of the 15th or 16th century) consists of a massive top having a moulded edge and supported by stone panels, divided into Gothic compartments, three of which have shields of an ancient character, attributed (from the hollow scoop on one side) to the time of the Crusades and Tournaments; and the only heraldic device being the chevron, traced in red colour across each shield.

The former monument has a sort of Elizabethan framework ornamented with angels' heads and other devices. Within this was an arched niche deeply recessed in the wall, and containing in alto-relief a figure in an attitude of earnest prayer before a table or altar supporting a book; but the figure was at the same time so gorgeously and quaintly dressed,

> "With nip, and snip, and cut, and slish, and slash,
> Like to a censer in a barber's shop,"

that one was at first inclined to smile at its inconsistency, especially as it was emblazoned in the colours of the rainbow.

I am, however, induced to believe that even this attempt of the sculptor, whoever he might be, reached what in our monumental works of this day is not always attained, viz. the comprehension of those to whom it was addressed.

It shewed first that the person referred to was one of rank and condition, and that his condition did not render him unmindful of his duty to his God! Some indeed might contend that this figure was not designed to represent the deceased person at all, but that of his surviving relative who was occupied in saying masses for the soul of the departed. I do not, however, think that was the case, and whether so or not it does not alter the general inference that the parties were not less *dignified* than *devout*.

But although the church retained these good memorials of bygone days, it was frightfully mutilated and disfigured by the miscalled improvements of later times. Thus, the chancel roof, which had been of fine old oak, with collar beams or arched ribs greatly decayed by neglect of the tiling, had for its substitute a lath and plaster ceiling flat over the whole. It was deemed of little consequence that the head of the east window was clean cut off, nor that a bulk head filled up the great chancel arch. For all this mischief the *amende* was held to be some new square deal tablets with "Batty Langly" mouldings, and surmounted by a solid heart all on fire!

There is something lamentably deserving of notice in this, viz. that the very iconoclastic spirit which led to the mutilation and defacing and destruction, as idolatrous, of what was at least refined in its character and imagery, had run into the grosser error of symbolizing the flame of divine love by so coarse and clumsy a device as this *

The mixed abuse and neglect of the chancel had naturally led to an equal malformation of the church: here and there would peep out a fine piece of old carved-work of various dates and styles, from the plain linen-pattern down to the most decorated English, but these for the most part were hacked and cut to pieces; while to the solid oak carved ends of the seats were hung dwarf ledged doors, exactly like those of the pig-styes in the village.

The south aisle was in a worse condition with respect to dilapidations; by the decay of the collar-beams, the roof had so bulged the walls by its lateral pressure, that but for the porch, which acted as a buttress, it would have long been a promiscuous *heap*.

In the nave was another indication of changeful times. The font had evidently stood at one time on the north side of the west pillar, thus presenting itself towards the chief door of entrance. This might be gleaned from the existence of a wrought-iron bracket, which had no doubt once suspended an ancient cover. The cover, however, at the time I speak of, was exactly like a copper lid, and the bracket was used to carry a common glazed street lamp to "light up" the church.

The feature of most "pomp and circumstance" was a large square family pew, I believe the churchwarden's: it was raised on a platform, with sides so lofty, that no one entering the church could know if any persons were there (even though it might be full), except at those parts of the service where all the people stand.

It may be here proper to remark, that after scraping off the many coated whitewash, there was an appearance of coloured bordering round the arches (not fresco), but a sort of Roman ochre, exhibiting that scroll, the origin of which has been said to designate the waters, from its resemblance to the motion of waves.

And here, with respect to symbols, and ornament, and devices;—surely the suitable adornings of the church are not less incumbent on us than the bare erection of the walls. So long as we do not rest in them as objects of any vital and saving importance, they may be simply an outward act of the inward grace which prompts the building of a temple to religion. We all know the rebuke which King David received for presuming to erect a temple at all; but nevertheless we learn that his son, Solomon, was permitted to build a "house that was magnificent;" and that the temple where the apostles Peter and Paul deigned to enter and preach had its "beautiful gate."

But, not to multiply instances, which, indeed, would be endless, to shew how proper it is that a church should be *suitably adorned*. I would quote an expression of one of our English poets, who says, —

> "How lost to piety and virtue they,
> Who with superfluous pageantry and pomp,
> Adorn their mansions and
> Neglect their God's!"

The most important marks of the antiquity of this church have yet to be noticed, viz., the formation of a *hagioscope*,* of which it may not be superfluous (as it is comparatively a new, or revived term in ecclesiology), to offer some prefatory remarks.

In one of the works published by the Cambridge Camden Society, and which has had very general circulation, the word is thus explained:—"By this term is meant those singular and not uncommon apertures which were made through the different parts of the interior walls of a church, generally on *one* or *both* sides of the chancel arch, as at *St. Sepulchre's*, in order that the worshippers in the aisles might be able to see '*the elevation of the host*.'

The term in general use is "*squint*;" that used by some ecclesiologists "loricula;" the former is every way objectionable, and the latter unmeaning; and also *elevation aperture* was sometimes substituted.

These apertures were usually oblong slits in the chancel wall, opening obliquely into an aisle or chantry; at Tilbrook, Beds, is an example of a chantry piscina, serving also for a hagioscope, as there likewise is at Castle Rising, in Norfolk, and at St. Mary's, Guildford, a benatura was thus used. Standground, in Huntingdonshire, has a hagioscope on both sides of the chancel.

In early Norman churches, their place is sometimes supplied by a small one on each side of the chancel aisle, &c."

I think it is due to the rival societies of Oxford and Cambridge, whether they continue to be, or cease to be, to admit that they have *done much good*, in their generation, and that to their efforts may be greatly attributed the revival of our ecclesiastical architecture. They have brought to light much valuable material, and possibly having done so (seeing that would not be in their province, nor, I may add, legitimately in their power to adopt them), they may be content with the good they have achieved, and rely upon the just appreciation of their labours both by the profession and by the country.

To return to the subject of the apertures in question, which are marked on the plan, I would observe that they correspond as to their situation and direction with the examples alluded to by the Camden Society, viz., that they were squints in each side of the chancel arch, cut in an angular direction towards the high altar; but as it appears (to me) rather formed for hearing than seeing; as although their exterior was bulky, as you will perceive by the annexed engraving of the interior, at the time I speak of, was not more than 12 or 14 inches square. It is true they might have been filled up, and indeed one of them was filled up entirely. They also differ from any example I have yet heard of, in this, that they are cut so entirely through the walls of the chancel, that it became necessary to corbel out for them, and cover them over with a tiled roof. Moreover, they intersected the splayed jamb of the lancet window on one side, and on the other obliged it to be walled up. Indeed, much of these were not known to many to have existed, owing to the general decay of the church, and that it was thickly covered with ivy in many of these parts. The best interpretation that I have been able to come at is one for which I am indebted to a passing remark the other day of Mr. Scoles, and which has reminded me of other facts that serve to corroborate his opinion.

He said, with reference to these apertures, that there might have been side altars at the end of the aisle or aisles (and I believe it is in this day not uncommon in Catholic churches to have squints of that kind). Mr. Pugin, in one of his works, published 1843, exhibits such a one at St. Giles's, Cheadle).

* As this is not the place for expressing theological opinions, I would simply remark what I have somewhere read, "that be the shade of Christian faith what it may, it rarely happens that the religion is in fault, but the errors which the minds of men engraft upon it."

* Hagioscope, from the Greek *hagios*, holy, *scopas*, to view.

This suggestion brought to my recollection that the stone floor of the church at that end was considerably elevated, I should say more than a foot above the common level of the church,* and indeed which ever way you passed round the end of the south aisle, you had to step up or step down at opposite ends.

To return to the north side, as the tower of the church is of much later date, it is more than probable that either a north aisle or transept and side chapel may have also existed there, and thus we get a probable solution of the whole matter. It may be also mentioned, as identifying the object of the aperture, that in one of them was found (and I happened to be present at the time) the clapper of a little bell, most probably the *sancte* bell, which is rung on elevating the host, and that no more should be found than the clapper may be accounted for by the probability that the bell itself was a silver one.

Now several curious inferences may be drawn from these facts; first, that the introduction of these apertures must have been at a very early date, and secondly, that the walls of the chancel must have been of one still more so. For if it had been considered that such apertures were necessary at the time of its original erection, they would have been better provided for, and the lancet windows would not have been placed in such a situation.

On the whole, I come therefore to the conclusion (as I ventured to say in the commencement of this paper) that taking into consideration the many features it contained, and some of which are still preserved, especially its Saxon pillars and its Norman doorway; its fine massive oak roof, and the existence of these curious apertures; its approximation to the old Roman road, and its relations to the abbeys of Malmsbury and Gloucester, it must have been one of the most ancient structures to be met with in a retired rural district.

A few words are due, by way of explanation, for the parts of this church which have been necessarily removed in the recent repairs, as well as those which are preserved.

Of the former, especially the hagioscope, on one side a new chantry has been thrown out for the better accommodation of parishioners, and on the other a small turret leading to the belfry. Still the mouths of one of those apertures has been preserved, and, as I have before said, most of the ancient features. Of those which have been renewed I may also add, that they have been done in the most durable and substantial manner at the sole cost of a gentleman whom we have the honour to number amongst the members of the Institute, I mean Mr. Neeld, M.P.: indeed, I think it is due to him to say, that in the restoration of his church, he has spared no expense to render it complete as an example of its kind; and that whatever faults it may have, they neither arise from any arbitrary rule in the proprietor, or restricted means: the only condition he imposed was, that it was not to be forgotten that it was a *village church*.

Even the parts which were too dilapidated to be repaired, but to which their time-worn features gave value, he allowed to be preserved by the erection of a *rustic school-house*, in which they would be introduced; so that even for years to come they may (within a few yards of their former destination) be identified by the olden features of the village church.

New Episcopal Church in Connection with the Sailor's Home.—At a public meeting held at Crosby-hall on the 30th ult., the Earl of Haddington in the chair, it was resolved that a subscription be entered into for the purpose of erecting and endowing, under Christ, a church with free sittings for seamen frequenting the port of London. Captain Sir Edward Parry, R.N., expressed a hope that the example which they were about to set would have the effect of inducing other churches to be built in every port throughout this great maritime country. Before the meeting separated subscriptions were announced amounting to nearly 1,700*l.* Measures have already been taken for securing a site for the proposed church in the new street now forming in the vicinity of the London and St. Katharine's Docks.

* So little care had been taken about the level when it was applied to a different purpose, viz., burial vaults, that when it became necessary to have an even floor throughout the church, we had some difficulty to clear the crown arch of the door.

THE DISTRICT SURVEYORS.

Sir,—I think your correspondent who signs himself "A Subscriber from the First" is rather too severe upon the new district surveyors. I am living in one of the new Kensington districts, in a row of houses built about fifty years since, and which have the party-walls certainly not more than nine inches thick, if so much. My next door neighbour, an old lady, who has nothing on earth to do, has been amusing herself lately by having the interior of her house very extensively altered: the staircase has been removed, and turned, I believe, in another direction. Now, Mr. Editor, for several days (within the last fortnight) her workmen were knocking at or into the party-wall between us: through which besides the annoyance that resulted from the noise commencing early in the morning, my furniture had to be removed, and I was in momentary expectation of some of the wall tumbling in. Now, was the new district surveyor informed by the builder of these operations? *Oh no*, nor was there any thing in the vulgar form of a "barrow of bricks or mortar" placed outside the house, to inform any one of what was going on within. All the brick rubbish removed was carefully buried in the back garden, and the job was kept snug and comfortable. Before, therefore, a public meeting of the builders is called to consider the means of defending themselves from the arbitrary proceedings of the new district surveyors, I should recommend them to look at home, and to endeavour honestly and in a straightforward way to obey the new Act.

I am, Sir, &c.,

May 3rd. ⊙

Sir,—Having been employed to fix some zinc funnels upon the tops of chimneys above four feet high, I have complied with the Act in building two feet of brickwork round the same, but the district surveyors in two of the new districts, viz. Lewisham and Camden Town, are not satisfied unless they finger their fees; whereas none of the old surveyors have taken any notice of them.

The Act, I am sure was not made for the purpose of simply putting fees into the pockets of those gentlemen, but for the better protection of the public. I should feel obliged by your information as to how I am to act in the matter.

I am, Sir, &c.,

Josh. Bird.

Seymour-place, May 5th, 1845.

*** The district surveyors can claim a fee if they attend to see the chimney-pot fixed in accordance with the Act. The amount of the fee must be settled by the referees with the consent of the Commissioners of Works and Buildings.

We have received intimation that the next meeting of the master carpenters will be held at the Freemasons' Tavern on Wednesday, the 21st, instead of the 28th, when the working of the New Buildings Act will be considered by the board, "especially the alteration of the Act by the referees in the permission to *over sail* in extending the *width* of *chimney-breasts*, and in the fees to the district surveyors as to smoke-pipes and chimney-tubes; also as to the operation of the New Act in the price for party and party fence-walls if built 'previous to the present Act coming into operation."

We suspect the board are wrong in considering that the referees have made any *alteration* in the Act as to over-sailing to increase the width of chimney-breasts. See our last number, p. 205.

Projections from Buildings Commenced Before January Last.—We have the particulars before us of proceedings relative to a bow from a house built before the 1st of January, which the district surveyor for Lewisham, in the face of common sense and the published award of the official referees in precisely similar cases, has thought proper to take. The matter has been heard by the referees, but as they have not yet made an award, we withhold comment for the present.

Hungerford Bridge.—It is stated that 20,000 persons paid toll between the hours of 12 and 1 on the day the bridge was opened. The directors and others dined together in the evening.

REASONS FOR THE REPEAL OF THE WINDOW TAX.

The committee deputed by the metropolitan parishes to collect information on the subject of this obnoxious, injurious, and unjust tax, with a view to its repeal, have published a very able report. After commenting on the tone of the late debate on the subject in the House of Commons, the total absence of any attempt at argument in favour of the tax, the unanswerable exposure of its pernicious effects and its incredible inequality, the report proceeds:—

It is unnecessary to do more than simply direct attention to the innumerable evils affecting the moral and physical condition of society, which originate in the imposition of this cruel tax. A tax on the light of heaven, and on the air we breathe, denounces itself in terms too strong for aggravation, too precise to admit of dispute. But if any confirmation of the appalling mass of human misery which it involves were needed, it is to be found, repeated again and again, in its minutest details, in the reports of sanatory commissions, and in the evidence of statistical inquirers, medical practitioners, and ministers of the Gospel; all bearing concurrent testimony against this crying iniquity. Disease, pestilence, and untimely death; moral contamination, and a consequent large amount of crime, are among the results directly traced by these incontrovertible witnesses from the penalties unwisely imposed by the Legislature on the free enjoyment of light and air.

To what motive then are we to attribute the continuance of a tax so incontestibly noxious in its effects? Grieved, indeed, should we be, to be compelled to believe that it is maintained for no other reason than this—that while it presses on the poor mechanic and the humble tradesman, with a crushing preponderance, the scale under which it is collected is so arranged as to fall lightly on the rich, and scarcely to be felt by the opulent classes of society. Yet, if the tax be continued after the late debate, in which these facts were proved beyond all possibility of doubt or denial, to what other conclusion can we come than that all its monstrous evils are inflicted for the very sake of this unequal pressure on the lower and middle classes, while the upper are purposely relieved by it from bearing their just share of the obnoxious burthen?

From the data afforded by the Government Tables it will be seen that while houses having 20 windows are charged at the rate of 6*s.* 2¼*d.*, and houses having 39 at the rate of 7*s.* 8*d.*, houses having 180 are charged only at the rate of 5*s.* 6¼*d.* 283 at the rate of only 4*s.* 2*d.*, and 500 at the rate of only 2*s.* 7*d.* per window. But this is taking a very superficial view of the subject, a deeper investigation of which lays bare so enormous a disproportion as would scarcely be credited, if we were not prepared with undisputed and indisputable proofs of its reality. Unless it be the express object of the tax to exclude from our dwellings as far as possible the blessings of light and air, the only assignable purpose of taxing windows according to the above scale, is to be found in the assumption, that the value of houses increases in the proportion, and only in the proportion, of the scale up to thirty-nine windows, and in a much smaller proportion beyond that number. But so far is this from being the fact, that a very little investigation suffices to prove that the number of windows affords nothing like a definite criterion of the value of a house, either above or below the number of thirty-nine; but that so far as it can be applied, it is in houses containing a greater number of windows than that which is taken as the pivot of the scale, that the most rapid advance takes place in value in proportion to the additional number of windows they contain.

For the purpose of illustrating the gross, the almost inconceivable, inequality of the tax, we present the following table (drawn up from official sources), and confidently submit the justice and policy of the continuance of such a monstrous impost to the judgment of honest and reflecting men.

In this table, the *first column* shews the number of windows; the *second*, the money-rate at which they are assessed to the window-tax; the *third*, the annual value at which the several houses are assessed to the property-tax; and the *fourth*, the per centage on their value, as assessed to the property-tax, borne

by the amount which they pay to the window-duties.

	No. of Windows.	Taxes, 1845. Window Duties Assessed. £. s. d.	Rental Assessed to Property Tax. £.	Per Cent.
37, Chapel-street, Edgeware-rd.	18	5 4 9	24	21⅞
10, Upper Rathbone-place	20	6 3 5	35	22
81, Peter-street, Westminster .	27	9 8 1	35	26¼
6, Marylebone-court	14	3 7 11	27	12½
Francis Beesley, Plasterer, Lancaster-court	20	6 3 5	32	19¼
John Weston, Plasterer, Chapel-court	21	6 12 6	40	16½
T. Miller, Tailor, 30, Marylebone-lane	17	4 15 8	44	10⅔
31, Broad-street, Westminster..	25	8 9 8	40	21¼
8, Cross-street, Westminster..	29	10 6 9	45	23
12, Bulstrode-mews, rag and bottle shop	19	5 14 1	56	10⅔
6, Dufour's-place, Westminster	27	9 8 1	50	18½
5, Little Marylebone-street ..	23	7 11 3	50	15
2, Little Marylebone-street ..	24	8 0 3	55	14½
86, Poland-street, Westminster	28	9 17 4	63	15⅓
18, Poland-street, Westminster	35	13 2 0	80	16⅔
74, Great Portland-street	30	10 15 10	70	15⅔
72, Great Portland-street	26	8 19 0	100	9
27, Foley-place	32	11 14 9	126	9½
349, Oxford-street	12	2 9 2	148	1⅔
270, Regent-street	12	2 9 2	180	1⅓
50, Upper Marylebone-street ..	31	12 13 0	200	6¼
132, Oxford-street	17	4 15 8	230	2
133, Oxford-street	10	1 10 9	230	⅔
154, Regent-street	14	3 7 11	250	1⅔
116, Regent-street	22	7 1 10	315	2¼
234, Regent-street	20	6 3 5	335	1⅞
1, Mansfield-street, Portland-place, H. T. Hope, Esq. M.P.	90	29 5 5	690	4¼
Whitehall-gardens, Sir R. Peel, Bart., First Lord of the Treasury	72	24 6 9	700	3½
17, Portman-square, Duke of Newcastle.	62	21 17 6	700	3
1, Upper Berkeley-street, Montagu-house	96	30 10 2	750	4
33, Upper Grosvenor-street, Marquess of Westminster ..	125	37 5 1	1000	3¾
Privy Gardens, Duke of Buccleuch	132	39 15 4	1320	3
South Audley-street, Earl of Chesterfield	166	47 5 3	2000	2⅓
Duke of Beaufort	162	47 5 3	2000	2⅓
Apsley House, Duke of Wellington	129	37 5 1	2000	1⅔
20, Manchester-square, Hertford House	104	32 7 4	2000	1⅗
Carlton Club	105	32 7 4	1295	2½
Reform Club	281	59 13 0	2625	2¼

No audacity can justify, no sophistry can palliate, injustice so glaring, such an unequivocal sacrifice of the poorer to the wealthier classes, as are exhibited in this plain table of official facts. To add to its iniquity would seem impossible; but we are much mistaken if the following table, illustrative of the comparative amount of relief obtained by the rich and the poor occupiers of houses from the repeal of the house-tax, in preference to the window-duties (which took place in 1834), do not excite equally strong feelings of indignation in the minds of those who reflect by what class it is that taxes are imposed and repealed. If that class has any regard for common justice, any desire to remove the almost universal impression that it legislates solely for its own advantage, and without regard for the interests of the community at large, it will take the earliest opportunity of effacing from the statute book such a damning record as is here presented of the justice of the charge. Up to this time we may believe that they have legislated in ignorance; but the facts are now laid bare, the plea of ignorance will no longer avail, and the repeal of the window-tax is a debt which they owe to their own characters, if they wish to continue to be regarded and respected as men of honour and as men of principle."

	Taxes, 1833. Windows. £. s. d.	Houses. £. s. d.	Relieved by Repeal of House Tax to the amount of Per Cent.
RICH.			
The Earl of Chesterfield.....	42 17 9	283 6 8	664
The Marquess of Westminster	33 18 3	123 19 2	365
The Duke of Beaufort	42 17 9	170 17 0	398
The Duke of Wellington	33 18 3	262 1 8	772
Regent-street, new street built to evade tax.....	3 10 0	19 16 8	560
POOR.			
Francis Beesley, Plasterer, Lancaster-court	5 12 3	3 12 0	64
G. H. Haslewood, Little Stanhope-street	7 5 9	7 1 8	98
John Weston, Plasterer, Chapel-court	6 0 6	5 17 4	93
William Lee, Publican, 5, Pollen-street.....	5 3 9	3 18 9	75
Peter-street, St. James's Parish	8 11 0	3 18 9	46

INSTITUTION OF CIVIL ENGINEERS.

ATMOSPHERIC RAILWAYS.

April 29th.—The discussion on the atmospheric system of railways, which had occupied the attention of the Institution for the two previous evenings, was renewed by Mr. Bidder presenting a statement in a tabular form, from which he clearly deduced the tractive force which the atmospheric system was capable of exerting over a pipe of a mile in length, and by taking from this the losses consequent on the friction and gravity of the train, shewed that which was due to the resistance of the atmosphere, &c. His statements were proved by reference to the avowed experiments of Mr. Samuda. His investigations also enabled him to render conspicuous the loss arising from the friction of the air within the tube, which accounted satisfactorily for some apparent discrepancies in the acceleration of velocity of different trains over the mile at the end of the tube. His views on this point were confirmed by the experiments of Mr. C. H. Gregory, and those published in the report of M. Mallet. The discussion of the basis of the deductions, reported by Mr. Stephenson, was then disposed of with the decided and generally prevailing admission of its truth.

The commercial part of the question was then entered upon, and the case of the Norwich and Yarmouth Railway was quoted as one of the most simple character, and one which would be of frequent occurrence. It was shewn by facts and authenticated statements of first cost and expense of working, that if Mr. Samuda's estimate for the apparatus, as applied to the projected Croydon line, was diminished by half, or from 6,000*l.* to 3,000*l.* per mile, the mere interest of the outlay at 5 per cent. would amount to 10*l.* per mile per annum more than the present cost of locomotive power on the Norwich and Yarmouth line. It had been stated before the atmospheric committee of the House of Commons, that a much smaller apparatus could be constructed to do the work of this line. The fallacy of this assumption and the calculations were analysed and clearly exposed, inasmuch as it was shewn to be mechanically impossible for the contrivance to perform the amount of work for which it was designed, and that that work was not analogous to that which was required by the traffic of the Norwich and Yarmouth Railway, inasmuch as the bulk of the traffic was, of necessity, by particular trains, which rendered their weight about four times greater than had been estimated for.

The case of the necessity of a swing bridge of 100 feet opening for the passage of vessels, as at Yarmouth, was suggested as a mechanical problem upon which the adherents of the atmospheric system might be advantageously exercised.

On reverting to the loss arising from the friction of the air in the pipes, two of the principal mining engineers of England characterized it, from their experience in the ventilation of mines, as being of vital importance to the atmospheric system.

The speeds attained on the South Shields and the Newcastle and Carlisle Railways, with the usual number of stoppages, were given, and the deduction substantiated that a velocity of upwards of thirty miles per hour was attained within a distance of three-quarters of a mile from the starting point. Experiments were also quoted, shewing, 1st. That a locomotive train could be stopped in a shorter distance than the train on the atmospheric railway, the nett weight, speed, and number of brakesmen being identical; and, 2nd. That the engine and tender alone were stopped in one-fourth of the distance that the train alone was stopped. The main conveniences of the diminution of dust and noise in the case of the atmospheric system were incidentally alluded to, but were admitted not to be of great importance.

Light for all Nations.—Mr. William Bush has addressed a letter to the authorities at Lloyd's, in which he states that he has recommenced his arduous undertaking, by boring to ascertain the substrata of the Godwin Sands; and, at 50 feet beneath the platform, finds nothing but hard sand, nearly as solid as the rock itself. He appears confident of success.

New Books.

A Manual of Gothic Mouldings. By F. A. Paley, M.A., Hon. Sec. to the Cambridge Camden Society. London: Van Voorst. 1845.

This volume treats of the formation of mouldings, their gradual development, combinations and varieties, with directions for copying them. It is illustrated by nearly 500 examples, and will enable all who study it carefully to determine the dates of buildings with greater accuracy than by any other means. The subject is one of great interest, and, up to this time, only slightly investigated. As the author remarks in the introductory section:—

"No person can have devoted much time and pains to the investigation of Christian architecture, as it was practised in this country during the Middle Ages, without feeling the importance, and at the same time the difficulty, of acquiring an accurate knowledge of Mouldings. That certain conventional forms or details were in use at certain periods, and were uniformly adopted in the constructive decoration of all edifices, ecclesiastical and secular, throughout the length and breadth of the land, with varieties rather of combination or disposition, than of the component members, is an undoubted fact, well known to and admitted by all who have paid any attention to the subject. But whence these forms arose, whether from a natural process of gradual development, or from some esoteric principle of symbolical design; whether they originated in some real or pretended secret of freemasonry, or, lastly, in mere accident or caprice, are curious questions, which, so far as the author is aware, have never yet been made the subjects of much investigation. Again, how far the same forms were arbitrary or obligatory in ancient freemasonwork, how far they emanated from some particular source, and were dispensed by authority through the country, or were assumed by some tacit agreement on the part of the masons themselves, are equally interesting speculations, though, perhaps, equally difficult to determine. However this may have been, it is quite certain that a strict intercourse must have been kept up between the members of this body of artisans, or almost every ancient church would exhibit new and strange varieties in the details of its mouldings. When we consider the difficulty which then existed of constant and speedy communication between distant parts of the country, this general resemblance and uniformity, not only indeed in mouldings, but in all the parts and features of Church architecture, must appear still more surprising. There is in all these enough of licence and variety to make the knowledge of them a comprehensive and difficult study to us, and yet such evident resemblance and decided adherence to rule, as to convince us that some *system* must have been observed both in designing and executing them."

From the apparent extent of the inquiry, the want of a reduction to leading principles, it has been shirked by modern architects, and many works consequently exhibit in the mouldings most striking anachronisms and confusion of styles. We are disposed to think the book now before us will do much towards inducing a more careful investigation of the subject, and we recommend our readers not merely to buy it, but to study it carefully.

The necessity of *copying* mouldings in order to understand them is very properly urged, and the precautions to be observed in using the *lead tape* for that purpose, are pointed out. The practice of copying mouldings by the eye alone is of great importance; by practice the eye becomes familiar with the varieties, and in a very short time, a power of delineating with accuracy may be attained, which renders the student independent of mechanical aids, and enables him to proceed more rapidly than by any other means. The planes in which the mouldings lie, and the relative proportion of the parts are chief points to be observed.

"In considering any series of mouldings previously to copying them, the first point is to lay down on paper the various planes, that is, to ascertain the plan of the arch, or other feature, before the mouldings were cut. When this is done by accurate measurement, the rest of the process becomes comparatively easy, and the most complex and extensive combination, which it appears at first sight impossible to copy with any thing like accuracy, may be rea-

dily disentangled, analysed, and sketched with precision. Without attending to these facts, all attempts to do so will be futile.

It may be alleged as a general rule, that Early English mouldings lie on the planes rectangular; that Decorated, according to their kind, fall either on these, or on the chamfer-plane alone; and that Perpendicular mouldings almost always lie on the last. If some members seem to fall short of one plane, they will generally be found referable to some other; and if they fall on the segment of a circle, which is much more rarely the case, the inclination must be determined by bending a ruler or piece of lead across them."

A writer in the *English Review* for December, 1844, has the following remarks on the difference between Grecian and Gothic mouldings:—"Where the Grecian delighted in broad level surfaces, catching the light in masses, or in projecting curves on which it dies away by degrees into shadow, the Gothic roughened and encrusted them with carving. And thus in general we measure, or, if the expression may be used, we read and peruse a Grecian moulding by its lights, and the Gothic by its shadows." Again: "Of the differences between the two classes of moulding, some may be detected by a superficial view. For instance, the Grecian delights in convex lines, the Gothic in concave; the Grecian in broad lights, the Gothic in narrow. The Grecian throws out projections to catch the eye; the Gothic endeavours to bury it in deep recesses. The Grecian leads it gently along in sweeping, unbroken undulations; the Gothic fractures its lines, and combines them in angles and curves. The lights and shadows of the Grecian melt and slide insensibly into each other; those of the Gothic are planted together in strong and bold contrast. . . . . In the purest Grecian buildings, vertical mouldings are rare. Horizontal mouldings form the leading lines; and it is by these, even in later and degenerated specimens, that the vertical mouldings are regulated. In the Gothic, vertical mouldings are most frequent; and they overrule and determine those which are horizontal. And Grecian mouldings are simple and easily divisible into parts; Gothic are entangled in labyrinths, and perplexed with innumerable intricacies."

To the subject of Gothic mouldings, their developement and varieties, we shall shortly recur.

Correspondence.

DIFFERENCES IN BUILDERS' ESTIMATE.

SIR,—I take the liberty of forwarding to you the amounts of the tenders for a large hotel at Whitehaven, Cumberland, for the Earl of Lonsdale. The difference between the highest and lowest is most extraordinary. Mr. Nelson, one of the parties, is an architect and builder at Carlisle, and a person well acquainted with the place and prices, having built several large edifices in the town. I went down and made strict investigation as to every item, I had to price out, and assure you that I went very closely into the estimates for Messrs. Burton. How can you account for the difference, when all parties were furnished with the quantities by the architect, Mr. Carpenter?

Grimsdell	£26,795	0	0
Jay	26,327	0	0
Burton	21,473	0	0
Nelson (Carlisle)	21,021	0	0
Todhunter (Whitehaven)	20,743	14	4½
Blackstock and Co. (do.)	19,525	0	0
Grissell and Peto	18,860	0	0
Elger and Kelk	18,700	0	0
Rigby	17,926	0	0

Difference 8,869*l.*

I am, Sir, &c.

SEMPER IDEM.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

SIR,—The very liberal and impartial view you have taken of the dissensions which have unfortunately arisen in the Archæological Association, induces a belief that your columns are open to advocate an adjustment of their differences, which, it should be remembered, by the committee on both sides, have involved the whole body of members in their quarrel. Where are few lovers of the history of their own country who did not gladly hail the attempt to form a society having for its objects the promises their first prospectus held out, and a proportionate degree of disappointment, within a few months, to see the association threatened with dissolution. Not from want of objects for investigation, or money, or talent, but a mere difference of opinion amongst the members of the committee on a truly slight ground, the subject of which, as well as the consequences, are too well known to require repetition. The position of both sides is absolutely absurd, if not melancholy, when it is considered the bitter feeling that this really trifling cause has engendered in the lists, including some of the first spirits of the day, as well as reverend divines.

I would beg to suggest, to the latter more especially, the propriety, not to say duty, of offering their services in a spirit of conciliation to bring about a proper understanding, and I venture to predict, their endeavours towards an adjustment of their differences would be attended with good results. I am, Sir, &c.

P. A. X.

INTERCOLUMN AND INTERCOLUMNIATION.

SIR, — According to Nicholson, both the above terms convey a definite meaning. Intercolumn (from the Latin *inter*, between, and *columna*, a column) signifies the open *area* between two columns. Intercolumniation, the *distance* between columns, measured by their lower diameter.—I am, Sir, &c. N.

Miscellanea.

FALL OF A VIADUCT AT ASHTON. — We stated in our last impression, that an inquest was then sitting on the bodies of the unfortunate persons who were killed by the falling of nine arches in the Ashton branch Railway. At the request of the coroner, Mr. Samuel Holme, engineer and builder of Liverpool, in conjunction with Mr. Bellhouse, and Mr. Lee of Manchester, made an examination of the ground and works where the accident occurred, with the view of finding out the cause. In their report they state that on examining the plan they found the interior filled up with rubble stone mixed with scablings and brickbats negligently thrown in, without being regularly bedded, with mortar of a very inferior quality, all of which bore evidence of the slovenly execution of the works. The report, which was lengthy, concluded with the following declaration: — "We cannot close this painful examination without expressing our opinion that great blame has been incurred, and that this accident has taken place through the inferiority both of the material and the workmanship. We refer particularly to the construction of the piers. These were totally insufficient for sustaining the weight which had been placed vertically upon them. The pressure could only act on the exterior casing, for the interior did not in the slightest degree contribute to their strength, and would not have borne their own weight if the exterior casing had been removed from them. The want of binders also, to connect the two sides of the piers together, has been a most fatal error, and painful as it is to us, we are compelled to state that in our opinion, this accident would not have occurred had the works been executed in a proper manner." The jury returned a verdict of Accidental Death, accompanied by the unanimous expression of their opinion, that they considered the sole cause of the accident to arise from the insufficiency of the works and the inferiority of the material used, together with negligence of the men and the contractors, also that of the company's servants, and a request that the coroners would forward the evidence taken before them to the Lords of the Privy Council or the Board of Trade, with the view to the Government sending down some competent engineer to inspect the whole of the works prior to the line being opened to the public.

NAMES OF STREETS.—Monmouth-street, named after the unfortunate son of Charles the Second, so well known from its being the residence of the purveyors of second-hand habiliments, has had its name changed to Dudley-street. Petticoat-lane, at the East-end, has in a similar way been transferred to the more euphonious sound of Middlesex-street.

ATMOSPHERIC RAILWAYS.—The committee of the House of Commons appointed to inquire into the merits of the atmospheric system have reported favourably of it.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For taking down part of the present County Gaol of Lincoln, and erecting a New Building on the site thereof, with airing yards and other requisites.

For building a school-room in London near the bridges.

For the Masonry Work of several Viaducts and Bridges.

For the performance of the Works connected with the erecting of the new Pier at Penzance.

For the erection of the Borough Gaol, Birmingham.

For the erection of a Building in London for a highly-patronized purpose, at the estimated cost of about 30,000*l.*

For the supply of 20,000 slow-grown Larch Sleepers, wanted by the Manchester and Birmingham Railway.

For the necessary piling, excavating, and carting away of the soil, for the foundation of a New Warehouse for the Dock Company at Kingston-upon-Hull.

For the Alteration and Enlargement of the Union Workhouse at Whittlesey, in the neighbourhood of Huntingdon.

For the Erection of a Workhouse between Swindon and Highworth, Wiltshire.

For the performance of the necessary works in the construction of a New Dock in the Borough of Kingston-upon-Hull.

For repairing and keeping in repair for three years, from Midsummer-day next, the Cannon-street Road, Middlesex.

For the Erection of a Gentleman's Residence and Farmery attached, near the Shrivenham Station on the Great Western Railway.

For Erecting a Market-house at Malmesbury, Wiltshire.

For a quantity of *proof chain* 2½, 1½, 1, ¾, and ½ inch, wanted by the Universal Salvage Company.

COMPETITIONS.

Plans, sections, and elevations for a Terminus, and other requisite accompanying offices, for the Great Southern and Western Railway, Ireland.

A premium of 30 guineas will be presented to the party offering the best plan of Docks, capable of admitting ships of 1,000 tons burden, to be erected at Burnham, in the Bristol Channel.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

The timber and other trees now standing upon the estate at Woodseaves, Salop. By order of the Lord Chancellor made in the cause "Dickin *v.* Barker."

At Mitchell's Farm, near Saffron Walden. A fall of 68 famous Oak, and six Ash timber trees with the top wood.

At Wiston Woods, near Nayland, Essex: all the Timber, Timber-like Trees and Saplings (consisting of Oak, Ash, Elm, Asp, Birch, and Cherry) arising from the Wood of 13 Acres called "Hills."

At Kersey, near Hadleigh, Essex: 130 Capital Oak Timber Trees, 70 Oak Standels, and about 30 Pollards, lying on "The Ivy-tree Farm."

TO CORRESPONDENTS.

"J. J. B."—*We are unable to insert the letter as it has no public interest. The advertisement shall of course appear if still desired.*

"J. W. A."—*We quite agree with his second note.*

"E. J. N. S.," *is thanked for the sketch. We will take an opportunity to look at the house.*

"C. K."— *We could not assist our correspondent in his desire to remodel the front of his house without engravings, and these would not be of sufficient value to our readers generally to authorise their preparation.*

"A Young Builder," *cannot do better than obtain "Laxton's Price Book."*

"Herne Hill Church."—*We are much surprised by the tone of the private letter signed William Sugden, and the course pursued. We allowed all the parties concerned to make their statements, and afterwards, at the foot of a communication on the subject signed W. A.* (*p.* 166 ante), *gave our general impression of the whole. Mr. Sugden complains of Mr. Alexander's assertion, that the statements are "untrue"* (*p.* 130), *and offers to disprove it if the architect will pay the expenses of such disproof, and the loss "sustained through him in material and labour;" he also points out portions of the specification which do not agree with the quantities furnished. This, however, which seems admitted, does not at all alter the main ques-*

tion, and we have not space for repetitions. The general facts are before the public, and from these they must judge.

"Hydraulic Works."—*We shall be glad to receive intimation of docks, ports, canals, &c., in course of construction, or about to be constructed in this country, with the address of their respective boards of management.*

"R. H. B."—"Themelthorpe"—*next week.*

Received.—"*The Quarterly Journal of the Geological Society,*" *No.* 2, *edited by Professor Ansted*—"*Old England,*" *part* 17 (*C. Knight*),—"*Pictorial Gallery of Arts,*" *part* 4 (*C. Knight*),—*Young's* "*Lectures on Natural Philosophy,*" *edited by Rev. P. Kelland, part* 4 (*Taylor and Walton*).

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, May 12.—*Geographical*, 3, Waterterloo-place, 8 P.M.; *British Architects*, 16, Grosvenor-street 8 P.M.; *Medical*, Bolt-court, Fleetstreet, 8 P.M.

TUESDAY, 13.—*Medical and Chirurgical*, 53, Berners'-street, 8 P.M.; *Zoological*, Hanoversquare, 8½ P.M.

WEDNESDAY, 14.—*Society of Arts*, Adelphi, 8 P.M.; *Geological*, Somerset-house, 8 P.M.; *Graphic*, Thatched-house Tavern, 8 P.M.; *Pharmaceutical*, 17, Bloomsbury-square, 9 P.M.

FRIDAY, 16.—*Royal Institution*, Albemarle-street, 8½ P.M.

SATURDAY, 17.—*Asiatic*, 14, Grafton-street, 2 P.M. (anniversary).

ADVERTISEMENTS.

TALSTON, Roman Cement, Chimney-pot, Balustrade, and Coping Manufacturer, 24, Belvedere-place, Borough-road.—To Builders, Bricklayers, and Stonemasons.—A large quantity of the above MATERIALS, in great variety of style and pattern, is now SELLING at cost price, to clear the premises. Roman stone coping, trusses and brackets. Country purchases attended to with great care and punctuality.—Portland Cement Window-cills.

MARTIN'S PATENT CEMENT.
TO ARCHITECTS, BUILDERS, AND PAINTERS IN FRESCO.

STEVENS and SON, PATENTEES and SOLE MANUFACTURERS, beg respectfully to announce that this beautiful cement has now arrived at a degree of excellence far surpassing their most sanguine expectations. For all internal work it possesses a great superiority over every article hitherto in use; it is now being used extensively by Government in the British Museum and other public buildings. IT DOES NOT THROW OUT ANY SALT, but presents a beautifully plain and perfect surface, which may be painted upon dry work within four days without peeling. It is equally applicable for walls or lath, for mouldings, architraves, skirting, or flooring; and is admitted to form the best ground for fresco painting, having been used for many of the prize frescos lately exhibiting in Westminster Hall. It will bear an intense heat without cracking, and for hardness, durability, and economy, cannot be equalled.

186, DRURY-LANE, LONDON.

Agent for Liverpool and Manchester, Mr. R Part, 11, Atherton's-buildings, Dale-street, Liverpool.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced: -It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application to MANN and CO., SOLE AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOUR STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement, whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the suction, thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, producible by no other Paint whatever. It is cheap in its application, and may be used by any Painter, in any climate, even in the most exposed Marine situations.

ATKINSONS CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architecture and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

KEENE'S PATENT MARBLE CEMENT.—The Patentees of this composition beg to refer to the British Museum, the Royal Exchange, the new works at Bethlem Hospital, Greenwich Hospital, and the Coliseum in the Regent's-park, as buildings finished or in progress, in which Keene's Cement has been used as an internal stucco. Its superiority to common plastering consists in its extreme hardness, and the rapidity with which it dries, which qualities fit it to receive paint or other finishing sooner than other water Cement.

When employed for skirtings, architrave, and other mouldings, in place of wood, it checks dry-rot, is impervious to vermine, prevents the spread of fire, and is more economical in its application than the material for which it thus becomes the substitute.

Confirmation of these statements is to be found in the almost universal adoption of Keene's Cement for Skirting and Hall flooring in the new houses on the Hyde Park Estate, where its application is to be seen to the fullest advantage.

In Liverpool and Manchester, Keene's Cement has in several cases been used for the covering of the fire-proof warehouse floors, where its lightness and hardness give it the preference over tiles and flagging, which are much heavier, and necessarily leave the floor intersected with numerous joints, whilst Keene's Cement is laid down in one unbroken surface.

The high polish and marble-like hardness of which this Cement is susceptible render it the most suitable material for the manufacture of Scagliola.

Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

Depôt in Liverpool, 36, Seel-street, James Woods, Agent.

TO ENGINEERS, ARCHITECTS, AND BUILDERS.
PATENT METALLIC SAND CEMENT.—The Metallic Sand, from its chemical qualities, forms, when mixed with blue lias lime, a metallic cement of great strength and density; the iron, which is one of its principal constituents, combining with the bed in which it is deposited, and communicating to it a greater degree of hardness than can be obtained by admixture with any other known material. Concrete and mortar in which the metallic sand has been used are more durable than any other, continuing to indurate with time, and not being affected by damp, otherwise than by increasing in hardness from the oxydation which is thereby occasioned. Employed as a cement to turn water from brickwork in tunnels, sewers, and other underground works, the Metallic Sand is found cheaper, and from its eminent adhesive qualities to form a more solid and hydraulic body, in combination with the brickwork, than any other cement at present known; and in all cases the Metallic Sand is found the best substitute for pozzolano that has ever been presented to the public. As an external stucco, the Metallic Cement assumes a rich stone-colour without the aid of paint or tint of any kind, does not vegetate, and is entirely free from cracks and blisters, and continues to improve both in appearance and durability by exposure to the weather. The Proprietors refer with confidence to works in which the Metallic Sand has been extensively employed as concrete and mortar, specified in the prospectus, where also will be found references to very extensive erections which have been stuccoed with the Metallic Cement.

Further information will be given, and specimens shewn, on application to Mr. C. K. Dyer, 4, New Broad-street; and at the Metallic Cement Wharf, King's-road, opposite Prattstreet, Camden New Town.

HIP TILES to suit slate roofs in colour; Ridges, with plain or rebated joints, roll tops, and vertical ornaments; drains, many sizes, with plain or socket joints; paving in squares, hexagons, octagons, &c., different colours; roofing, in Grecian or Italian styles, other devices also, or plain; conduits, which do not injure pure water; fire-bricks and tiles; clinkers, and out-door paving; sundry wall-coping, garden-borders, chimney-tops; also tubular and other flues of peculiar material. No agent, but a depôt at WHITEFRIARS, and 22, WATER-LANE, FLEET-STREET, LONDON, under Mr. PEAKE'S personal care, to supply genuine TERRO-METALLIC goods at fair prices as per quality.

THE TILERIES, TUNSTALL, STAFFORDSHIRE, are near the centre of England, whence boats are sent direct to any inland place; or to the Mersey for the coasts, the colonies and elsewhere.

HATCHER'S BENNENDEN TILE-MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Wimsley-street, Oxford-street, London.

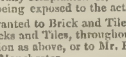


This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz:—

1 inch diameter of Tile, 11,000	1½ inches diameter of Tile, 5,800
1¼ „ „ „ 8,000	2½ „ „ „ 3,200

See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, part 2nd, vol. v.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or licence. The purchase of the machine includes free use of it.



MOON'S IMPROVED CHIMNEYS.—Samples of the Bricks to form the Circular Flue, now coming into general use, also those invented by Clark and Reed for a similar purpose, may be seen at the Patentee's Western Depôt, New-road, near Tottenham-court-road, where may be procured the Metal Bars and Throats, also the much approved Caps for the prevention of Smoky Chimneys, without causing adjoining flues to smoke, or producing the noise so generally complained of, arising from a large surface of metal being exposed to the action of the wind.

Licences are granted to Brick and Tile Makers for manufacturing the Bricks and Tiles, throughout the United Kingdom, by application as above, or to Mr. ELIAS DORNING, 27, Cross-street, Manchester.

BRITANNIA IRON AND ZINC WORKS, 174, HIGH HOLBORN,
STOVE GRATE, KITCHEN RANGE, STEAM-COOKING APPARATUS, AND BATH MANUFACTORY.
R. K. BUTLER
INFORMS ARCHITECTS, BUILDERS, THE TRADE, AND ALL PARTIES DESIROUS OF ECONOMICAL OUTLAY IN GENERAL AND FURNISHING IRONMONGERY,
That he has completed very extensive alterations at his Establishment, and invites an inspection of his Show Rooms and Warehouses, which will be found replete with every novelty of USEFUL and ORNAMENTAL MANUFACTURE for GENERAL, HOUSEHOLD, and DOMESTIC USE.

Strong, Self-acting Kitchen Ranges, with back Boiler, Oven, and Wrought Bars:—

2 ft.	3 ft. 2	3 ft. 6	3 ft. 9	4 ft.
3l. 6s.	3l. 11s.	3l. 14s.	3l. 18s.	4l. 4s.	4l. 10s. 6d.

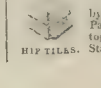
Ditto Ditto as above, with R. K. B's. Improved Wrought Iron Oven, &c., from 20s. each extra.

Bright Register Stoves from 4l. each to 30 guineas.
Best Black Metal do., 7d. 8d. 9d. 10d. 1s. per inch.
Ditto Ditto Elliptic Do. 3½d. 4d. per inch.
Estimates given for every description of Iron Work, Iron Sashes, Balconies, Staircase Railing and Palisades made from Original Designs.
Ventilating, Warming by Hot Water, Steam, &c. Experienced and steady Workmen sent to all parts of the kingdom.

By Her Majesty's Royal Letters Patent.

W. BASFORD & CO., Patentees of the improved mode of Manufacturing Bricks, Tiles and Quarries, &c., respectfully solicit the attention of Architects, Builders, Brick and Tile Manufacturers, and the Public generally, to their improved Front or Face Bricks for first-rate houses and other buildings. These Bricks are manufactured by a peculiar method; the mould is so constructed as to make that side and end upwards to the plain of the mould that forms the out-face in any building, and not on their flat beds as in the ordinary way of Brickmaking. Thus a smoothness and polish is given to them, either with or without a coating of fine prepared clay, which it is impossible to give to Bricks made with their flat beds uppermost. Thus any colour can be worked on the surface of Bricks made in this way, even the most expensive, without the body of the article being an expensive material. This process is adapted to making camber and other arches, cornicing, spouting, &c., and owing to the great heat in which they are subject in firing, they will resist the action of the atmosphere, and are not liable to gather dirt like the best Brick now in use; it is supposed if the joints of these Bricks were set with air-fallen Lime and Linseed Oil mixed together, the wet never could penetrate. The Half Brick and Closers are cut to work with the stretchers, ready for Bricksetters without Breakage or Loss.

FLOORING TILES.—These Tiles are in great variety of size and shape, as Hexagon, Octagon, Diamond, &c., and of any given colour, having a fine smooth surface, not liable to chip up, and are almost equal to Encaustic Tiles. The three principal advantages of the use of these Tiles are, cheapness, neatness, and durability.



PANELLED ROOF.

W. B. & Co. are fully assured that this process of making Bricks and Tiles will advance the value one-third of such goods where the clay is free from iron, stone, and lime. Any gentleman having clay that will stand a moderate fire, and free as described, wishing to know what bricks and tiles it will produce on this patent process, may have the same tried, and receive burnt samples back by sending a cask of clay to Longport.

ROOFING TILES.—These are made with grooved or angular edges, and weather-proof joints, which, when placed in alternate courses upon the roof of a house or other building, give to it the appearance of a panelled surface, as indicated in the plate at the side, showing a section of a roof. These Tiles are of two kinds, the one having a broader, and the other a narrower width. The broader ones may be made of any size practicable. They are so constructed as to make a firm and elegant roof, resembling the Stiles and Panels of a Wainscot.



HIP TILES.

HIP, GUTTER, and other Tiles, equally improved and elegant. These articles are manufactured by the aid of a Machine, which is exceedingly simple in its construction, and uniform in its operations. The Patentees will be able to give sufficient information as to their improved mode of firing. Letters of Licence, together with Terms and Prices, may be had on application to the LONGPORT BRICK & TILE WORKS, Staffordshire Potteries.

The Builder.

No. CXIX.

SATURDAY, MAY 17, 1845.

THE drawing-rooms of the Conservative Club, which have been under the hands of Mr. Sang and his assistants for some time past, are now nearly completed, and will enable the public to judge conclusively of the merits of the painter. We are not of those who would join an outcry against the employment of an artist simply because he is a foreigner, or willingly shut our eyes to any superiority he might exhibit: we know too well the advantage which has resulted both to manufactures and art in England from the contrary course. But it does seem to us, that unless there *be* a decided superiority on the part of the stranger, unless it be seen positively that we could not obtain so good a result by employing native artists, our own countrymen should be first considered.

Mr. Sang has shewn considerable ability in the decoration of the building in question: the upper part of the hall has a very harmonious and admirable effect; but few will pretend to say that an English artist could not be found who would have executed the commission as well, if not better, for the same amount of money; 500*l*., we believe, were paid for the hall and staircases alone; the cost of the drawing-rooms we have not heard.

Mr. Sang has a good eye for colour, and while, by the variety and brilliancy of the tints employed, and the novelty of that style of decoration in England, the spectator is amused and surprised, he produces a whole which is harmonious and pleasing. But examine the design in detail; it is found to consist of the most common and hackneyed forms; and when you are close to the work you see that the execution of it would disgrace a tea-garden. It is, in fact, scene-painting; and there are several men engaged in our theatres at this time who would do it better.

Nevertheless, the effect of the hall at the Conservative Club is glittering and magnificent; the motive of our remarks is, to contradict the impression that English artists are not competent to execute the coloured decorations of important buildings, and to urge on those who have the direction of them that, as opportunities of this kind are rare, their countrymen should in all cases receive consideration. That such an impression should exist is not surprising when we remember that in the only two buildings of any consequence in the metropolis where colour has been resorted to, the German artists were called in.*

In several respects the Conservative Club may be expected to exercise considerable influence over internal fittings and decorations. The tessellated, or mosaic pavement of the hall and vestibule above, executed by Mr. Blashfield, is an admirable example of that description of flooring. It consists of cubes of different sizes, varying from the eighth of an inch to an inch and a half, placed so as to form certain patterns, and uniting so as to produce one harmonious whole. The effect is exceedingly good.

The extensive use of real woods for the doors and other parts of the structure,—sycamore, bird's-eye maple, &c.; the introduction of electrotype adornments, and the pains taken to obtain furniture in accordance with the building, by the employment of a professed designer, are all worthy of remark and commendation.

In the general arrangement of the structure, the architects, Mr. G. Basevi (the architect of the Fitzwilliam Museum, at Cambridge), and Mr. Sydney Smirke, have displayed great skill and ability; convenience, fitness, and beauty have all been studied, and no young architect can walk through it without gaining much useful information. The vestibule, or inner hall, which is the most peculiar feature of the interior, is full of striking effects and beauties, perhaps more so than any other with which we are acquainted in the metropolis. The size is 35 feet square, and the height 60 feet, and it communicates with the staircase (which is also 35 feet square), and has a circular gallery about midway, giving access to the principal rooms on the first floor. Each side of the hall is divided into three arched compartments, and the whole is lighted by a glazed dome 20 feet in diameter. The centre arch on the west side on the ground floor opens to the first flight of the principal stairs, which is 12 feet broad, whilst all the three arches on the gallery floor are open to the staircase; the return flights of the staircase, each 9½ feet broad, entering the gallery at the two side arches.

In addition to the brilliant colourings with which we have said the hall and staircase are adorned, scagliola is profusely applied, and the perspective effects produced by the plan are multiplied by several mirrors.

The dimensions of the morning-room are 92 feet long by 26½ feet wide in one part and 34½ feet in another; those of the coffee-room are 80 feet by 28½ feet; those of the house dining-room 36 feet by 23 feet, and all the rooms are 20 feet high. The morning-room is divided in its length into two compartments, and enriched with fourteen Sienna marble scagliola columns and pilasters of the Italian Ionic character. The coffee-room is divided in its length into three compartments by twenty Devonshire marble scagliola columns and pilasters of the Italian Doric order, with gilt capitals. The walls of both rooms are panelled, and the cornices and ceilings enriched. The drawing-room is 92 feet long by 26½ feet wide, and 25 feet high, and is enriched with scagliola columns and pilasters of the Corinthian order. Above the entablature, in the frieze of which are ornaments composed of the rose, thistle, and shamrock, alternately, springs a cove terminating with a broad band of fruit and flowers. The card-room is 40 feet by 19 feet, and 25 feet high, subdivided by Corinthian columns. From the card-room is entered the library, which is 80 feet by 22 feet high. This is divided into three compartments by square panelled scagliola pillars and pilasters of various green and gray marbles. The ceiling is divided into square panels, with enriched mouldings and frets, and the whole is painted oak and gilt. Polished oak bookcases line all the walls up to the height of 13 feet. The appearance of the library is peculiarly good.

The exterior of the building is rich and stately, displays much originality as well as careful study, and is admirably executed. In the whole it may be said, that the Conservative Club House is one of the most successful achievements of modern skill, and entitles its architects to take a very eminent place in their profession.

THE ARCHITECTURAL ROOM AT THE ROYAL ACADEMY.

WE mentioned last week that few of the elder members of the profession were among the exhibitors, and we might have added, not one of those who are members of the Academy. On first looking round the room, the impression is far from satisfactory; churches, and Elizabethan mansions very much like other churches and Elizabethan mansions; a few Tudor houses, and some village schools: there is nothing which at once arrests the eye and bespeaks attention. On looking further, however, its character improves, and it is seen, although there are no particularly important or striking designs, that there are many other compositions displaying much good taste and proper feeling, exceedingly well drawn.

Without awarding this praise to all we may mention, we will pass round the room and mention a few of the more prominent exhibitors.

G. H. WATHEN has a design for a light-house and telegraph tower for the new Birkenhead Docks, near Liverpool (1100), which has much originality: it exhibits evidences of its author's recent travels in Egypt.

J. THOMSON, whose paper on Alderton Church as it formerly was, we printed last week, exhibits a view of that structure as rebuilt by him.

WYATT and BRANDON have only one drawing (1104), a perspective view of the north entrance to Kensington Palace Gardens,—the new road now in the course of formation from Kensington High-street to the Bayswater Road. This locality affords two other drawings (1150), the Garden Front of the Mansion now erecting there for J. M. Blashfield, Esq., by J. FINDEN and J. H. LEWIS, and (1235) the Garden Front of Villa, No. 3, by OWEN JONES. The former is after an Italian Palazzo, with an arcade in front of both the two principal floors, and although somewhat heavy in appearance on paper, has a certain air of grandeur. Mr. Owen Jones's design looks better in execution than in the drawing. No. 1273, by the same, an Ornamental Cottage and Dairy, is more successful and merits commendation.

S. S. TEULON in 1126, St. Mary's Lodge, Hastings, displays much taste.

H. E. KENDALL, jun., exhibits a Mansion in Progress near Chalford, Bucks (1127), which would seem to be of more than ordinary importance, and is treated with his accustomed ability. It is a Tudor structure castellated, with a tower over the principal entrance.

THOMAS LITTLE has several drawings, all displaying a cultivated taste. 1134 is a view of Fairlight Church, near Hastings (of which some notice will be found in another part of our present number), not All Saints' Church, St. John's Wood Road, as it appears in the catalogue; 1286 represents the latter, about to be built under Mr. Little's direction, although this is termed in the catalogue "a Church. E. Thompson." These are not the only mistakes

* That there is a lack of decorative artists in England we do not pretend to deny; and if no encouragement be offered some who do practise this branch it will be long before there are more. On the subject of decorative art a letter appeared in *The Times* two or three days ago, inquiring what the school of design is about. "In England we have had a school of design for nine years; it has cost the country forty 20,000*l*. What has been the result? When decoration will be wanted for the House of Lords, are there now artists adequate, or do any give promise of being so? or will the architect be obliged (as was done not two years since in another place) to send to Munich for half-a-dozen?" The writer quotes a report on the schools of design abroad, and finally that of Lyons, laid before the House of Commons in 1840, shewing that fine art was there made the basis of decorative art, and that the system had been eminently successful, and hints that we have suffered in England from not having the same plan.

In a review of the method of instruction in Lyons (says the official report, page 31), as far as it is connected with manufacture, it appears to me to exhibit the true principle which a school of design ought to be constituted. * * * If the pupil intends to become a designer and fabricator of bronze work, pendules, &c., or a carver in wood, or a ciseler, or a house decorator, unless the human figure or figures of animals are to be banished from such branches of industry, these must become the objects of his studies: it is utterly preposterous to deny to artisans the full means of study, for fear of their becoming artists. In France this is not considered an evil, but a credit. Were the power of drawing the human figure as common as in France, we should no more think of identifying the power with the genius for fine art than the French do. But the want of the opportunity for studying the figure is the very cause of the evil we dread (page 32). The artisan should be shewn that the same principles of beauty which guide the professors of fine art, were also required in his own art, and that he has ample scope for the indulgence of his fancy, and that ancient industrial artists were quite as enthusiastic on matters of ornament as those in the higher productions."

We are ourselves disposed to think with Corneille, in *Elemens de la Peinture*:—"Celui qui dessine bien une tête dessinera bien une fleur; mais qui ne sait dessiner qu'une fleur, n'est pas capable de dessiner une tête."

which occur in the catalogue: it is to be hoped they will be rectified in the next edition.

Edward Hall, whose writings have appeared in our journal on several occasions, exhibits a design for a Gothic House, 1142.

Wigg and Pownall, in 1167, give a design submitted for the Somerset County Lunatic Asylum; the plan forms three sides of a square, the character Elizabethan.

1178 and 1196, by W. H. Brakspear, are drawings for the Chapels at Nunhead Cemetery, which were submitted in competition, and obtained the second premium. They are exceedingly good designs. This same gentleman exhibits a very beautiful view of the Parker Monument, in Paignton Church, Torbay, 1214, perhaps the finest drawing in the collection.

L. N. Cottingham and Son give a view of the Church of St. Helen, in the course of erection at Thorney, 1179. A plain Norman structure, with bell tower at the west end, and the right character all over it.

D. Mocatta exhibits an interior view of Messrs. Williams and Sowerby's new showroom, in Oxford-street, No. 1184; novel and tasteful.

F. E. Fowler's Villa at Greenhall (1198) has much propriety.

Mr. W. H. Leeds, who is better known to the architectural public by his writings than his drawings, exhibits two designs, No. 1204, Architectural Innovation, and No. 1205, Study for the façade of a small palazzo, both deserving consideration.

J. M. Derick's Design for the Choristers' School and Master's buildings at Magdalen College, Oxford, looks as if it were an original part of the reverend city—no mean praise. Much was said at the time about certain departures from the regulations in favour of Mr. Derick, which, if true, nothing can justify; certain it is, however, that so far as external appearance is concerned, the committee have chosen a very excellent design. No. 1291, by the same architect, Interior of an Anglican Church, now in course of erection, displays polychromatic decorations, stained glass, and other adornments to a considerable extent.

E. B. Lamb has several very clever works, 1229, 1242, 1256, and 1259. His design for the Choristers' School, Oxford, 1256, is very excellent.

W. A. Papworth shews considerable ability in 1236, Arch of Peace and Plenty, designed for erection at the north end of the broad walk of Kensington Gardens.

W. Railton exhibits among other drawings, an Elizabethan mansion, erecting for William Herrick, Esq., Beau Manor Park, Leicestershire, 1260; and A. F. Ashton, a design for a public institution, which has several points of merit.

H. Clutton, in 1264, a design for a Cemetery Chapel, adopts a Chapter House for his model very successfully.

NEW CHURCHES AND THE OFFICIAL REFEREES.

Sir,—I beg to call the attention of the architectural profession, through the medium of your valuable journal, to the working of the new Metropolitan Buildings Act as regards the erection of buildings of the third, or public building class, especially churches.

By clause 6, these buildings are placed under the special supervision of the official referees as well as the district surveyor, and by clause 15, the official refereees are required, on notice, to make a survey of the buildings when the carcass is erected, and *then* to order any works which they may deem requisite to add security to the edifice.

By clause 16, it is required that plans, elevations, &c., of all buildings comprised in schedule B (which does not include churches) should be submitted to the referees previous to the commencement of the works, and as this course is not prescribed for buildings generally of the third class, it might be presumed, that in this latter case, the Act does not make it imperative so to do. From a communication, however, which I have received from the registrar, it appears that the official referees apprehend, from the clause in schedule C, part 5, placing the walls and other construction of buildings of this class under their special approval, it becomes "practically necessary" to submit the designs to them in the first instance.

I am certainly inclined to take this view myself of the operation of the Act, and however irksome it may be to architects to submit their drawings to other gentlemen, whose experience and practice may not perhaps be superior to their own, yet as the legislature has thought proper to give them the power to prevent a building being used, it would be hazardous to erect a structure without ascertaining their opinions previously. But the point which I wish to discuss is the manner in which this controlling power is worked out, and the effect which it will produce. The system at present adopted by the referees is this: the architect sends them his design, the referees require alterations or not as they deem proper, they then take copies and lithograph them, issue these lithographic copies to the architect and district surveyor with their seal affixed, and in an instance, which has occurred to myself, refuse to deliver up the original drawings. A charge is also made to the party for taking these copies, as also for the correspondence.

It will immediately occur to all professional gentlemen that there is much which is highly objectionable in these proceedings. To say nothing on the minor points of charge, &c., can it be possible that the enactments of the Act make it legal for the referees to *print and publish* the designs of an architect, whereby his copyright is infringed? or what clause authorizes them to take copies of drawings, and charge for so doing?

The Act is sufficiently stringent to cause much annoyance to practitioners, and it behoves the profession to guard against its provisions being stretched one inch beyond their bounds. The course, I apprehend, which the fair construction of the Act requires, and the least objectionable one to the profession, would be to submit the designs, and receive them back again with such remarks as the referees might think proper; they would still have the opportunity of seeing, during the progress of the building, if their remarks had been attended to, and full power of enforcing them afterwards. This appears to have been the intention of the legislature, but by the present system, it seems to be the object to prevent the architect exercising any judgment during the progress of the works, while an inquisitorial power is obtained over the works and designs of the profession.

This also suggests another point connected with the subject. Do the official referees, by their sanction and required alterations, take the responsibility of the building upon themselves, and is the architect relieved thereby? In an instance which occurred under the Commissioners for Building New Churches, who had sanctioned and sealed the design, this was held, I am informed, to be the case; and on the failure of the roof at the Lower Norwood Church, the expense of reinstatement was defrayed by them.

Is it not evident that the fear of this responsibility, with persons who have nothing to gain in reputation by bold and skilful construction, will induce a humdrum tame style of execution in our public works? they will naturally be inclined to reject the untried and novel, and to rest satisfied with the old and safely common-place. That this is no imaginary result may be shewn by the architectural canons at one time issued by the Commissioners for Building New Churches, one of which enforced that no roof would be allowed to be executed without a tie-beam! — How many Gothic churches were disfigured before they learned that it was absurd thus to limit constructive science!

The proceedings above suggested would I imagine, obviate all these difficulties. The official referees would obtain sufficient previous control to prevent any improperly constructed building being attempted without obstructing the architect in the free exercise of his science and knowledge; the responsibility of the construction would remain with him, and not with the referees, while the security of the public would be guaranteed by the survey of the referees on completion of the carcass, when any new mode of construction could be fairly tested by them, and they themselves be relieved from the liability of sanctioning or rejecting an architect's design. I believe this will be found to be in the spirit of the Act, and indeed its letter.

I hope it is needless for me to disclaim all imputation upon the abilities of the present referees, their characters stand too high to be affected either by my praise or censure. My objection is against the *system*, and not the individuals; this is a fair subject of discussion and you must yourself, Mr. Editor, be aware that there is a strong under-current of dissatisfaction among the profession on many other points, which alone would render it advisable to avoid hurting the feelings of experienced professionals by compelling them on every design which they elaborate to undergo the ordeal of schoolboy examination.

As this is an important public subject, I shall not screen myself by an anonymous signature, but subscribe myself, Sir,

Your obedient servant,

Thomas Little.

36, Northumberland-street, New-road.

REVIVAL OF THE CAMBRIDGE CAMDEN SOCIETY.

The sixth annual meeting of the Cambridge Camden Society, about which so much has been said in consequence of the proposal of the committee to dissolve the association, was held on the 8th inst. The main business of the evening was to ascertain the general sentiment of the members as to the proposed dissolution, as shewn by the voting papers which had been transmitted to every member who could be reached by post, with a request that they might be returned by the 6th of May. A large number of the papers were returned, but the president announced that if any gentlemen present had not sent in their votes and desired to do so, the committee would receive them now. A considerable number of voting papers were consequently laid upon the table. The president then announced that the numbers received before that evening were

Assents to the proposed dissolution	105
Dissents from	245

To these were to be added the numbers delivered this evening—

Assents	4
Dissents	26

Making the aggregate

Against the dissolution	271
For	109
Majority	162*

From the financial, statements it appeared that the society had a balance of about 600*l.* in hand. The report contained intimation amongst other matters, that "a member of the society, who has departed this life since the last anniversary, bequeathed the sum of 6,000*l.* to be expended by the society in the building and restoration of churches. The employment of this legacy according to the wishes of the testator will form a subject of great importance to the new committee:" and it concluded thus:—

"The committee have already given full notice, by addressing a circular to every member, of the circumstances which compelled them to withdraw their proposed recommendation of the dissolution of the society. They also issued at the same time voting papers in order to ascertain the general sense of the members with respect to the expediency of attempting to accomplish a dissolution in the way indicated by the council. In answer, they have received the written votes of about half the members of the society, which give the proportion of above two to one against the proposition; while a very large number of the minority accompanied their votes with the intimation that they assented to the proposition against their own wishes, merely in order to support what they supposed to be the wish of the committee.

"This result has shewn satisfactorily to the committee, that the great majority of the members are averse to the stopping at the time of the society's labours. Very many have expressed in their correspondence an earnest wish that the affairs of the society may be conducted on the same principles as have been hitherto maintained.

"These considerations have induced the committee to believe that it is their duty as the present executive of the society, to offer to the meeting this evening a scheme by which,

* It has been stated since by the president that the committee held at their disposal 199 (ascertained) proxies.

he words of a former report, 'in their opinion he society may continue to subsist in the spirit f its original constitution, and consistently with duty, usefulness, and honour.'

"After the reading of the present report the committee will have given up their office. The president will then submit a resolution which hall embody the change in the society's rules recommended by the committee.

"The committee in conclusion will merely refer to the nature of the changes proposed. They will be such as shall retain those parts of the society's operations which are confessedly beneficial, discarding, so far as this society is concerned, everything which brings it into contact with this university."

A code of "laws as proposed to be revised," was then distributed for the information of the members, and the following resolution proposed:—

"That the committee to be elected this evening be instructed to revise the laws on the basis of the scheme now submitted to the meeting."

The only important alteration, as it seems to us, is, that the periodical meetings were to be discontinued. The President, Archdeacon Thorp, said, in the course of a long address, this portion of the society's functions the committee thought scarcely compatible with academic duty, and they were therefore unwilling to be connected with it any more. They did not think it right to undertake the management of meetings where they should all together, particularly in this place where they were themselves under discipline and authority, a great many persons who might be supposed to form a sort of *imperium in imperio*, and whose meeting together had given offence to those whose opinions ought to be respected. That circumstance which was innocent when the society existed for only private meetings, came to be very different when it included amongst its members persons committed to particular opinions, and had assumed, if it were not presumptuous to say so, somewhat of a national instead of a local character. They wished the society to continue as it was in its framework, principles, and operations the same, all the same except its meetings, and whatever brought its executive and resident members into so prominent a position in the eyes of the university. It was possible they might have the committee just the same as before: if so, if the Cambridge Camden Society was to go on, it would maintain the principles identified with its name. It might be a good thing to give up the society; but if that could not be done, do not let it subsist on any other principle. He should deprecate the existence of a society under that name which did not adhere to its principle. He was far from defending all that the society had done, and all that its members had published, but he did not come before that meeting to accuse people who had done injudicious acts—he told them themselves. The society, however, had adopted certain principles, and not without effect; something had come of it: let not those principles be changed." In conclusion, the president threw out a suggestion for the formation of *another* society by those who could not conscientiously go on with the Camden.

Professor Lee was disposed to support a society having simply the study of church architecture in view. To the study of architecture he should be the last to object; but were other principles were propagated under the cloak of architecture. The public were alarmed about this society, and many members had withdrawn in consequence of such alarm. The Church had enemies enough already, what with Romanism without, and something very like Romanism within, to say nothing of Dissent. He thought the society should be dissolved forthwith, and constructed *de novo*, and he moved to that effect, the funds to be handed over to the Church Building Society.

Mr. Scott rose to order, and said the president had had an opinion that the society could not be dissolved, and therefore he admitted that the amendment could not be put.

The President asked if it were competent for him to put a motion for the dissolution, after the feeling shewn by the voting papers, in the manner directed by a legal opinion?—("*No, no*") If they wished it ever so much the society could not be dissolved: the question was, what were they to do? But to save time, he would take the sense of the meeting as to his power to put the amendment.

The meeting decided, by a very large majority, that the amendment could not be put.

Professor Sedgwick said, "He was an old member of the society, and had stuck to it through good report and evil report: he hoped at one time that certain appearances which had manifested themselves on the face of it were, like pustulary eruptions, of a temporary character, but was sorry to say that those eruptions had now assumed the form of a virulent scurvy, damaging the whole constitution, and requiring a strong and active remedy. Professor Lee's prescription was an entire extinction: amputation or depletion might be useful, but it was not necessary to smother the society like a mad dog. Everybody knew that men connected with the society had sent forth books the language and principles of which no consistent member of the Church of England could possibly approve of. The society had made itself responsible to a greater or less degree for publications that were a disgrace to the academic body. He had attended one meeting of the society in which the subject of Ecclesiastical Architecture was properly discussed, but afterwards there was a paper read, in the course of which it was broadly stated that Cranmer, Latimer, and Ridley, had suffered death or martyrdom, he knew not which, as a judgment for having consented to the confiscation of monastic property. This was permitted to go on, and the man who uttered such a detestable insult to the Church of England proceeded without being called to order by the chair."

The President asserted that the paper in question had been stopped.

Professor Sedgwick next alluded to the Ecclesiastical Calendar published last year, and setting forth in large type, that it was by a member of the Camden Society. As a member of the church he asserted, as strongly as he could, that that production was an insult to the Church and University. He did contend that if the Society were to be carried on, he who could violate the doctrines of the Church as they were violated in that Calendar was not fit to be entrusted with its administration. The Society required a deeper purgation than a mere change of its rules. Afterwards, when the author of this work was named to serve in the committee, the professor denounced him as unfit to be a member of the society at all.

Various amendments were proposed and lost, and ultimately the original motion was carried.

A committee of six, including the author of the work referred to, and the chief of those who have heretofore conducted the society were then selected, and the meeting broke up.

It is unnecessary to add that no alteration is to be looked for in the proceedings of the Society. It is not to be called an academic body now, and the holding of meetings is to be discontinued for the present, but in all other respects the Society remains precisely what it was.

London Mechanics' Institution.—A meeting of the friends of literary and scientific institutions took place on Wednesday, the 7th inst., in the lecture theatre of the above institution for the purpose of promoting the improvement and increase of the library. On the platform were Lord Brougham, Lord Kinnaird, the Bishop of St. David's, W. Ewart, Esq., M.P., Mr. J. S. Buckingham, Miss Martineau, &c. Lord Brougham presided. His lordship, after stating that Lord Radnor was to have taken the chair, entered into a history of the institution from its foundation up to the present time, shewing how great had been its beneficial influence over those who had availed themselves of its privileges. The learned lord concluded a long address by calling upon the meeting to aid in carrying out the object for which they assembled, by each person subscribing as much as he was able. Mr. Wood, the honorary secretary, then read letters from several of the nobility and gentry, excusing their non-attendance, and inclosing a subscription in support of the institution. Amongst them were the following:—His Royal Highness Prince Albert, 20*l.*; Marquis of Lansdowne, 25*l.*; Hon. C. P. Villiers, 5*l.*; Bishop of Durham, 5*l.* 5*s.*; John Grote, Esq., 5*l.*; Mr. Hume, M.P., a letter; Earl of Ducie, 5*l.*; Dr. Bowring, 3*l.* 3*s.*; and Chas. Knight, Esq., books to the amount of 20*l.*

ECCLESIASTICAL ARCHITECTURE.

We ended our last notice of the article on this subject in the *Quarterly*, at that point where the reviewer begins to trace the causes which led to the adoption of a type for churches totally different from the heathen temple and the baptistery. The circular form was not calculated to receive a Christian congregation during the celebration of the entire liturgy.

"In the House of the Lord, under the New Covenant as under the Old, the faithful came together not as a tumultuous crowd, but as an organised assembly. For this we have very early authority. Whether proceeding or not from the pen of Saint Clement, the doctrinal treatises entitled the 'Apostolic Constitutions' breathe a spirit which could scarcely have existed later than the second century. If, as has been supposed, some passages indicate a tendency to favour the peculiarities of the Ebionites, that circumstance alone would be a voucher for their high antiquity. Even if the constitutions be rejected, we gather from the universal testimony of councils, fathers, and ritualists, that the different orders of Christians were distributed, when convened for divine service, according to their several degrees of proficiency. The penitent was to stand apart from the members permitted to participate in the holy communion. The catechumen was not to hear the doctrine imparted only to the confirmed. According to the general feeling of the East, brought no doubt from Jerusalem—for Jewish traditions form the basis of the Roman ritual and liturgy—the men were to be separated from the women, secluded from the general gaze, or at least kept apart from the general concourse. Again, amongst the females, wife, and virgin, and widow, each had her peculiar place assigned. In the church was to be held the synod, in which bishops and presbyters might assemble, as the elders had done in the synagogue. To adopt a phrase of the canonists, the bishop was more than bishop whilst acting in conjunction with the priesthood; the priests less than priests, when attempting to exercise any jurisdiction or deliberation, unless under the presidency of the successors of the apostles. The holy Scriptures were to be read from the lofty pulpit of the readers—choir and congregation alternating from opposite sides in psalmody. A sanctuary was required, into which no stranger could intrude. Readers and chaunters were to be stationed conveniently, to enable the congregation to hear the lessons and homilies, epistle and gospel, and to join in the common prayer; lastly, it was needful that the one altar should be protected from the thronging of the multitude, and yet that the whole body of the congregation should behold the priesthood celebrating the holy mysteries.

For all these purposes, and in accordance to such a system, could the professors of Christianity find any congenial edifices raised by the heathen but unpolluted, and wherein the acknowledgment of faith could be made boldly, and before the light of day?

Such did exist.—Amongst the structures by which Rome was adorned, the secular basilica vied with the sacred temple in magnificence and glory. The name of the basilica (says Bunsen, whose dissertation we now abridge) was derived from the portico situated in the Athenian Ceramicus immediately beneath the Pnyx. It was here that the Archon, arrayed in the robes of royalty, discharged the duties of judge in all matters connected with the sanctuary. Pausanias describes the imagery by which the Athenian basilica was adorned. But the structure which he saw, and of which all traces have disappeared, only replaced the ancient adjunct to the palace of the Athenian kings, for the kings had been the supreme judges of the people. The Stoa, with the Homeric throne, afforded the germ for the basilica. Such a seat of justice was open—the character of Hellenic jurisprudence was publicity. The similar attribution of the administration of justice to the residence of the king, obtained at Rome, in the earlier ages; and originally the royal palace stood as the *regia*, on the ancient Forum under the Palatine Hill, quite in the situation of the Athenian basilica. But the character of the Roman king was sacerdotal as well as regal. Therefore after the suppression of the kingly dignity,

* See page 220, *ante*.

the ancient palace was consecrated for religious purposes, whilst the basilica was severed from its ancient associations, and erected on those sites where the jurisdiction of the popular tribunals could best be exercised.

Greatly modified by the Romans—whatever the Romans borrowed they borrowed as conquerors—the basilica appeared, at an early period of the Republic in the Forum. The form of the building was an oblong, terminated by the tribunal. In the midst of the semicircular apsis arose an elevated platform, upon which the seat of the prætor was placed. This is the portion to which in Scripture (St. John, xix. 13) the name of Gabbatha, or Lithostroton (pavement), was assigned. On either side, but lower down, were the seats of the centumviri, the officers, the scribes, and all others who participated in the honours of the tribunal or the duties of judgment; guarded from the intrusion of the inferior orders by the *cancelli*, or grated inclosures. Still lower down was the portion allotted to the notaries and advocates. Three-fourths of the oblong composed a vast hall, whilst a transverse aisle, or transept, if we may so call it, separated this hall from the apsis—the peculiar region of dignity and awe. In all the basilicas, the great hall was divided by columns into a portion similar to the centre aisle of a church, flanked by side aisles; and these columns usually supported a gallery above. The central nave generally received light from windows in the upper wall. Sometimes the whole building was covered by a roof, sometimes only portions. This seems to have been the case particularly in those basilicas in which a section of the nave, being left open to the sky, constituted an atrium within the aisles.

Such was the general type; but without any material departure from the normal form, there was, nevertheless, a considerable degree of variety in the arrangements, resulting from the greater or lesser convenience of site, or magnificence of building. With respect to the particular evidence, it has been collected by M. Bunsen, with singular labour as well as acuteness, not only in the works which we have already noticed, but also in his Essays, inserted in the Transactions of the Roman Archæological Society; and we shall now present our readers with some scanty gleanings from his ample harvest.

Bunsen assumes that the basilicas of the Campanian cities form, as it were, a connecting link between the Hellenic and the Roman plans. They want the semi-circular apse, found in all the Roman examples; but its place is supplied by some equivalent. The first and simpler is found at *Pompeii;* a rectangular building, the columns supporting the side aisles. At the extremity is the tribunal, raised about seven feet above the ground, beneath which are cells or prisons corresponding exactly in position with the crypts at the altar end of our ancient cathedrals. A porch forms the entrance from the Forum.

The remains of the *Basilica Ulpia,* A.U.C. 865, 866, remained, until recently, covered by the soil at the base of the Trajan column. These relics of the most magnificent of the structures which decorated the Forum of Trajan, have been partially brought to light by excavations: its elevation is preserved upon medals, which afford some notion of the external form. The plan differs very materially from all those which we have hitherto described. At each termination was seen a magnificent apse, and before each apse was a corresponding transept, with three ranges of columns, forming double cross-aisles. Two rows of columns in the main body of the building formed the nave and side aisles, the nave rising about thirty (Roman) feet above the other portions of the edifice. Within, this central nave exhibited two, if not three tiers of orders, the uppermost being composed of Caryatides sustaining the rich roof, crossed by beams of gilded bronze, which crowned the edifice. It was this building which, above all others, excited the admiration of Constantine. And although the ancient capital was now mourning in widowhood before the presence of the Emperor, who had transferred her dignity to a younger rival, yet Constantine enjoyed one of the three aspirations of Saint Augustine—Cicero pleading—Paul preaching Rome in her glory.

Had the basilica, such as we have described it, been planned for the express reception of a Christian congregation, it scarcely could have received a more convenient or appropriate form—none more happily combining magnificence with utility—none more consonant to the ideas which then prevailed. The general shape of the church, as prescribed by the apostolical constitutions, was to be an oblong, like unto a ship, that is, to the vessel of the ark. Look at the preceding plans: does not the *outline of the ground plot* of the basilica entirely meet the suggestion? and the terms *nave, nef,* or *vaisseau,* applied to the main portion of the edifice shew how enduringly the idea prevailed in subsequent ages. The elevated apse, in which the prætor administered justice, surrounded by the centumviri and other judges, offered a dignified tribunal for the bishop and his clergy, the dark chambers below suggested the subterraneous chapel, in which might be deposited the remains of saint or martyr. The inclosures, the *cancelli* for the notaries and advocates, might receive the singers of the choir. The lengthened aisles would furnish space for the congregation of the faithful, the galleries seclude the women and the porch, fronting some of the basilicas, or the uncovered portion, which, if separated from the rest by a wall, would constitute a court, was prepared for those who had been separated from the rest of the congregation by their sins, or were not yet allowed to participate in the sacraments. Hence we find, from one of those incidental notices which often are more instructive than the set narrative of history, that the Basilicæ had been given up, bodily, for the purpose of Christian worship. A poet, but also a rhetor, addressing an emperor, tells him that these structures, heretofore wont to be filled with men of business, were now thronged with votaries praying for his safety: '*Basilica olim negotiis plena, nunc votis pro tua salute susceptis.*' This occupation of the Roman basilicæ was, nevertheless, only transitory. They did not become the abiding-places of faith. Why was this privilege denied them? In situation they were most convenient, placed in the centre of business and population. Their plan and form so convenient as to invite the purposes of worship. Unpolluted by the idol or sacrifice, they were free from the recollections rendering Heathen temple odious. With the smallest proportionate expense or labour, the basilicæ of the forum might have been rendered the most stately and dignified of sanctuaries. Yet they fell! Only *one* example can be found of a secular basilica *actually* converted into a Christian church—and that example, memorable as it is, does not exist in Rome. As if for the purpose of constantly demonstrating to mankind the visible triumph of the spiritual kingdom, every stage in the early development of the empire of Christianity seemed destined to efface the honours of heathen sovereignty. The Christian basilica, though entirely modelled upon the heathen basilica, and constructed with the spoils of the basilica, was *therefore* fated to be its ruin and destruction.

A single cause suffices—a cause of which we now can scarcely appreciate the potency. Veneration for the graves of the martyrs, as an almost irresistible motive, attracted the Christian basilica away equally from the precinct of the secular basilica, as from the site of the heathen temple. By determining the locality assigned to the Christian edifice, this feeling necessarily determined the neglect, ruin, and destruction of the proud monuments of senators and Cæsars. The demolition of earlier structures, for the purpose of furnishing materials, had already been long practised. Thus the interior of the coliseum displays the friezes and fragments, mixed up in confusion, amidst the masonry of the beautiful yet appalling circuit of its walls. These, perhaps, may have resulted from the removal of other buildings previously existing on the site; but under Constantine similar demolitions proceeded, as it should seem, equally from the desire of sparing expense, and the increasing inability to execute works of art. The splendid Forum of Trajan, which had excited Constantine's admiration, fell at his command, and furnished by its spoils the decorations of the arch of the first Christian emperor. Abandoned for more hallowed ground, the civil basilicas were destroyed, and the columns which supported them transported to the new sites, where they arose in lengthened perspective and barbaric splendour. By their very aspect, such of the Christian churches as retain their original features, show the haste and unskilfulness with which they were reared: one capital cut through and deprived of the lower range of the acanthus, to fit it into the required space; another projecting over the shaft; a third shrinking within; a fourth, the leaves blocked, and prepared for the touch—never to be given—of the chisel that was to have imparted Corinthian elegance; — the columns themselves of unequal circumference or unequal height, deprived of their due proportions, or rudely stilted to attain the necessory elevation. The richest materials are mixed with others of inferior quality; pavonazzo and verd antique, the products of the quarries of Syene or of Paros, and the homely travertine, are intermingled without choice or discrimination.

The pillars, or '*bearing shafts,*' were often connected, according to the classical system, by the *architrave;* but the plan of employing the *arch* for this purpose had already been suggested, and, on the whole, became more prevalent. Upon these were raised the lofty walls constituting the superstructure of the building. But the columns in the Roman Christian Basilica were *never connected into piers;* they were only *bearing-shafts;* the thin brick-walls, the only weight the columns were able to support, never being of sufficient solidity to resist the pressure and transverse thrust of a vault. Let this characteristic be carefully marked. It therefore became impossible to give, as in the Teutonic Romanesque of Germany, or the Gothic, its derivative, the addition of a vault of brick or stone; and thus the adoption of the ancient fragments for the columns determined the material of the roof. Recourse was also had to timber. So much for the main construction of the building. The minuter development of the parts resulted from their adaptation to the purposes for which the building was raised.

The reminiscences of Hierosolyma, as well as the discipline of the church, suggested the addition, in front of the Basilica, of a cloistered area, a Court of the Gentiles, the *Atrium,* where those who were excluded from the full participation in the ordinances of the church, might yet in some degree share in its ministrations. This atrium was also used as a cemetery, yet only for persons distinguished by rank or holiness. In the centre was a fountain, or '*Cantharus.*' Following the ancient traditions of Jerusalem, it was enjoined that, as a symbol of inward purity, the worshipper was to wash his hands previously to entering the sanctuary.

Plain almost to rudeness—a low and unpretending portico constituted the chief, or rather only adornment bestowed upon the front of the Basilica. Above this portico were usually three long, round-headed, undivided windows, symmetrically arranged, and these surmounted by a round window in the pediment. A few sculptured decorations might grace the portal, but they rarely extended beyond the symbolical lions who guarded it on either side. Beyond this, and within the walls of the structure, the *Narthex,* or *Pronaos,* furnished further means of separation, and yet of union, between the catechumen and the penitent. The derivation of the term narthex is uncertain; perhaps it was more permanently adopted in the Greek Church than in the west. But the same purpose was answered by the porch, or portico.

Towards the upper end of the nave was placed the choir, surrounded by its *Cancelli,* or enclosures. In the early Oriental churches these cancelli may have been of wood; in the West, all the examples and fragments which remain are of richly worked marble, very generally adorned with the species of mosaic, partly of glass and partly of precious marbles, known by the term of '*opus Alexandrinum.*' On either side of the choir arose the *Ambones,* the pulpits from whence sub-deacon and deacon respectively read Epistle and Gospel. From the Gospel pulpit, the loftier and more richly adorned, were promulgated the Episcopal injunctions and censures. From this pulpit also the '*bidding-prayers*' were read, and the sermons preached by priests or deacons; but the bishop preached sitting in his faldistorium before the altar. A small pillar before the Gospel pulpit supported the paschal taper. Within the *cancelli* of the choir were stationed the singers, by whom the service was chaunted.

who, in the earlier ages of the church, were all clergy having minor orders; priests or deacons did not perform this portion of the divine service, for to them were the higher mysteries reserved. We apply the term *chancel* to the portion of the church enclosed by the *cancelli*. The Germans give the name of *Kanzell* to the pulpit standing on the *cancelli*, and all the languages of Europe the title of Chancellor, or *Cancellarius*, to the successor of the *officer* who stood within the *cancelli*. In this example we are able to trace each derivation to its source, the channels are yet visible through which the ideas have flowed. But how useless must be our conjectures when the channels are filled up! Hence the imperfection of all histories of language.

The high altar, the only Communion Table—for the primitive Church was a stranger to the multiplicity of the modern Romish ritual—stood within the santuary, more or less advanced towards the choir. Causes which it is not necessary here to enumerate, might occasion some slight changes in its position, but it was always free and isolated, surmounted by its tabernacle, or baldachino, and detached from the wall.

Lastly, the Sanctuary was terminated by the *Apsis*, sometimes called the *Exedra* or *Bema*. Here sat the archbishop or bishop—his chair, or throne, in the centre—the seats of his suffragans and presbyters around. This division of the building was considered, so to speak, as its crown. Protected, like the choir, by cancelli, no layman could enter its precincts; rich curtains shrouded its recesses from the sight of the congregation, until the completion of the Eucharistic consecration.*

Whilst the exterior of the Basilica was naked and simple, almost to poverty, the interior exhibited the utmost splendour which could then be effected by all the resources of art. The roof was invariably composed of wood. In the churches built by Constantine, and some other of the earlier churches, it is said that the beams and rafters were concealed by a flat ceiling of gilt panels. We doubt much, however, whether this assertion, grounded upon the very obscure text of Eusebius, be correct. We should rather suppose that the enrichments consisted of gilding, or colouring, applied to the beams themselves, as is the case at San' Miniato, one of the most curious and interesting objects which Firenze la bella affords. At all events, there is no one early, or even mediæval, specimen of a flat ceiling at Rome; the panelings all having been added at comparatively modern periods. On the whole, the concealment of the beams has not been an improvement. Those who recollect the north transept of Winchester Cathedral before the masquerading and destruction effected by the 'refined taste' of poor Dr. Nott, will agree with us in deeply lamenting the loss of the tranquil and stern simplicity of the ancient open roof—the dark beams, solid in their strength, and the apex of the concave losing itself in darkness."

After some remarks on mosaics, the most characteristic decoration of the basilica, and on the absence of sculpture in the structures of the ancient Catholic church, some of the principal basilicæ of Rome are described and illustrated by plans and sections, including old St. Peter's, the memory of which is almost effaced by the modern marvel.

GOVERNMENT PROPOSAL TO ERECT THREE NEW COLLEGES IN IRELAND.—Sir James Graham during the past week, in explaining the views of Government with respect to academical education in Ireland, recommended the establishment of three colleges for the cultivation of literature and arts; one in the north, another in the west, and the third in the south. The building of each college he estimated at 40,000*l.*, or in round numbers 100,000*l.* for the three. He further recommended, as localities for the proposed erections, 1, Derry or Belfast; 2, Galway or Limerick; 3, Cork.

*For details let the reader consult Bingham. Many years ago (vol. xxvii., p. 320), we pointed out the utility of the old-fashioned parson of Havant, as a guide to Christian archæology. No book, either here or abroad, has yet appeared, which can supersede his *Origines*, which should be found in every clergyman's library. The general form of the Basilica has been adopted with great skill in the building of Hungerford Market. The shops, which have recently been built up in it, now unluckily spoil the perspective, the effect having been preferred to picturesque beauty. But the whole is strikingly *Roman*, and will afford useful hints to the ecclesiastical architect.

FALSE HERALDRY ON THE NEW HOUSES OF PARLIAMENT.

A WRITER in the *Art-Union* of the present month, has drawn attention to a number of asserted heraldic blunders which appear on the exterior of the new Houses of Parliament. He states that many of the shields are charged with devices copied from coins of various sovereigns which were never intended to represent arms, and that it would be as reasonable to take St. George and the Dragon for the arms of George IV., as to adopt those devices for the arms of the monarch on whose coinage they appear. He points out too, amongst other objections, that supporters have been assigned to every sovereign, beginning with the Conqueror, though it is known that supporters were not used by the kings of England till the reign of Richard II., three hundred years after the Conquest.

We have so much confidence in the ability and caution of Mr. Barry, that we feel little doubt he will be able to explain away the apparent mistakes; if, however, by oversight the heraldic adornments have been left to those who were not competent to the task, and errors have been committed, they should be immediately corrected to the utmost possible extent. Heraldry is very closely connected with architecture, and we hold that, when employed, the most scrupulous accuracy should be observed.

A morning paper estimates that the Houses of Parliament will be at least twenty years more in hand; and adds that such an opinion is strengthened by the arguments of Mr. Barry himself, who, in justifying the small progress at present made when the peers complained of his delay, said, "The time it will take to complete even the architectural portion *cannot be exactly specified.*" In looking at the time that the erection of other edifices of extraordinary magnitude and splendour occupied, it will be found that it was sometimes the work of centuries. St. Peter's, at Rome, took a century and a half to complete; Milan cathedral twice as long. The most pertinent comparison is St. Paul's, because it is both nearer to our own day, and was the work of one architect throughout; there was no material interruption to its progress, yet it took thirty-five years to complete (1675—1710); and whereas its cubic contents are 11,000,000 of feet, those of the palace of Westminster are estimated at 16,000,000 of cubic feet—half as much again.

SOCIETY FOR THE PRESERVATION AND DESCRIPTION OF FRENCH HISTORICAL MONUMENTS.

THE congress of the Society for the preservation and description of French Historical Monuments is fixed to take place at Lille, on the 3rd of June, and the seven or eight succeeding days. Dr. Bromet has obligingly forwarded to us a list of the questions immediately relating to architectural antiquities to be discussed at the meeting, to which we gladly give circulation. We hope that some of our readers may be induced to attend. Part of the time will be spent at Tournay, one of the most interesting towns in Belgium, and very close to Lille.

1. With respect to monuments of the middle ages, is there any remarkable difference between the architecture of the north of France and that of the south of Belgium, or of the seventeen Belgic provinces; and have the architectonic types of East and West Flanders, Hainault, the Cambresis, and Artois, been borrowed from France, or from the great monuments of the most northern of these provinces, or from Germany? And what are the differences and the analogies of other contemporary works of art in those countries?

2. As it does not appear that either in French Flanders, or French Hainault, or the Cambresis were ever any such vast basilical churches with statuary fronts as still exist in the countries adjacent to them, it is desirable to seek the cause of this almost total absence of statuary decoration, which renders the study of Iconography in the provinces abovenamed so difficult.

3. It being generally thought that the new styles of Gothic architecture were but slowly adopted in French Flanders,—can this opinion be supported by any monuments of well attested date, which were constructed according to the styles of periods which preceded their erection?

4. As several religious edifices without any thing remarkable in their architecture, contain very interesting pulpits, stalls, confessionals, reliquaries, tabernacles, shrines, fonts, processional crosses, and bas-reliefs, &c., a description of such objects may enable the congress to ascertain the state of the fine arts in those provinces now under consideration, during the middle ages.

5. Does it appear that Spanish manners exercised any influence on the architecture of Flanders and Artois? Were all the buildings attributed to the Spaniards, such as belfries and town-halls, &c. really constructed by them, and what are the peculiarities of that architecture of which the towns of Lille and Arras afford so many examples.

6. Can it be proved that any Romanesque churches with large courts before them ever existed in the northern provinces of ancient Gaul?

7. Are there in other parts of ancient Gaul any churches of Romanesque architecture, which have never had any other than flat ceilings of wood?

8. Are there any existing apsidal ends or other parts of Romanesque churches of octagonal form?

9. Are there any specimens of pointed vaulting put up after the completion of edifices of pure Romanesque style?

10. What churches are there of a transitional epoch from the semi-circular to the pointed styles, which are exteriorly Romanesque, and interiorly pointed? and, where such exist, has not the interior been added when a vaulted ceiling may have been put up?

11. How, in the north of France, during the above-named epoch, are the two architectural styles generally combined?

12. Did the several people of Germanic origin similarly adopt the different changes in architectural style?

13. Are there any crypts under the churches of Belgium and the northern provinces of France in those styles prevalent from the eleventh to the sixteenth centuries.

14. What was the ancient destination of crypts, or subterranean churches, and what peculiar ceremonies were therein celebrated?

15. To what epoch may we refer the introduction of zodiacal signs in monuments consecrated to Christian worship, and are they frequently employed on their walls or pavements in the north?

16. Are there any church pavements formed of stones sculptured in low relief, having in their cavities a coloured cement?

17. Are there any mosaic pavements in churches of the pointed style?

18. What examples are there of that peculiar kind of pavement called labyrinths, or roads to Jerusalem, sometimes seen in the pavements of middle-age buildings? and to what epoch may we refer their introduction?

19. How happens it that there are so many large religious edifices of the first and second styles of pointed architecture still existing in those provinces on this side of the river Loire, formerly called the county of the Langue d'oïl, compared to the small number of religious edifices of the same epochs in the provinces south of the Loire, and which is called the country of the Langue d'oc?

20. Do Belgium and the northern provinces of France afford any examples of Romanesque churches paved with glass?

Gentlemen proposing to attend the discussion of the above-stated questions are cordially invited by the authorities of Lille to its grand "Fêtes Patronales," which will take place on the first, second, and third days of June, and during which there will be several opportunities of observing the ancient manners and usages of Flanders, as exhibited at its "Kermesses" and other assemblies. The admission card to the Congress, which costs but ten francs, including the privilege of partaking of a banquet to be given by the city of Tournay, may be procured on arrival at Lille from Mons. de Contencin, to whom, or to M. de Caumont, the director of the society, Dr. Bromet, will be happy to make known any person who may be desirous of joining him at Lille, and which by steam to Ostend, and thence by railroad, may be reached from London in sixteen or eighteen hours.

ANCIENT CAPITALS FROM THE SOANE MUSEUM.



Fig. 3.

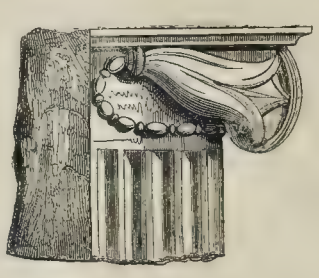


Fig. 6.



Fig. 4.



Fig. 5.

ANCIENT CAPITALS FROM THE SOANE MUSEUM.

THE accompanying engravings represent ther ancient marble capitals in the Soane Museum,* and form a class almost unknown o the public. They were mostly brought from taly by C. H. Tatham.

Figure 4 consists of two separate marble ragments. The diameter being nearly the ame in each, Sir John placed one on the top f the other.

Figure 6 represents the side of a marble apital of an engaged column brought from Pompeii and now in the museum at Naples; his was copied from Mr. Hakewill's sketch ook.

NORFOLK CHURCHES.†

THEMELTHORPE.

"Churchwork is slow."

THIS little edifice, dedicated in honour of t. Andrew, comprises a chancel, a nave, and square tower at the west end: the bearing f compass is 12° south of east. Our first sit found the general condition one so re-gnant to a wholesome feeling of what came the God's tabernacle, that we have ice repeated it, to find at length some par- l improvement, a few things meanly, though t altogether injudiciously, repaired.

A niche for the venatura occurs on the ht within the outer doorway of the porch, ich has for its sill an ancient coped tomb thout cross. The dilapidated voussoirs of arch have been replaced by a framework wood, now fast verging on a similar te: the windows are perpendicular, of two hts.

Between the doors of the nave, that on the th side having a large hole in it, stands the t, a massive octagon, its rim much broken wrenching out the staples of the cover. e sides, now plain, appear to have been rged with coloured scrolls, of which one— letters I H S, the monogram of the name Jesus—may perhaps be deciphered: the l is lined with lead and has a drain. On ing the top, we found in it a coil of rope, sexton's grave-tackle, the only present as our informant very innocently informed to which the orifice is now applicable. And in the orders and directions given by op Wren, A.D. 1636, to be observed in his ese of Norwich, it is enjoined, "that the at baptism be filled with clear water, and no dishes, pails, or basins be used in it, nstead of it." At the period of our last the ropes had yielded place to a linen se.

he rood-screen yet survives, although in a llated state, the "beautiful gates" having since disappeared. Portions of elegant ry remain on the panels of the lower on, and several piers or buttresses, og the fronts terminated by small attached round shafts with castellated capitals, nt models of no ordinary attraction. ld that we might speak in praise of some rt attempts at restoration here, but such is far above the skill of a common an. The sedilia are graduated in three rate seats, a form by no means usual in deanery; a square perforation next the r one communicates with the trefoiled tella adjoining. A shelf occurs here, esed by some to have been a receptacle for oly oil cruets, and beneath we find the water drain.

t is always desirable that there should be row entrance at the side of the chancel, priated to the use of the clergyman;" his convenience has been carefully pro- by the original builders. A crop of ilions, *leontodon taraxacum*, rooted in the es of its broken sill, indicates, however, o use it is a thing out of mind here. An English triplet occurs over the commu- able, that and the altar-rails forming no tion to the general decay. The deca- flanked on the gospel side by the royal appears on the rood-screen. The lateral ws of the chancel, two of them lychno- , and the lanciform couplets of the nave, all been blocked with flint to above the of elevation.

have spoken of a partial repair; it consists mainly in a remodelling of the pulpit and reading-pew, situate southward without the rood-screen. We were pleased to find the offensive backing upon the altar no longer disgracing them; but when will all confess, and act on their convictions, that the place of prayer is in the chancel! An effigies in brass occurs in the central avenue near the font; it is well worthy of inspection.

The weather moulding of the ancient roof, seen on the western façade of the tower, indicates the extent to which the present meagre affair has been dropped. Would that it offered the only instance of spoliation! but how gross in many ways the disregard of this place where His honour dwelleth; how niggard the supply that has been extended to its necessities; how secular the tastes and dispositions by which that supply has been directed. The sleek steed in the rich man's stall, the costly furniture of his dwelling, have left an obolus only for the sanctuary, and even that has been ill-expended. But "is it a time to dwell in ceiled houses, and the Lord's house not regarded?"

C. T.

* See p. 211 *ante*.

† See page 209, *ante*.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT the annual general meeting, held on the 5th of May, Earl de Grey, President, in the chair; the report of the council on the affairs and finances of the institute was read, and the following office bearers for the ensuing year were elected:—

President.—Earl de Grey.

Vice-Presidents.—Messrs. H. E. Kendall, J. B. Papworth, W. Tite.

Ordinary Members of Council.—Messrs. Thomas Bellamy, W. Burn, E. M. Foxhall, George Godwin, James Noble, Charles Parker, W. F. Pocock, John Shaw, Sydney Smirke, James Thomson.

Hon. Secretaries—Messrs. Ambrose Poynter, and George Bailey.

Hon. Secretary for Foreign Correspondence.—Mr. T. L. Donaldson.

On Monday, the 12th inst., Mr. Kendall in the chair, the Rev. Richard Burgess, B.D., read a paper "On the Walls of Ancient and Modern Rome." In opening the subject the rev. gentleman sketched the history of walling, and laid down as a law that no walls could be properly termed Cyclopean where any of the stones were cut. The walls of Mycenæ were a step beyond Cyclopean. He traced the gradual progress of Rome from the time of Romulus, and, taking his hearers round the enlarged city, explained the various gates and walls in the circuit. The whole circumference was thirteen miles, and he had estimated that the population had never been more than 160,000. Custom battered down walls and prejudices, and even the great wall of China was likely soon to fall.

EARL DE GREY'S CONVERSAZIONE.

EARL DE GREY, as President of the Institute of Architects, entertained the members of that body at his residence in St. James's-square, on Friday, the 9th instant, and invited a large number of the nobility, and men distinguished in literature, science and art, to meet them. By ten o'clock his lordship's superb suite of rooms were thronged, and presented a fine appearance. The presence of many of the handsomest women of whom the English Court can boast, added materially to the charm of the evening, and served to render this unquestionably the most brilliant conversazione of the season. His Royal Highness Prince Albert was expected, but was unfortunately prevented from attending. The tables were filled with choice portfolios, and works of art. The council of the institute, comprising Mr. Papworth, Mr. Kendall, Mr. Noble, Mr. Roberts, Mr. Pocock, Mr. Godwin, Mr. W. Donaldson, Mr. Booth, Mr. Poynter, Mr. Bailey, Mr. Foxhall, Mr. Thomson, Mr. Grellier, and Professor Donaldson, dined with Earl de Grey previously. In reply to an acknowledgment, on the part of the council, of the services rendered by the noble host to the Institute, very admirably tendered by Mr. Papworth, his Lordship expressed himself as ever most anxious for the prosperity of the association, and willing at all times to exert himself in its favour.

ARCHITECTURAL MEMS. FROM THE COUNTRY.

THE talked of appeal to the House of Lords has been entirely abandoned in the matter of the Stone Altar at the Round Church, Cambridge, and the costs have been paid by the church-warden's proctor. A table of oak elaborately carved, is nearly ready to take the place of the stone altar which, as we have already stated, has been removed, and communion rails are prepared. The church will be re-opened in a few Sundays for divine service. ——At Cambridge, that venerable structure Jesus College Chapel is now in course of being rescued from the melancholy state in which it has been left for many years. From a legacy, benefaction, and other sources, the master and fellows are enabled, and have determined to spend about 1,000*l.* on its restoration; the works were commenced in the Easter vacation, and are to be continued in the long vacation: the ceilings are to be removed and the arcades set free, and the whole to be brought more nearly to its ancient character.——At a meeting, held recently, of the Ripon Diocesan Church Building Society, the following grants were made in aid of the erection of new churches, viz.: 400*l.* to Middleton, in the parish of Rothwell, to contain 502 sittings, estimated cost 2,290*l.*; 300*l.* to St. Mary's, Sowerby, in the parish of Halifax, having accommodation for 404 adults and 150 scholars, estimated cost 1,635*l.*; 500*l.* to St. Andrew's, Wakefield, having accommodation for 700 persons, estimated cost 2,880*l.* ——The works on the Blackburn and Preston Railway are proceeding rapidly. Upwards of 100,000 cubic yards of earth have been removed, and in several places active preparations are being made for laying down portions of the permanent way. The piers of the viaduct over the river Darwen, at Hoghton, which have formed one of the most difficult portions of the undertaking, are now up to the level of the water, and several of the bridges on the Hoghton contract are commenced. The works at the Blackburn end, which have only lately been commenced, are now urged forward with increased energy. ——At Scarborough, the improvements at the opening of St. Nicholas's-street are rapidly progressing. The excavations for the foundations of the new houses are completed, and not many weeks will elapse before the new frontage is reared, and the row of commodious shops prepared for the coming season. —The Lords of the Admiralty have appointed James Walker, Esq., C.E., and Captain Vidal, R.N., to inquire into the plans of the South Wales Railway Bridge over the Severn, at the Hock Crib, the proposed cut or canal from that spot to Framilode, and the other works connected therewith, with the view of ascertaining the probable effects of the same upon the navigation of the river.——It is expected, that during the summer, the Grand Junction Railway Company will build more cottages at their "new town" of Crewe, the number of cottages at present being inadequate for their numerous workpeople. Every house is now occupied, and several of them by more than one family. The *Chester Courant* in mentioning the fact appends the following remark:—"Among the many speculations of the day, it is a matter of surprise to us that no company has yet been formed to build towns contiguous to the principal stations. No doubt, if building societies were organised for this purpose, a good per centage would be obtained for money."—— The Earl of Derby has contracted for the erection of a stupendous conservatory and aviary of a great height, and mostly glass on all sides, in Lancashire.——At a meeting of the Huntingdon Commissioners of Pavement, on Wednesday week, the subject was renewed of introducing a new system of road making lately adopted at Burton-upon-Trent, and found to answer there exceedingly well. It consists of an under stratum of angular broken stones, then a layer of smaller stones and gravel, and the upper coat of gravel mixed with gas-tar, the whole being about six inches in depth. It resists the wet, is perfectly free from dust, and unattended by any of the inconveniences of the wood-pavement; whilst the cost would be less than the present system of using cobbles. After much discussion, it was resolved to try the experiment on about 150 yards in the High-street, and should it be

found to answer, it is not improbable the whole town will ultimately be paved with it.——A gigantic wooden-bridge has just been erected over the river Lowther, between Clifton and Brougham-hall, and close to the stone viaduct over the same river now in the course of erection for the Lancaster and Carlisle Railway. It is 530 feet in length, 18 feet in width, and 110 feet in height; and there have been used in its construction upwards of 26,000 cubic feet of timber, and thirty tons of iron.——Some very extensive alterations are in progress at Ely Cathedral. An arcade of fifteen or sixteen arches, from a design by Professor Willis, of Cambridge, is about to be introduced at the communion-table; and the four windows under the lantern are to be filled with painted-glass, executed by Wales; one of them at the cost of Mr. Edward Sparke, son of Bishop Sparke, and the other three at that of the dean and chapter.——The foundation-stone of the Royal British Orphan Asylum was laid at Devonport, on Wednesday, the 30th ult. Earl Fortescue, as Provincial Grand Master, came purposely from Ireland to attend the ceremony.——The chief corner-stones of the bridge across the Ouse, at York, for the York and Scarborough Railway, were laid a short time since.——Mr. Laycock, of Liverpool, after having built an iron palace for an African king, and a residence of the same material for a West Indian family, has just finished an iron house for a family in Nova Scotia.——During the past week two new churches, both of them erected after the designs of Mr. Benjamin Ferrey, have been consecrated, viz., All Saints, Dorchester, and Christ Church, St. Giles's, London, notices of which will be found at pp. 104 and 114, *ante*. In addition to our former remarks respecting the Dorchester structure, we may state that the design of the principal doorway is from one of the transepts of Westminster Abbey; and that the roof is of open woodwork; the principals are curved, and rest upon projecting hammer-beams, which continue through the walls into the side aisles, and there form the tie-beams. These hammer-beams are again supported by bracket-formed trusses, which rest on stone-moulded corbels inserted over the piers of the arcade. The timbers of the nave and chancel roof are also connected by curved braces.——At a very respectable and influential meeting, held a few days since at Bristol, it was resolved, that for the maintenance and advancement of the trade of that city it was essential that a floating pier at Portbury, as designed by Mr. Brunel, be constructed. A provisional committee was appointed for the purpose of taking the requisite measures for the formation of a company to carry the undertaking into effect.——The new church at Greenstead-green, Halstead, is rapidly approaching completion, and is expected to be consecrated in July next. A parsonage house is also in the course of erection on the same plot of ground, at the sole cost of Mrs. Gee, the lady who supplies the funds for building and endowing the church.——The *Bristol Journal* states that Sir John Guest has offered to complete the Clifton Suspension-bridge on condition of receiving the tolls, but that it will be carried into effect without his individual assistance.——It seems probable that the building of the churches at Morton and Stockwith, in the parish of Gainsbro', which has been in abeyance, will be commenced forthwith. It is said that the following parties are the contractors, viz. Mr. Robert Wood, of Doncaster, builder; Messrs. Oates and Newton, plumbers, Gainsbro'; and Mr. Siloman Ledger, bricklayer, Gainsbro'.——Mr. R. C. Carpenter is building a church in the parish of Hatfield Broadoak, Essex. It is to hold 270 persons. The plan consists of a chancel, nave, aisles, a western tower, and a south-western porch in wood. The longitudinal section shews an arcade of three arches springing from low piers of plain mouldings. The chancel has two hooded windows of two lights, and a priest's door. The windows of the aisles are square-headed, the side walls low. The estimated cost is 1,200*l*.——The renovation of Yoxhill Church, Yorkshire, is just completed by Messrs. Binks. A new font has also been erected. The whole has been executed at the expense of the Rev. Chas. Constable, of Wassand.——The foundation-stone of a national school, at Whitby, Yorkshire, was laid on Monday, the 5th instant, by H. Welder, Esq. The site selected is close to the entrance of the tunnel on the Whitby and Pickering Railway.——A company is being formed to establish water-works on an extensive scale in Bristol. The proposed capital is 200,000*l*. Many of the leading merchants in that city have consented to be placed on the provisional committee. The present supply is obtained from public or private wells at a cost averaging 30*s*. per annum for a family. The committee propose to afford an increased and permanent supply at a much less cost, besides improving the health of the city by a constant cleansing of the sewers as well as the streets by means of water jets.

FREEMASONS OF THE CHURCH.

May 13th.; the Rev. G. Powell, L.L.B., in the chair. Mr. J. Sedgwick and Mr. William Papineau were elected members. Mr. Rogers exhibited an ancient and rare specimen of Italian ware by Lucca del la Robbia, the property of Mr. C. B. Wall, V.P., M.P.; also a curious specimen of the work of Bernard Palissy, representing fish, herbage, and pebbles, at the bottom of a circular dish, by permission of the Right Hon. the Earl Cadogan, V.P., &c.; also a specimen of early Italian carving in walnut tree representing the death of the Virgin Mary, which was preserved by Mr. W. Gill, M.P., from the now destroyed convent of Annecy, in Savoy, and a carved wood trophy for his Majesty the King of the French.

Mr. J. S. Drax, M.P., exhibited fourteen drawings of carved oak historical panels by Berger. These panels were brought from the mitred abbey of Pare, near Louvais, and are now in the possession of Mr. Drax.

Mr. W. H. Rogers exhibited several sketches and models of ecclesiastical architecture from Alderton Church, Wilts. The subjects exhibited were—part of a boldly carved cornice of rope and vine leaf in the oak screen of the church, stone corbels, embellished with the emblem of the boar and vine, the pelican in her piety, monster representing an evil spirit, an angel in adoration, serpent with the forbidden fruit, St. Michael, the tree of life, the crown of life, swallow building her nest, shield of St. George, the phœnix of resurrection, the Good Shepherd, the Rose of Sharon, hart and water-brook, six angels bearing the Passion of Our Lord, viz., a cross calvary—heart and nails—scourges—spear and sponge—crown of thorns and pillar of flagellation, &c.

Mr. Thomas Leeson presented a mould and a cast of a bronze, representing Richard I. in armour, on horseback, as a Crusader; above the king's head is a trefoil, in the centre foil is a lion's head, and in the remaining two, helmets, swords, and other implements of war, suspended by a chain from the lion's mouth; beneath the feet of the horse are two Saracens, slain.

Mr. C. H. Smith then delivered a very interesting lecture on building stones, treating both of their composition and decay.

FAIRLIGHT CHURCH, NEAR HASTINGS.

The necessary arrangements are completed for rebuilding this church. The old church, consisting of a nave 30 feet by 20 feet, a chancel 20 feet by 15 feet, and the remains of a western tower, is said to have presented no vestige of architectural interest, and was in a most dilapidated state. The principal proprietors of the parish having resolved to rebuild a structure suitable to the increased population of the village, and worthy of the purpose to which it is dedicated, raised subscriptions sufficient to defray the expense without a parochial rate. Mrs. Milward, of Hastings, whose activity in forwarding all good works is well known, contributed 1,000*l*.: Mr. Lucas Shadwell, bestowed 500*l*., and granted the free use of his stone quarry. By the exertions of the Rev. Mr. Pearse the subscriptions amount to 2,500*l*. The new church, designed by Mr. Thomas Little, is a single-aisle church, and consists of a nave 62 feet by 24 feet, chancel 20 feet by 17 feet, north aisle, and a massive western tower, 80 feet high, at the end of the aisle. The nave and aisle are separated by three arches springing from octagon piers. The style is early English, with an equilateral open-framed roof. The building throughout is of stone.

HISTORY OF A COMPETITION.

ST. SIMON'S CHURCH.

Sir,—A history of this competition, which has now been before the public some weeks, has just come under my observation in the monthly part of "The Builder." This history is signed a "Looker On;" but I would suggest to that individual, that he ought to have well *looked* into the details of this affair, and ascertained the truth of his information, before bringing himself and his history so unceremoniously before the public.

As the author of the design "Ignatius," I feel myself called upon to correct a "Looker On" in one or two particulars, which might otherwise be injurious to my reputation; and in doing so, I shall state nothing which I cannot clearly prove, and which is not quite requisite in shielding myself from unnecessary blame.

Any one reading the account alluded to would infer, that the committee had chosen a design, which might be a "pretty picture," but which, in reality, was worthless, and soon found to be good for nothing. The architect also, a reader would conclude to be of the same character, and ignorant of his profession. Proofs are brought forward sufficiently pointed to warrant such a conclusion; to which I must oppose the following facts.

When first this design was sent in to the committee, it was distinctly stated in the description, that the cost would exceed the sum named in the instructions. Of course they were perfectly at liberty to reject it if they thought proper; however, it was retained, even after the general estimate was found above the 3,000*l*., whereupon the working drawings were at once proceeded with.

Here, I think, was no "ridiculous" professions on the part of the architect, or an attempt to deceive a committee endeavouring to perform an onerous duty. "The walls of the aisles in the nave, and clerestory were not to be 14 inches thick, or thereabouts;" but drawn to scale, and figured two feet. The difference between 14 and 24 inches is too great for me to suppose such a mis-statement should have arisen accidently, I therefore conclude this falsehood was created wilfully and probably from malicious or interested motives.

Our well-informed historian says, the committee agreed themselves to bear the expense of thickening the walls, which, he states, would be about 250*l*. How far does he imagine that sum would go in such an operation? Two feet may not be too much, but he would be content with 18 inches.

With respect to the rejection by the "Incorporate Society," I must make the following statements. It was necessary to obtain pecuniary assistance, for which purpose the drawings were forwarded to the society for inspection, aid being only given in building churches of approved accommodation; that is, a certain number of free seats for the money. The "objections" which I received from the society's secretary were the following: name 6lb. instead of 8lb. lead was specified for the gutters. The specification had not provided for the escape of the water condensed on the windows. The "board" found fault with the arrangement of the free seats (not near enough the minister), and the children's seats. And that the font was not in the right place; and that the walls appeared too thin.

The objections which "poured in," to the committee, and which I heard of, were these. The tower was more intended for display than utility (not uncommon this,) and it was suggested that one of the vestries might be dispensed with.

Now, it will be seen, these objections are not of very great moment, and the committee can hardly be blamed, though they did "unfortunately" try to "get rid of them."

At length the society, perhaps annoyed at the obstinacy of the committee, and their fondness in not taking the hint, and dismissing their architect with his plans, sent down their final decision of the "board;" which was "that this design is fundamentally erroneous arising from the disproportion between the *side and centre aisles*." (The centre aisle more commonly by architects termed the nave.) Of course after this the committee found themselves under the necessity of adopting a fresh design, or building without the society's grant; and as the lesser evil,

chosen design was abandoned, and another sought for. The reason advanced for procuring the assistance of another architect was, that they had already lost much time, and Mr. L. had a set of plans ready prepared, which might at once go up to the society.

It only remains for me to make a few remarks on this evidence, and first I would ask: had the society sufficient grounds for causing the rejection of an already adopted design, and the dismissal of an architect already engaged? Some of the objections are too trifling to be worthy of notice; only observing, that it is by no means unusual for an architect to make alterations from his original design, even during the progress of the building: and this is often called an oversight in construction.

The charge of disproportion between the nave and aisles may seem very formidable to those who do not exactly know what it means, and the committee were no doubt surprised to find the design they thought the best, which pleased them the most, was just a jumble of error and disproportion. Now, there are churches built without aisles, and some with them; and there are various proportions between the nave and aisles. I thought I saw some advantage in my proportion, and so it appears thought the committee. If, however, a certain proportion was at all requisite, why was it not mentioned at first. If the error was so very glaring, why was it not sooner discovered?

Supposing the society justified in rejecting the design, then I ask of any competitor, or any one connected with this competition, was it stated in the instructions, or could it be inferred that all the designs sent in were to be in accordance with the rules and regulations of the "Incorporate Society," and guaranteed to pass the examination of the "board?"

There are many churches built where these regulations are not complied with, and which would not be sanctioned by the society. Accordingly, I did not consider myself bound to comply with the regulations of any society, except society in general, and I was a good deal surprised to find that any one had the power to take a building out of my hands which I had fairly won in competition, and which was mine by right of conquest.

I am, Sir, &c., R. H. Bentham.

I think it is not unreasonable to ask "A Looker-On" for his authority for some of his statements relating to my design, and I may also observe, that he himself has the "advantage" in being *merely* "*A Looker-On.*"

THE IRON TRADE.

The extravagant height to which the price of iron had reached has been followed by a reduction equally sudden, although by many persons confidently expected. According to the best authorities the reduction may be taken at 20*s.* Pigs were stated at the last quarterly meeting to be 6*l.* 10*s.*, they are now to be bought at 5*l.* 10*s.* In merchant-iron there is a reduction of 2*l.* per ton. It appears to be the prevailing opinion that the late extraordinary advance of 2*l.* within three months was artificial, uncalled for, and highly injudicious: it proved very injurious to the iron manufacturers of Staffordshire and Shropshire, unsettled the business of the Birmingham factors, and was the cause of orders to a considerable amount being sent to Germany.

When we reflect that pig-iron was selling in the Clyde at 35*s.* per ton, and has been lately quoted at 5*l.* 10*s.* to 6*l.*, and that bars were selling at 4*l.* 5*s.*, and have recently realized 5*l.*, and even 11*l.*, it may very well be imagined that the iron-masters must have been doing a good trade.

The Smoke Nuisance.—We are told that a economical plan of consuming the smoke ile in furnaces is being generally adopted by nufacturers whose premises are situated in ovided localities. The principle is exceedly simple, consisting merely of a course of kwork at the back part of the furnace. e space under the boiler is closely built up brick and mortar, with the exception of holes left at the bottom, through which flame is directed; this being quite filled the flame, the smoke which occupies other space is intercepted by the brick-s, and brought back upon the fire, where it nsumed, and a small quantity of white ur only escapes into the atmosphere.

THE ELIZABETHAN PERIOD.*

Haddon Hall, like many other magnificent abodes, appears, on close examination, evidently built when *comfort* was not a peculiarity of art in household construction. The doors are very rudely contrived, except when picturesque effect is the object; few fit at all close, and their fastenings are nothing better than wooden bolts, clumsy bars, or iron hasps. To conceal these defects, and exclude draughts of air, tapestry was put up, which had to be lifted in order to pass in or out; and when it was necessary to hold back these hangings, there were great iron hooks fixed for the purpose. All the principal rooms, except the gallery, were hung with loose arras, and their doors were concealed behind.

The universal rage for building in the sixteenth century (felt by no one more than Henry VIII., who built, improved, or completed no less than ten palaces), caused a rapid development of the new style then in process of formation—the Tudor Gothic. This style was in effect the latest form of the ecclesiastical Gothic, but modified by the necessities and proprieties of a domestic residence. Thus, more light was required for a room than for the interior of a chapel or a church; so the fronts of houses became one vast expanse of glass. "You shall have sometimes fair houses so full of glass, that one cannot tell where to come to be out of the sun or cold" (Bacon). Chimneys of all shapes and sizes, and some of them exceedingly ornamental, sprung up. But in Elizabeth's time a new element came into operation. Italian art was introduced. Henry VIII., in a spirit of rivalry with Francis of France, had sought to bring foreign artists to England; and though Raffaelle and Titian declined the invitation, other eminent men from different parts did come; among them Holbein, the universal artist. Many of the chief buildings erected after the middle of the sixteenth century shew the influence of the Italian architects. Somerset House was built by John of Padua, and became, as the first Italian edifice erected in England, an example for others to follow. But the English architects did not servilely copy them or any other works. They preserved some of their own Tudor-Gothic tastes; they admired, and therefore added something from the Italian; they also admired, and therefore also borrowed from Holbein and the German and Flemish schools, and the result was, unquestionably, magnificence.

As presenting generally a notion of the plan of Elizabethan mansions of the first rank, Buckhurst House, Sussex, may be usefully studied. This was built about 1560 by the author of the glorious poetical Induction to the Mirror for Magistrates, Lord Buckhurst, afterwards lord treasurer and Earl of Dorset. We regret to say, not only for the sake of the building, but for the associations connected with its author, that Buckhurst has long since disappeared. But magnificent as were these great mansions in their size, arrangement, and general aspect, there was little even in them that would harmonize with our notions of what the interiors should be to correspond with such exteriors.

Walpole justly observes, with regard to the mansions of the sixteenth century, "Space and vastness seem to have made their whole ideas of grandeur; the palaces of the memorable Countess of Shrewsbury are exactly in this style. The apartments are lofty and enormous, and they knew not how to furnish them. Pictures, had they had good ones, would have been lost in chambers of such height: tapestry, their chief moveable, was not commonly perfect enough to be real magnificence. Fretted ceilings, graceful mouldings of windows, and painted glass, the ornaments of the preceding age, were fallen into disuse. Immense lights, composed of bad glass, in diamond panes, cast an air of poverty over their most costly apartments."

Hardwick, in Derbyshire, between Chesterfield and Mansfield, the property of the Duke of Devonshire, is one of the "palaces of the memorable Countess of Shrewsbury," here referred to. A strange story is told in explanation of this lady's building propensities. A tradition, recorded by Walpole, says, the countess was told by a fortune-teller that she should not die whilst she continued building; so she went on, erecting mansion after mansion, until her proceedings were arrested one winter by a hard frost, which rendered the workmen unable to continue their labours, and then she died. Two or three portraits of the countess, or as she is more popularly called, Bess of Hardwick, are to be found here. The gallery is of the amazing extent of 195 feet, and contains some interesting pictures; among them one of Mary Queen of Scots, whose residence as a prisoner in the mansion has given to it a still higher interest than is attached to the well-known countess its founder. Mary spent a considerable portion of her long nineteen years of imprisonment at Hardwick, during which time she occupied some of her dreary hours by embroidering the black velvet chair-covers that are still preserved in the mansion. Indeed, one of the most delightful features of the place is its perfectly Elizabethan character. Every thing remains unaltered from the days of the two queens—the oppressor and the oppressed.

Of old castles, as well as old churches, we take our leave in the present period. Their uses had passed away. Many of those built in imitation, to a certain extent, of the ancient castellated style, were but superficial imitations, calculated to please the still lingering military tastes of the owners, but utterly unsuited for the real wear and tear of military defence. Indeed, Elizabeth, as well as her father, would no doubt like to have seen the man who would have ventured to have erected a real stronghold in her time. Power enough was reserved for the aristocracy, but it was to be henceforth the power of station and wealth only, whether exercised in public or in private life. So, although castles were erected, and strong ones too, no subjects were the builders. There were to be defences provided, not to facilitate internal warfare, but as a protection from foreign aggression. Henry VIII. caused a chain of fortresses to be raised for the protection of the northern and eastern coasts—as Sandown, and others. To Elizabeth we owe the commencement of the castle named after herself at Jersey, in which Clarendon resided for two years, and wrote a large portion of his "History of the Rebellion." Mount Orgueil, also in Jersey, commandingly situated on a rocky headland that projects forward into the sea, is famous as the prison of Prynne, and the residence of Charles II. during a part of his exile. Upnor Castle, on the Medway, a little below Chatham—now completely in ruins—is distinguished as being one of the last, if not the very last, of those places of defence that were built on the old principles of fortification.

We cannot better take leave of the general subject of castles, than with a few words upon a fortress that formed a most perfect example of the class in all its genuine strength, and sternness, and inconvenience for residence, and which, to the regret of those who like to have something better than mere descriptions of antiquity to rely upon, has been recently much damaged by fire. Naworth stood on the edge of a ravine, had walls of enormous thickness, and was altogether in the style of a castle of the fourteenth century; when all such works were built with the expectation that occasions might arise to test their strength, and with more than expectation—the certainty—where castles like Naworth were concerned. To the strength of wall, and narrowness of window that marked the exterior of such places, must be added, in order to combine their chief characteristics, the dungeons within for prisoners, and the fire-places of the hall, which were really of almost incredible dimensions. That of Naworth was seventeen feet broad.

* "Old England, a Pictorial Museum of Antiquities." C. Knight, London.

Proposed Aerial Tunnel over the Menai.—Mr. Randall proposed last week, before a committee of the House of Commons, to carry the Chester and Holyhead Railway across the Menai Straits, by means of a huge tube composed of sheet iron, and to support the same midway on the Britannia Rock, thus forming a kind of aerial tunnel, consisting of two spans, each being about 450 feet in length. General Pasley on being questioned as to the merits of the proposition said, that he considered it sound in principle as well as safe in practice. He also was of opinion, that two small tubes, one for each rail, would be preferable to a single large one.

LIST OF NEW PATENTS RELATING TO ARCHITECTURE, ENGINEERING, &c., GRANTED FOR ENGLAND.

Furnished by Mr. A. Prince, of the Office for Patents of Inventions, Lincoln's-Inn Fields.

[SIX MONTHS FOR ENROLMENT.]

William Robinson Mulley, and George Mason, jun., of Ipswich, contractors, for improvements in collecting and raising stone or substances from below water. April 2.

Otis Tufts, of Boston, in the state of Massachussetts, America, engineer, for a certain new and useful mode of building or constructing either the hulls or decks, or both, as the case may require, of ships, boats, and various other sailing or floating vessels made of iron, or other suitable metal or metals. April 2.

John Dewrance, of Liverpool, engineer, for certain improvements in steam boilers, and in the construction, composition, and manufacture of bearings, steps, and other rubbing surfaces of steam engines and other machinery, and also for a method of lubricating the same. April 7.

Thomas Metcalfe, of Elizabeth-street, Eaton-square, brush-maker, for certain improvements in propelling carriages, which improvements are also applicable to driving certain machinery. April 7.

James Lamb Hancock, Frederick Augustus Lamb Hancock, and William Lamb Hancock, of Guildsfield, Montgomery, for an improved rotary steam engine. April 7.

Edward Bury, of Hanslope, Buckinghamshire, civil engineer, for certain improvements in locomotive engines, carriages, or wagons running upon railways or common roads, for the prevention of accidents. April 7.

Elijah Galloway, of the Strand, engineer, for improvements in propelling railway carriages. April 9.

Samuel Stocker, of Canonbury-place, engineer, for improvements in machinery or apparatus for lifting, forcing, or conveying liquids in vessels, for holding liquids, and improvements in water-closets. April 9.

John Coope Haddan, of Liverpool-street, King's-cross, Middlesex, engineer, for improvements in preparing sleepers, chairs, and spikes, and constructing wheels for railways. April 14.

Frederick Rosenborg, of Kingston-upon-Hull, gentleman, for certain improvements in machinery for cutting and shaping wood and other materials into various forms or figures, and also for cleaning and smoothing the surfaces of the same forms or figures. April 15.

George Carter, of Willenhall, Stafford, jobbing smith, for certain improvements in locks and latches. April 15.

John Lord, of Friday-bridge, Birmingham, merchant, for improvements in supplying steam-boilers with water. April 15.

George Royle, of Church-hill, Wednesbury, Stafford, whitesmith, for improvements in locomotive, marine, steam, gas, and other tubes. April 17.

William Mackie, of Baggot-street, Dublin, builder, for improvements in window-sashes and shutters. April 22.

Freeman Roe, of the Strand, engineer, for improvements in the manufacture of pipes for conveying water and other fluids. April 22.

Joseph Maudslay, and Joshua Field, of Lambeth, engineers, for certain improvements in propelling, and propelling machinery. April 24.

Robert Beart, of Godmanchester, gentleman, for improvements in the manufacture of bricks and tiles. April 24.

Samuel Wilkes, of Wolverhampton, iron-founder, for improvements in the manufacture of hinges. April 26.

John Sylvester, of Great Russell-street, Bloomsbury, civil engineer, for improvements in stoves and fire-places. April 29.

Gilmour Wilson, of Earl-street, London, engineer, for improvments in the construction of wheels for carriages. April 29.

Frederic Lesnard, of Kepple-street, engineer, for improvements in generating steam and evaporating liquids. April 29.

James Nasmyth, of Arundel-street, gentleman, for certain improvments in engines or machines for obtaining and applying motive power. April 29.

Correspondence.

ARCHITECTURAL MODELLERS.

SIR,—Your correspondent who writes on architectural modelling at page 190 of your excellent periodical seems to entertain a mistaken and somewhat prejudiced feeling towards *architects, builders, and plasterers*, which I shall endeavour to correct.

Your subscriber states: "In almost all cases the modeller is not employed by the architect, but by the builder, who, having little taste for works of art himself, employs any body he can get to do it cheap, mostly *some plasterer, who understands little about modelling, nothing about drawing* or style of composition, while the artist of *acknowledged talent* is entirely deserted by the architect."

In reference to the above remarks, I shall admit that the decorative modeller is seldom *directly* employed by the architect; but instead of being employed by the builder, it much more frequently occurs that he is engaged by *the plasterer*, as was the case at Buckingham Palace, Windsor Castle, York House, &c., where architectural modelling was carried out to an extent of beauty and magnificence, if not unequalled, at least unsurpassed, and that too, under the immediate guidance of a *plasterer*, whose name will go down to posterity as the greatest man in the line ever produced in England.

Your correspondent also (with all due deference to his talents) evidently writes on a subject he does not quite understand when he states, that "the drawing made by the architect seldom for more than a quarter part, gives a very ambiguous idea of the subject wanting, and in many cases *no drawing at all*; the models so made are consigned to the tender mercies of *some hod boy to cast*, and to fix by others who know as little about it."

Surely, Mr. Editor, your *decorative modeller* is sadly out of his latitude in the above assertion. Firstly, are we to understand him that in some cases the architect makes no drawing at all? if so, pray what is the architect's office? Secondly, there is not such a class of individuals in London, or elsewhere as "*hod boys*." I presume your correspondent or your printer's devil has made a mistake, for this should have been "odd boys;" and certainly odd lads they are some of them, and clever fellows too; really boys of intrinsic value, some of them bright young geniuses of the very first magnitude. I have had many of these same lads to cast my enrichments, and when properly trained, they do it in the most expert manner; their proper cognomen is "hawk boys." Thirdly, the decorations after being modelled and cast are *in all good establishments* fixed by expert plasterers, picked men, masters in their particular branch; and, lastly, to wind up this statement, and to shew that your subscriber is labouring under a delusion, I have to add that the very best architectural modeller, as regards minuteness of detail, &c., served his time to be "a plasterer" with the late Mr. Geo. Robson of Durham, never had an hour's instruction in drawing, and has immortalized his name in the annals of modelling by his copies of various sizes from the remains of the Temple of Jupiter Stator, &c. Need I name the justly celebrated "Tom Gillespie." Further, the very best general modeller and designer ever known in London was originally a "hawk boy;" and again, the best men in the line practising at the present day, have more or less originated from the plasterer and the hawk boy. If I have been somewhat ungentle in my remarks, and indulged in a touch of pleasantry in this matter, I trust your correspondent will forgive me, my observations being well meant, and originating in the wish to set both him and the public right, for I merely lifted the pen to correct his erroneous conclusions, and to defend the architects, builders, and plasterers, from imputations they do not deserve; the former of whom, instead of deserting talents and genius when they see them developed, invariably encourage them to the fullest extent. The fault does not rest with the architect, as your writer supposes, but in ninety-nine cases out of a hundred, with the modellers themselves, some of whom possessing talents of the very first order, are unhappily too much given to gaiety and midnight carousals, instead of attending to the instructions of their patrons the architects. Others, again, do not possess those peculiar abilities requisite to carry out the ideas of the architect, and consequently are rejected. So ends my present theme, and if he and the public will not assent to its truth, why verily they are dissenters worse than pagans, as Fraser or some of his writers would have said, and consequently not entitled to consideration.—I am, Sir, &c.,

FRANK TYRRELL.

Newcastle-upon-Tyne.

SKETCHING INTERDICTED IN CATHEDRALS, &c.

SIR,—Pray enter a protest in your influential journal against the exclusive system of preventing architects and others sketching in cathedrals, churches, &c. To-day, seeing some excellent bosses in the Lady Chapel at St. Saviour's, and being of course anxious to sketch, I was told, as usual, "No sketching is allowed, Sir, without a permission from the warden," which, having only an hour or so to spare, was not to be obtained. It is the case all over this country—at Canterbury, Hereford, Westminster Abbey, and wherever I have been,—Durham is the only honourable exception, and I do not think that the cathedral has suffered for this unusual liberality. In France, I have sketched, measured, and studied in the cathedrals without any hinderance whatever, and I think that you will agree with me, that it ought to be the case here. If you will make this a subject of consideration, and notice it in your paper, you will much oblige, Sir,

Your obedient servant,
A SUBSCRIBER.

*** We fully agree with our correspondent, that such prohibition, where it exists, is unwise and vexatious, and will gladly lend our assistance to induce the discontinuance of it.—ED.

COVERING FOR ROOFS.

SIR,—I shall be glad if some one of your correspondents will give me some information respecting a really good and light material for roofing, in a climate such as that of America. Zinc I am fearful of, as the heat of the sun draws it out of shape, and wherever there is much condensed smoke or soot settling upon it, it corrodes most provokingly. The buildings I wish to roof are in one story; they are built of wood, and the roofs are wanted a good span, say 50 feet. I have heard of galvanized iron, but wish to hear how those who have tried it find it to answer, and the expense per square foot. Any of your correspondents able to furnish me with this information will confer a great favour by doing so.

I am, Sir, &c.,
A SUBSCRIBER.

ESTIMATES FOR HOTEL AT WHITEHAVEN.

SIR,—My attention having been drawn to a letter in THE BUILDER of last week, professing to give information respecting the tenders for the proposed hotel at Whitehaven, I have to observe that it is not my practice to supply quantities on any occasion, and with reference to the business in question, that the quantities were abstracted by Mr. John Blyth on my behalf, as architect, and by Mr. Eppy on the part of the builders.

I shall be obliged by the insertion of this letter, and remain, Sir, your obedient servant,
R. C. CARPENTER.

Guildford-street, Russell-square,
May 12th, 1845.

HAGIOSCOPE IN EARLY CHURCHES.

SIR,—In "THE BUILDER" of the 10th inst. I find inserted a very interesting account, historical and architectural, of Alderton Church, Wilts. The writer refers, at some length, to a very curious "hagioscope" in the said church, and inclines to the opinion, which he quotes from the Cambridge Camden Society, that such openings were found in early Norman churches.

In a late charge of the Venerable Archdeacon Shirley, I find the *early* origin of these architectural features of a church questioned. Would you, or any of your readers, have the goodness to mention any instances of "hagioscopes" of undoubted early character. I much question if there were any in Norman times.

I am, Sir, &c.,
J. F.

STRENGTH OF TIMBER BEAMS.

SIR,—I have made a model of a truss beam to a 1-inch scale, its bearing is 25 inches, the flitches are 27 inches long, and 1¼ by $\frac{1}{10}$, its contents are about 2¼ parts, it carries a weight of 168lbs. with very little flexibility. Now, I should be glad to know (and by what rule) how much a beam of 25 feet bearing will carry whose flitches are 15 inches by 6½, which is near the size of my model according to scale. If any of your talented readers will solve this question, it will oblige, yours respectfully,

A CONSTANT SUBSCRIBER.

Miscellanea.

PROPERTY-TAX AND WINDOWS.—Lord Duncan, the member for the city of Bath, has procured, by order of the House of Commons, a return shewing the total number of houses assessed to the property tax in the year 1844, in respect of certain streets, squares, and courts, in Westminster and Marylebone; also a similar return of the amount of window duty paid by the several houses assessed in each of the above classes, distinguishing the amount paid for each class, &c. It is hence ascertained that the total number of houses assessed in 1844 amounted in Regent-street to 302—of which 21 were under 150*l.* 65 under 200*l.*, 115 under 250*l.*, 49 under 300*l.*, 26 under 400*l.* 8 under 500*l.*, 5 under 1,000*l.*, and 3 under 2,000*l.*; in St. James's-square, 28—of which 4 were under 150*l.*, 1 under 200*l.*, 3 under 750*l.*, 12 under 1,000*l.*, and 8 under 2,000*l.*; in Berkeley-square, 45—of which 1 was under 100*l.*, 3 under 150*l.*, 3 under 200*l.*, 7 under 250*l.*, 6 under 300*l.*, 5 under 400*l.*, 7 under 500*l.*, 11 under 750*l.*, 1 under 1,000*l.*, and 1 under 2,000*l.*; in Oxford-street, 503—of which 160 were under 150*l.*, 117 under 200*l.*, and 2 under 2,000*l.*; in Grosvenor-square, 45—none of which were under 300*l.*; in Piccadilly, 174—of which 8 were between 750*l.* and 1,000*l.*, 6 under 2,000*l.* and 3 above 2,000*l.*; in Peter-street, Westminster, to 89; in Berwick-street, Soho, to 98; in Chapel-street, Westminster, to 1; in Little Stanhope-street, to 13; in Dufour's-place, St. James's, to 10; in Cross-street, St. James's, to 14; in Broad-street to 19; in Poland-street to 63; and in Lancashire-court, Westminster, to 14; all the houses in the above nine localities being lowly assessed in comparison with the others. The amount of window duty paid by the several houses was—in Regent street, 2,060*l.*; in St. James's-square, 669*l.*; in Berkeley-square, 712*l.*; in Oxford-street, 2,310*l.*; in Grosvenor-square, 983*l.*; in Piccadilly, 1,791*l.*; in Peter-street, 114*l.*; in Berwick-street, Soho, 483*l.*; in Chapel court, Westminster, 3s. 6d.; in Little Stanhope-street, St. George's, 62*l.* 13s.; in Dufour's-place, 78*l.* 7s. 6d; in Cross-street, 7*l.* 13s. 6d.; in Broad-street, 332*l.*; in Poland-street, 415*l.*; and in Lancashire-court, 22*l.*

SOCIETY OF ARTS.—May 7th, Mr. G. Moore, M.P., in the chair. Mr. J. Scott Russell described an upright drill, the invention of Mr. McDowall; the novelty and advantage of which consisted in the application of the power employed being in the direction of the axis of the drill, instead of at right angles, as in the ordinary drill. Mr. Boulter described his improved compensation pendulum-spring, whereby he is enabled to regulate the pendulum without altering the adjustment, and *vice versâ*. The pendulum is attached to a rod (of white metal) by means of a pivot passing through two small steel plates let into the rod. The secretary read a paper by Mr. Dicksee on the manufacture of his pressed glass mosaics, applicable alike for pavements, mural decorations, and furniture, several specimens of which were laid on the table. The mosaics may be produced of any colour. They may also be modelled into any required shape, while the glass is in a heated state, by means of a double-action screw press. In order to prevent the surface of the mosaics being bloated and uneven, it is necessary that the pressure should be continued for a sufficient time so that the glass may be hidden before being removed from the mould. Mr. Jarvis, of Connecticut, U.S., explained to the meeting his "Surgical Adjuster," the objects of which are to reduce dislocations, to adjust comminuted fractures, and preserve the fractured extremities in apposition during the process of union.

WESTMINSTER IMPROVEMENTS.—A public meeting of the inhabitants of Westminster was held last Saturday, at the Mechanics' Institution, Great Smith-street, for the purpose of having submitted to them the report of the committee appointed on the 7th of February, to consider the best means of carrying out the projected improvements in that district. The Hon. Captain Rous, M.P. presided. It appeared that the committee had had an interview with Sir Robert Peel, who approved of their proceedings, and recommended them to communicate with the Commissioners of Woods and Forests, which they accordingly did. The Earl of Lincoln informed the committee that he was so pledged to Mr. Rigby Wason's line and plan of improvement, that he could not even examine other plans shewn, much less entertain them. We gave a short time since (see page 147, *ante*), the names of those gentlemen who had sent in plans. It was stated at the meeting, by one of the committee, that on the question being put to each of those gentlemen, as to his being prepared with sufficient means to carry out his design, if approved of, not one of them could answer in the affirmative, with the exception of Mr. Abraham, whose plan is the one adopted by Mr. Wason. We are indebted to the excellent secretary to the Westminster Improvement Committee (Mr. W. H. J. Traice), for a copy of the report laid before the meeting, and shall refer to it next week.

THE NAIL TRADE IN STIRLINGSHIRE.—This branch of trade has long been in a very depressed state, chiefly arising from the use of machine-made nails, and also from a spirit of competition among the employers. The average earnings of the nail-makers in this quarter, for some years past, have not exceeded 7s. a week; for though in some few instances 8s., 10s., or even 12s., have been realised, yet these sums were only got by extra labour, or perhaps a better paid kind of work. About six months ago the workmen obtained a penny additional for making 1000 nails; and after some agitation on the part of the workmen, several of the employers have this week advanced another 3d. on the same quantity. This will have the effect of raising the nail-maker's weekly earnings to about 8s. 6d. or 9s., or from 20 to 30 per cent. on their wages, which, though still a small pittance, must be productive of a little more comfort to this long-depressed body of men.—*Scotch Paper.*

THE KING'S ROAD, READING.—Relative to the late competition at Reading, we are informed that, after thoroughly considering the whole of the designs submitted to the adjudicators, the proprietor has decided to adopt one of the designs which received a premium both from the suitability of the design to the situation and aspect of the land, and the wants of the town of Reading. The land on the north side of the King's-road is intended to be laid out in one square of ample dimensions, in the area of which an ornamental terrace 380 feet long is preparing, and other arrangements with respect to walks and borders similar to Hyde Park-gardens, London. That on the south side will alsoform a terrace, with a diversified shrubbery in front. The style is to be restricted to the Italian, and care taken to preserve the character of the whole design. Our readers will find in our advertising columns a notice of the land as now offered to the public.

SMOKE NUISANCE.—It appears by the reports made from Woolwich and Portsmouth dockyards, that after a lengthened trial of nearly two years, it has been determined to adopt Godson's patent smoke-consuming apparatus in the Government yards, in consequence of its satisfactory performance. This invention combines the two principles of coking the coal and introducing heated air into the furnace, by either of which methods, scientific men are agreed that a very large proportion of the smoke of furnaces may be consumed; and by the joint operation of the two, it is to be expected that the most perfect combustion of the smoke will be obtained.—*Morning Paper.*

THE SCHOOLMASTER ABROAD.—The Archdeacon of Middlesex at a recent visitation stated, that the National Society had raised above 197,000*l.* between the 5th of July, 1843, and Christmas last, a period of only sixteen months. That no less than 845 schools had been built or enlarged, and accommodation provided for 108,937 scholars.

HOT-AIR PIPES USED BY THE ROMANS.—It is stated, in a letter from Treves, that a curious and interesting discovery has been made, in the course of the excavations among the foundations of the ancient Roman basilica of that place—about to be restored, in its primitive form, as a Lutheran Church. Beneath the mosaic pavement of its principal hall, which rests on brick buttresses, has been found a complete system of metal pipes, of a large calibre, which have obviously, it is said, been used for warming that apartment by means of steam or heated air—thus proving that a method of heating believed to have been of recent invention was known and practised in the days of the Romans.—Not far from the Webersbach gate of the same city, and about four feet beneath the surface of the soil, has been likewise discovered an extensive and magnificent pavement in mosaic, also resting on brick pillars and which appears to have belonged to some stately edifice. It is divided into large compartments—of which eleven are uninjured, and represent mythological subjects—such as combats of gladiators, and military and bacchanal trophies.—*Athenæum.*

BAZAAR IN COVENT-GARDEN THEATRE.—An extraordinary effect has been produced in Covent Garden Theatre by the scene-painter and the carpenter, and will well repay a visit when the admission money is a shilling. The whole house, including the stage, to the back wall, is formed into a vast hall, with open timber roof, clustered columns, and pointed arches, elaborately adorned with panelling and colours. Seen from the upper boxes, which form the orchestral gallery, the effect of the lengthened perspective is very striking. Without reference to the Anti-Corn Law League, for whose purposes the bazaar is opened, we are bound to say the whole arrangements exhibit considerable taste, and that many of the articles exhibited, iron work especially, are of great excellence, and will serve to stimulate manufacturers, and so benefit the public.

EFFECT OF RAILWAYS ON THE WEATHER.—It has been suggested that the state of the electricity of the atmosphere, on which depend most of the meteorological changes, may be greatly altered by having iron conductors traversing the country in all directions. Thus, iron transmits electricity easily from one end of the country to another; but not being insulated, it only opens a communication of easier transmission in all the directions of the iron rails. It has been said that not more than half the quantity of rain has fallen during the past year. The electricity of the clouds would be puzzled were the surface of the earth covered with a non-electric, as glass; and why should not a complete conduction in certain lines give passage to much electricity, which in the ordinary character of the usual surface of the ground would be more naturally and more beneficially distributed?

DESTRUCTION OF PIFF'S ELM.—The celebrated Piff's Elm, near the parish of Uckington, was some time since sold by auction by order of the Dean and Chapter of Westminster. It was bought by Mr. Crook, of Hasfield, near the Haw-bridge, for the sum of 12*l.* About a fortnight ago, the work of demolition commenced, and was completed at 20 minutes to 4 o'clock on Wednesday last. The time occupied was nine days—six in stocking it, erecting the scaffolding round it, and lopping off the limbs, and three in felling the trunk, which was about eight or nine feet in diameter. Nine sawyers were employed in cutting the trunk through the centre, and afterwards in sawing it across at the root. A great many bets were made by gentlemen as to the soundness of the tree; the timber was found to be perfect.—*Cheltenham Free Press.*

ELECTION OF A SURVEYOR FOR THE PARISH OF ST. JAMES'S.—A notice has been issued by the Middlesex magistrates, signed "Heaton Ellis, clerk of the peace," to the effect that the court will proceed on Thursday, the 29th instant, to the election of a surveyor for the parish of St. James's, in the liberty of Westminster, in the room of Mr. James Gray Mayhew, deceased.

YARMOUTH SUSPENSION BRIDGE.—We have some notes in type relative to the recent failure of this construction. So many contradictory opinions, however, are before the public, and so little information that is satisfactory, that we defer publishing them.

NEW REVOLVING RULE FOR MEASURING LUMBER, &c.—A patent has recently been granted in America for the above purpose. The invention consists in a wheel of one foot in circumference, so arranged in a case as to have a portion of its periphery project beyond the case, and a portion of its face visible through a hole, the edge of which is graduated in the manner of the common lumber rule. The shaft of this wheel is geared with the shaft of a cylinder, so that the latter will make one revolution to thirty-six of the former, there being thirty-six divisions to indicate the number of revolutions made by the wheel; and the shaft of this cylinder is geared with another cylinder which makes twelve revolutions to one, to mark the number of revolutions made by the first cylinder. The scales on the wheel and cylinders are so arranged, as to give the superficial as well as the running measure. The name of the inventor is Charles Ross.

ROYAL BOTANIC SOCIETY, REGENT'S-PARK.—At a recent meeting of the society an announcement was made by the secretary, that the council had at length succeeded in completing the necessary arrangements for the immediate commencement of the conservatory, or winter garden, and had with this view entered into a contract with Mr. Turner, of Dublin, already known by similar works in progress, or executed by him for the Royal Gardens at Kew, the Earls of Derby, Aberdeen, &c. The building, the framework of which is upon the suggestion of Mr. Decimus Burton, under whose superintendence the works are conducted, to be constructed wholly of iron, was to be made available for the purposes of the society within the ensuing half-year.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For taking down part of the present County Gaol of Lincoln, and erecting a New Building on the site thereof, with airing yards and other requisites.

For building a school-room in London near the bridges.

For the erection of the Borough Gaol, Birmingham.

For the erection of a Building in London for a highly-patronized purpose, at the estimated cost of about 30,000*l.*

For the supply of 20,000 slow-grown Larch Sleepers, wanted by the Manchester and Birmingham Railway.

For the Alteration and Enlargement of the Union Workhouse at Whittlesey, in the neighbourhood of Huntingdon.

For the Erection of a Workhouse between Swindon and Highworth, Wiltshire.

For the performance of the necessary works in the construction of a New Dock in the Borough of Kingston-upon-Hull.

For repairing and keeping in repair for three years, from Midsummer-day next, the Cannon-street Road, Middlesex.

For Erecting a Market-house at Malmesbury, Wiltshire.

For a quantity of *proof chain* 2¼, 1½, 1, ¾, and ½ inch, wanted by the Universal Salvage Company.

For the reparation of Ten houses in Hounsditch. The whole to be finished by the end of August.

For Lighting the Public Lamps within the City of London with gas, for the term of one year, from Midsummer-day next.

For Building Sewers in the east end of Tower-street, Harp-lane, and St. Mary Hill, and other places adjacent thereto, within the City of London.

For Building the Carcasses of certain first-rate Houses, with Shop Fronts, in the new line of Oxford-street, leading into Holborn.

For laying the Carriage-way of part of the Parishes of St. Giles-in-the-Fields and St. George, Bloomsbury, with Wood; also for supplying the same parishes with the best new squared Aberdeen, Mount Sorrell, and other Granite, and the best Eland Edge, Yorkshire, and other Foot Paving.

COMPETITIONS.

Plans, sections, and elevations for a Terminus, and other requisite accompanying offices, for the Great Southern and Western Railway, Ireland.

A premium of 30 guineas will be presented to the party offering the best plan of Docks, capable of admitting ships of 1,000 tons burden, to be erected at Burnham, in the Bristol Channel.

Designs for houses to be erected at Dover. The ground is nearly seven acres in extent, and lies on a gentle slope between the south-west boundary of Dover Castle and the town. A premium of fifty guineas is offered for the set that may be most approved of.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

The timber and other trees now standing upon the estate at Woodseaves, Salop. By order of the Lord Chancellor made in the cause "Dickin *v.* Barker."

At Mitchell's Farm, near Saffron Walden. A fall of 68 famous Oak, and six Ash timber trees with the top wood.

At Wiston Woods, near Nayland, Essex: all the Timber, Timber-like Trees and Saplings (consisting of Oak, Ash, Elm, Asp, Birch, and Cherry) arising from the Wood of 13 Acres called "Hills."

At Kersey, near Hadleigh, Essex: 130 Capital Oak Timber Trees, 70 Oak Standels, and about 30 Pollards, lying on "The Ivy-tree Farm."

At Earlsham, a quantity of oak, ash, elm, and poplar timbers. Oak, ash, elm, and other pollards, &c.

On the premises, West Harding-street, East Harding-street, Middle New-street, and Great New-street, Fetter-lane, the building materials of six houses, by order of the Goldsmiths' Company.

BY TENDER.

A Virgin Forest of Valuable Timber in Walachia. The principal part of the Trees is Oak. The said Forest may produce about 500,000 cubic feet of Timber.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, May 19. — *Statistical*, 11, Regent-street, 8 P.M.; *United Service Institution*, Whitehall Yard, 9 P.M.; *Chemical* (Society of Arts), Adelphi, 8 P.M.; *Medical*, Bolt-court, Fleet-street, 8 P.M.

TUESDAY, 20. — *Civil Engineers*, 25, Great George-street, 8 P.M.; *Pharmaceutical*, 17, Bloomsbury-square, 11 A.M. (anniversary).

WEDNESDAY, 21.—*Society of Arts*, Adelphi, 8 P.M.; *Microscopical*, 21, Regent-street, 8 P.M.; *Ethnological*, 27A, Sackville-street, 8 P.M.

THURSDAY, 22.— *Royal*, Somerset-house, 8½ P.M.; *Antiquaries*, Somerset-house, 8 P.M.; *R. S. Literature*, 4, St. Martin's-place, 4 P.M.; *Medico-Botanical*, 32, Sackville-street, 8 P.M.; *Numismatic*, Somerset-house, 7 P.M.

FRIDAY, 23.— *Royal Institution*, Albemarle-street, 8½ P.M.; *Philological*, 49, Pall Mall, 7 P.M. (anniversary).

SATURDAY, 24. — *Royal Botanic*, Regent's-park, 4 P.M.

TO CORRESPONDENTS.

"George's Pier Head, Liverpool."—*Two correspondents are anxious to receive intelligence of the* 200*l. premium offered for the best design for landing carriages and passengers.*

"W. P. G."—*Pressure of occupations would not allow us to comply with the request.*

"Building Societies."—*It is so long since the statement appeared to which Mr. Kerr's letter refers that we must decline renewing the subject.*

"Terra Cotta."—*Mr. Sharpe's letter relative to this material shall appear next week.*

"Pantasee."—*The plan he suggests is hardly practicable. In the case mentioned information may be obtained from William Taylor, 3, College-green, Dublin.*

"Henry Johnstone" *and* "Parker Ayers" *next week.*

Received.—"*The Journal of the British Archæological Association*," *No. 1 (Bohn), of which we shall speak shortly*—"*Dawn Island*," *a tale, by Miss Martineau, written for the Anti Corn-Law Bazaar*—*Mr. Spencer Hall's enclosure*; "*Plan for Improving the Condition of the Working Classes.*" — *John Weston*—*W. L. Short* — *John Workman.*

ADVERTISEMENTS.

Just published, price 5s., neatly bound in roan, with tuck, gilt edges, and lettered, a Pocket Edition of

A CYCLOPÆDIA of the NEW METROPOLITAN BUILDINGS ACT, together with the Act itself, a Folio Table of the Metropolitan Districts (old and new), a List of the Surveyors, with their Residences and Offices, and a Table of Fees to be paid to the Registrar for services performed.

In the Cyclopædia all the details of the Statute are arranged Alphabetically, so as to be instantly found, and accompanied by extensive references and counter-references to the sections of the Act itself and its minute provisions.

By the late A. BARTHOLOMEW, Esq., F.S.A., Architect, Surveyor of the Hornsey District.

Published at the Office of "The Builder," 2, York-street, Covent-garden; and to be had of all Booksellers.

DUTY OFF ORNAMENTAL WINDOW GLASS.

CHARLES LONG begs to inform his Friends and the Public, that he can now supply Ornamental Glass at 1s. 3d. per foot superficial, and having just built two of the largest Kilns in London, is enabled to execute extensive Orders with unprecedented dispatch, 1, King-street, Portman-square.—Terms, Cash only.

DUTY off WINDOW GLASS. — On April the 6th, Squares stouter and of better make than formerly for Glazing purposes at 6d. per foot.

NURSERYMEN, MARKET GARDENERS, AND OTHERS requiring Small Glass, will find a greater variety of sizes (a large Stock of which is constantly on hand) than is kept by any other house in London, from 4d. per foot. Flattened Sheet, Stained, Fluted, the BIRMINGHAM Sheet Plate (superior in all respects to every other make), and Ornamental Glass of every description. Complete Lists of Glass, Lead, Colours, &c., at ready-money prices, may be had (gratis) on application to R. Cogan, at the Western Glass, Lead, and Colour Warehouse, 5, Princes-street, Leicester-square, London.

SURVEYORS, CONTRACTORS FOR PUBLIC WORKS, and the TRADE generally, sending specifications of quantities required, will receive by return of post an invoice at the very lowest cash prices.

A parcel of very Superior Spruce Oker, suitable for PLASTERERS AND PAINTERS, to be sold at 6s. per cwt.

HIP TILES to suit slate roofs in colour; Ridges, with plain or rebated joints, roll tops, and vertical ornaments; drains, many sizes, with plain or socket joints; paving in squares, hexagons, octagons, &c., different colours; roofing, in Grecian or Italian styles, other devices also, or plain; conduits, which do not injure pure water; fire-bricks and tiles; clinkers, and out-door paving; sundry wall-coping, garden-borders, chimney-tops; also tubular and other flues of peculiar material. No agent, but a depôt at WHITEFRIARS, and 22, WATER-LANE, FLEET-STREET, LONDON, under Mr. PEAKE'S personal care, to supply genuine TERRO-METALLIC goods at fair prices as per quality.

The TILERIES, TUNSTALL, STAFFORDSHIRE, are near the centre of England, whence boats are sent direct to any inland place; or to the Mersey for the coasts, the colonies and elsewhere.

HATCHER'S BENNENDEN TILE-MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of	Tile, 11,000	1½ inches diameter of	Tile, 5,800
1¼ " " "	8,000	2½ " " "	3,200

See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, part 2nd, vol. v.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or licences. The purchase of the machine includes free use of it.

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The Builder.

No. CXX.

SATURDAY, MAY 24, 1845.

IN our journal of the 12th ult. (p. 169, *ante*) we communicated two awards by the official referees, as to bows and projections to houses commenced before last January, establishing conclusively what we had before urged, that projections which were part of the original design, *although not yet formed*, were "already built" in the eyes of the law, and did not fall within the provisions of the Buildings Act,—always provided that the same should be finished and the houses rendered fit for use before January, 1846.

At the close of the article we remarked, "we need say no more on this subject." The law seemed so clear to common sense, and the referees had so strongly enforced it by these awards, that we thought it was not likely that the question would be again raised. We were, however, wrong in that belief, and are induced to state the particulars of one other case in point, with the referees' decision, as a warning to the obstinate and litigious.

In the autumn of last year, Mr. Harvey, a builder, erected a detached house on Lord Dartmouth's land in the Lewisham-road, with a porch to front and bow window at back. The carcass was covered in, and the basement story of both porch and bow erected by December. The upper part of the bow was to be formed in timber (so shewn on the plans originally made); and when the builder last month completed it, as always intended, Mr. Badger, the district surveyor, gave him notice of irregularity, and ultimately he was summoned to appear before the referees at the "Lion and Lamb," Lewisham,—not an inapposite conjunction.

The facts above stated were proved and admitted; and it was shewn at the hearing that the registrar, on receipt of the district surveyor's information against the builder in question, had actually directed his attention to the awards we have alluded to, so that he was unable to plead ignorance in excuse. Lord Dartmouth's surveyor, Mr. Godwin, who attended for the builder, called on the referees with the full assurance that they could do no other than award against the interference of the district surveyor) to provide for the payment of his client's personal costs, urging justly, that when the builder is wrong they force him to pay an extra fee to the district surveyor for his attendance, and therefore when he is right they ought not to allow the expense of professional assistance to fall on him.

The award of the referees, which has just been taken up, does not go quite so far as this, but determines that the bow does not fall within the provisions of the said Act, and that the costs and expenses, so far as relate to the Office of Metropolitan Buildings, are to be paid by Mr. Badger.

We may hope that this award will have a salutary effect; it will be aided by a second, made by the referees, on a case heard at Lewisham on the same day as the preceding. This relates to repairing the chimney shafts of three houses at Hither Green. The owner had requested a builder to stop a leakage in one of the roofs, and make good the pointing. Upon examination, it was thought necessary to point the chimney shafts; and, according to the builder's statement, about a dozen bricks were replaced by new. The whole repair did not amount to 3*l*. The district surveyor seeing what had been done, remonstrated with the builder for not giving him notice, and, as a correspondent informs us, declared he would, in consequence, compel him to raise the chimney shafts, as they were not of the height required by schedule F; that is, not less than three feet above the highest part of the roof, flat, or gutter adjoining thereto.

The award of the referees, and it is one of considerable importance, is as follows:—

"That inasmuch as the repair in question was not a repair involving *a structural alteration*, the same was not liable to be raised to the height of three feet, according to the rule in schedule F of the said Act;

"And with regard to the costs and expenses attending this proceeding, they do further award that the same be *paid by the said Charles Robert Badger;* that is to say, as to the fees and expenses of the Office of Metropolitan Buildings, that on or before the 17th of May, inst., the sum of 2*l*. 6s. be paid to the Registrar of Metropolitan Buildings, at the said office, at No. 3, Trafalgar Square, London."

One word to the district surveyor on whom these expenses have fallen, and we say it from a sense of duty, prompted by no less than five statements now before us, and without any ill-nature, or desire to annoy. He is placed in his office to see an Act of Parliament carried out for the protection of the public, not to bring that Act into disesteem, and to induce evasion of it by uncalled for interference, or even by stringently enforcing the letter, rather than attending to its spirit; and we sincerely hope that he will take a fresh view of his position, and do nothing needlessly to render the office of district surveyor unpopular.

OUTSIDE WINDOW BLINDS.—Some of the district surveyors having considered that outside window blinds must be regarded as projections from face walls within the meaning of the Buildings Act, summoned the makers to remove their work. A meeting of master window-blind makers was in consequence held, and they, finding great want of information as to whether they could proceed in finishing the various orders they had received, addressed a requisition to the referees setting forth this fact, and asking an award or certificate to enable them to follow their business without interruption or delay. They forwarded diagrams of the ordinary window blinds (known as Oriental, Florentine, Spanish, Hood-blind, Venetian-shade, and Shutter-blind), and the referees have certified that such window blinds "are *not* projections from face walls within the meaning of the Metropolitan Buildings Act, and do *not* come within the operation of the said Act."

PORTLAND TOWN CHURCH.—It has been proposed to erect a church to contain 1000 sittings in Portland Town, a district of the metropolis containing a population of at least 5,000, of whom the greater part are very poor. The cost of the site will be 1,700*l*., and the building is estimated at 6,500*l*., making a total of 8,200*l*. Towards defraying this amount Her Majesty's Commissioners have granted 500*l*., the Metropolis Churches Fund 1,500*l*., and subscriptions have been promised amounting to 2,440*l*., making up altogether the sum of 4,440*l*. For supplying the deficiency of 3,760*l*. an appeal to the public has been made, and a subscription opened.

ON THE WALLS OF ANCIENT AND MODERN ROME.

BY THE REV. RICHARD BURGESS, B.D.*

WHEN I had the honour of attempting to describe and illustrate the aqueducts of ancient Rome, I remarked that there was some association between those great works and the walls of the city. The first period of the ruin of Rome was marked by the partial destruction of the walls and aqueducts; the materials of the one served for constructing a fortress, while the other were falling before the destructive engines of the Goths; and the breaches were subsequently repaired under the care of Belisarius with the large peperine blocks of the Claudian arches. I also announced my intention of making the walls a separate subject, beginning with those of Romulus and Remus, which perhaps never existed, and ending with the Aurelian circuit, which existed too much for the theory of antiquaries. I thought it a desirable subject to learn how walls were made when arrows were instruments of war, without meaning, however, to illustrate that point by shooting with a long bow. I shall confine myself as nearly as possible within the limits of historical truth, and I hope I shall not violate too much your rules of architectural proportion.

Although walled or fenced cities reaching up to heaven are now of little use in modern tactics, they were of great importance in the time of ancient warfare. The huge masses of stone piled one upon another were a sufficient defence against the rude engines of attack, when brute force without skill aimed its blow upon the immoveable barrier. In very remote times, carrying us back to the days of Homer, at least, walls of cities were reared of huge polyhedric stones, uncut and unshapen, with the interstices filled up with small stones or broken pieces of flint, and this has received the name of Cyclopean. It is not properly Cyclopean construction, if there be any attempt at cutting or squaring the blocks. I have observed a specimen of this construction in the island of Cephalonia, where, in the walls of Cranii, I measured an irregular block of stone to be 13 feet 10 inches in length, and 6 feet 10 in depth. Another specimen is to be seen in the walls of Tyrins, at the extremity of the plain of Argos, where the huge stones are laid one upon another without any attempt at cutting out the angles. The walls of Mycenæ, although containing similar specimens, are upon the whole an improvement: the interstices are sometimes removed by a slight linear adjustment of the blocks, and such a step in masonry destroys in part the character of Cyclopean. The next step was angularity, and then came the construction which is properly speaking Hellenic, and this had prevailed in Etruria long before Romulus began to enclose the Palatine Hill at Rome. I cannot enter into a disquisition on the walls of antiquity generally, but if any of you are curious upon this subject you will do well to consult the atlas which belongs to Micali's work, entitled "L'Italia avanti il dominio dei Romani," published at Florence in 1821. Sir William Gell has also illustrated this subject with his usual accuracy and skill.

The most ancient buildings of Rome of which vestiges now remain, were of stone brought from Alba, commonly called peperine. This was used under the kings, as we see in the Cloaca Maxima, and in the Mamertine prison built by Ancus Martius. It was of the same material that Servius Tullius built his walls, and Tarquin fortified his agger. We find it in the tomb of the Scipio, in the Temple of Piety, in the substructions of the Capitol, and in the aqueducts of the republic. But as this stone was not accessible to the Romans before the conquest of Alba under Tullius Hostilius, we cannot admit Romulus into the primitive society of *free masons*. If we may still adhere to the old story of that hero having surrounded the Palatine Hill with a wall, and made three gates to his new city, we can afford him very little material better than baked mud and pumice stone; and the innocent freak of poor Remus leaping over his brother's fortifications has thrown immortal contempt upon the walls of the founder of Rome. This may be altogether a subject too remote and too insignificant to claim your attention, but the descrip-

* The substance of this paper was read at the Institute of British Architects on the 12th inst.

tion of the walls of Romulus, and the position of his gates have employed the pens of learned antiquaries, and it has always been considered a *casus belli* to decide whether Romulus made three gates or four.

To settle this difficult point Varro and Festus have left on record no less than eight names of gates, the very enumeration of which would cause serious alarm to this meeting, lest I should enter upon the etymology of them all. I shall, however, content myself with referring you to a plan of the city of Rome as it was left by Romulus, that is to say, when to the Palatine the Capitoline Hill (taken from Tatius) was added, the space (afterwards the Roman Forum) being included within the walls. I need hardly add that of those walls every vestige had disappeared before we come to any authentic records of the city; and it is only for the sake of beginning and following out the successive enlargements of Rome that I have mentioned either Romulus or his fortifications. The other hills of Rome are said to have been added by the successive kings, and when they had got to the number of seven they were surrounded by a continuous wall. The eastern side of the city being exposed to the Sabine territory, without the advantageous defence of a bill, was fortified by a high mound strengthened by strong walls; and thus was the circuit, begun by Servius Tullius and ended by his successor, complete. This was Rome in her fullest extent during all the ages of the Republic; and although Pliny informs us that the suburbs of Rome extended for many miles in every direction, as so many additional towns, yet the city properly so called maintained its contracted circuit until the walls of Aurelian in the third century revealed the fatal secret that the mistress of nations required a defence of bricks and cement.

Of the old walls of Servius Tullius some vestiges are traced in the vineyard beneath the Villa Barberini; they exhibit a regular good specimen of the Etruscan stone wall, regular square or oblong blocks of peperine, resembling much in construction, though not in material, the walls of a neighbouring Etruscan city, which I consider one of the most interesting monuments of antiquity; I allude to the ancient Falerii, not far from Civita Castellana. A rough plan of the circuit of those walls almost intact I have found among my fugitive pieces. It is possible that some remains of walls upon the Capitoline Hill may also be as ancient as the kings of Rome. Upon a part of the Tarpeian Rock we yet see a mass of wall standing, built of the same materials and masonry as those vestiges of the walls of Servius Tullius to which I have alluded; but, as these might be construed into treasonable words if any learned Roman antiquary were to hear them, I will hasten to quit that peperine subject and bring you, through eight centuries, to plain bricks and cement.

In the time of Vespasian and Titus, Pliny measured the circuit of the old walls, which in many places were so blended with the buildings of the city as to render it difficult to trace them. If Pliny's text has come down to us unscathed, he found the measurement to be about thirteen miles, and we hear no more of the walls of Rome until the time of the Emperor Aurelian. Before he began his expedition against the Queen of Palmyra, in the year 271, he thought it advisable to consult the senate, and take measures for preventing a repetition of the insults which the Goths, under the effeminate Gallienus, had offered to the majesty of Rome. Several authors of that time have dropped a few words respecting the new fortifications, but none, except Vopiscus, have told us to what extent the work was carried; and he has given us a measurement so incredible that all critics have given it up in despair.

The circuit of Aurelian's walls, says that respectable writer, was nearly fifty miles. No traces of a wall, corresponding to such a circumference, have ever been found; and, if we must believe the text of Vopiscus, there is no way of explaining it but by measuring from one *Castra* or *Septio* to another, which were built, or planned to be built, at different points about the city. We leave, therefore, Aurelian, and his fifty miles of walls, to rival the new fortifications of our Gallican neighbours, which are probably destined to puzzle posterity as much as those of Aurelian now puzzle us.

Down to the reign of Arcadius and Honorius there is not another word to be found which relates to the walls of the city. The only historian of that period is the poet Claudian, who was born to chaunt the praises of Stilicho, and awake the muse once more ere Rome became a desert. Claudian tells us, in well-measured hexameter verse, that the new walls of Honorius gave a handsome face (*pulchrum vultum*) to the city; that more hills were added to the famous seven, and that flanking towers and lofty walls were got up with wonderful rapidity, in consequence of a threatened irruption of the Getæ, a people from the north. Three inscriptions, of which two still exist and are legible, are a key to the poetry: they tell us, that at the suggestion of Stilicho, the great captain of the age, the prefect of the city, Longinianus, took upon him the care of rebuilding the walls, gates, and towers; and as this Longinianus held office in the sixth consulate of the Emperor Honorius, we get at the date of the present circuit of the walls of Rome on this side the Tiber, viz., about the year 403. The whole was got up in haste, and this may account for our finding, in the line of the walls, various edifices which apparently stood in the way, but which, to save time and materials, it was very convenient to enlist in the service. The present walls and gates, therefore, must be considered as preserving the limits drawn under the Emperors Arcadius and Honorius, subject, of course, to the repairs and alterations made by Belisarius and the Goths, and variegated, through at least ten centuries, with the patchwork of belligerent popes and engineering cardinals. But before I proceed to point out some specimens of construction varying in antiquity from the Augustan to the present age, let me finish my historical sketch of the circuit of Rome.

The dilapidations caused by the Goths and Vandals during the fifth century were made up by Theodoric in the year 500, and in 535 Belisarius entered Rome by the Porta Asinaria, while the Goths fled by the Porta Flaminia; at that time the gates were fourteen in number, and all made to open as portcullises. The general of Justinian fixed his head quarters on the Monte Pincio, to be near that side of the city which was the least defended. The ravages of Totila were more considerable, and when Belisarius returned a second time to rescue Rome from the hands of the barbarians, it cost him twenty-five days to fill up the breaches in the walls, and his handy-work still remains to be seen near the Lateran Church. The reign of the Lombards in Italy, from 566 to 774, placed the municipal arrangements of the city in the hands of the bishops. Sisinnius was the first of them who attempted to repair the walls; but little was done until towards the close of the eighth century. It was when the circuit of Rome was in this state (that is, in the first half of the ninth century), that a curious description of the walls was made by a Swiss or German pilgrim, who appears to have been (for his day) a diligent observer and excellent scribe. He counted all the turres, propugnacula, posternæ, and necessariæ in the whole circuit of the walls as they then stood; the towers were 383, the battlements 7,020, the posterns 6, and the temples of Venus Cloacina 106. But this mediæval writer (generally known under the title of the anonymous of the ninth century) gives no description of either form or materials: we are therefore left to find our way through near three centuries before we alight upon another date wherein to fix a specimen: an inscription of 1157, contemporary with Frederic Barbarossa, directs us to a now walled-up gate beneath the Cælian Hill. But the thorough reparation of the whole circuit, exclusive of the Vatican, was reserved for Pope Nicolas V.; and it is one of those historical coincidences which sometimes strike us in the vicissitudes of empire, that while the Turks were taking Constantinople and putting an end to the name and power of Imperial Rome, Nicolas V. was restoring the walls of the ancient mistress of the world, now transformed into a Papal city. The works of the popes who succeeded Nicolas V. were mainly on the Vatican side, and these I shall point out when we pass the Tiber. The works on the Monte Pincio, begun by Leo XII., are the most important of modern improvements connected with the walls of *Rome*.

After this brief account of the changes through which those walls have passed, I propose to offer some description. It will not be easy to captivate either the eye or ear by a mere description of bricks and mortar; and in order to have rendered the subject at all interesting, I ought to have pressed into the service of this conversazione as many pencils as there are towers enumerated by the anonymous of the ninth century. The interest of the subject for this institute, at least, lies chiefly in exhibiting brick and stone work of every age, from Servius Tullius the king, to Gregory the pope. I must content myself with offering you but a few specimens, as they occur in the circuit which we will now make together, beginning at the Porta del Popola. By this arrangement we shall gain in convenience what we lose in chronological order: by taking the specimens as they come in the circuit we shall have to pass from popes to emperors and back again without breathing, but it will be easy when we have made our round to adjust the whole in the order of time.

Between the Tiber and the Porta del Popolo occurs the first specimen of the work of Nicolas V., made in the year 1452: the construction is of thin bricks, mixed with irregular pieces of tufo; and this is all the description I intend to offer of the reparations made by that pontiff, which chiefly exist on the north and east side of the city: the Porta del Popolo itself, substituted to the ancient Flaminia, exhibits in its external elevation the genius of the celebrated Vignola in 1561; but the two square towers which flank the entrance were erected nearly 100 years earlier: the ancient gate stood in the time of Justinian further up the declivity of the Pincian Hill; and the Flaminian Way, by which Rome was approached from the north, passed more immediately under the broken rock on which now the Villa Poniatowska stands; but, leaving the gate by which our modern pilgrims now enter Rome, now defended by the Dogana Pontificia, we come upon a piece of wall built of small blocks of red tufo, probably the work of Ladislaus, king of Naples, in 1408. I mention it, because it is a peculiar style of construction called the "Saracenic:" it is so called from the circumstance of its being first adopted at the period when the Saracens polluted the Lavinian shores, and turned the basilica of St. Peter into a stable, in the early part of the ninth century. Why the builders of walls should have adopted blocks of red tufo on such an occasion, we cannot tell, unless that was the only method they could devise of representing a Saracen's head; in which case the surpassing device of London city is manifest in that splendid portrait, which will be familiar to all who are yet reduced to travel by stage-coaches; but the "opus Saracenicum" holds a conspicuous place in the walls of the Papal city, and in the vocabulary of Roman antiquaries.

The next object which occurs in our circuit forms a peculiar feature in the walls. The north angle of the Monte Pincio is built up by a mass of "*opus reticulatum*," which needs no description, because of its well-known construction. Procopius describes this portion of the walls of Rome just as it is at this day, and no one doubts that it was originally built for the purpose of sustaining the Collis Hortorum where the gardens of the Domitian family were, and in which Nero was buried. Belisarius observing the same cleft and inclination which is now to be seen in this immense mass of tufo work, and which gives it the name of Muro Torto, was afraid it would be insufficient to sustain the assaults of the besiegers, and he proposed to pull it down, and rebuild that portion of the walls; but the Romans assured him that St. Peter had promised them to take that quarter under his special charge; and the opinion was worth several hundred men to the Roman general; for, during the whole siege, the Goths, even in their nightly attempts to scale the walls, never came near the Muro Torto. We must assign a date as early as the year 40 A.D. to those vast substructions of the Domitian gardens. The general features of the Roman walls are a plain curtain of brick, with square towers of like materials, projecting from the line at intervals of 100 feet; some of the towers, however, are round. We do not get the original work of Honorius fairly disentangled, until we get beyond the garden of the Villa Medici. One tower rising

rom a foundation of tufo, ends in a summer-ouse; another finishes in an artist's studio; third is made of basalt-lava work of the welfth century; but when we get to the fteenth tower, reckoning from the Muro 'orto, we see the greater regularity of the rick-work belonging to the decline of the mpire of the west. The only difference in he works of Belisarius is, that there is reater thickness of cement. This appears be the distinguishing feature in the ancient teritia works of the Romans. In the best ge, viz., that of Nero, as may be seen in he arches of his aqueduct, the cement is so in as only to be discernible like a pencil line awn between the bricks; but as we advance becomes more visible between the courses, til, at last, we get it nearly of the same ickness as the bricks themselves. This ight, I think, be accounted for by an alysis of the cement at different periods, here the defects of the sand, whether fluviatic marine, were more difficult to correct; but is would be a digression from our immediate bject, and I shall not think it necessary to cur to it. The works of Belisarius may be nsidered as the most genuine, in the neigh-urhood of the gate which led to his own idence on the Monte Pincio, but which is w closed. A profound silence reigns under "lofty walls of Rome" here, and the melan-oly interest which tradition has thrown ound this gate (still remaining with its port-lis and its Greek cross in a *discus* upon the y-stone of the arch) makes one linger in solitude. It was here where the veteran rrior, fallen from the height of his glory and imperial favour, sat and held out his hand to passengers, as they entered the scene of his mer splendour, and accompanied the humili-ng act with "*Date obolum Belisario.*" The y may be a fiction, but the spirit of it has ndation in some truth; for the hero who ce recovered Rome and Africa from the hs and Vandals died neglected in a land of e, and two places on the Bosphorus and lcedonia shores respectively contend for glory and the shame of his last sojourning. s in this way that much abstract truth is odied in fiction, not only in poetry and iance, but in art and in architecture; and ily becomes hurtful when thus conveyed in rious worship. It was an ingenious device he two Spartan architects who erected the nificent Portico of Octavia at Rome, and asked as a reward that they might have names inserted in the inscription,—an our which was refused;—I mean the in-og in the columns the ornaments of lizards rogs, which carried down to posterity the of Saurus and Batrachus as effectually the historians had recorded their names. sculpture which fills the tympanum of our l Exchange, though fiction, might convey ruth to other generations in the absence of ical records, that the commerce of Great in was then opened with China and ex-d to every part of the world. It may be a thought, Gentlemen, among you who ngaged in immortalizing the age in which ve, to see how you can convey to posterity, ans of art, the characteristics of a period history more brilliant than ever existed n Rome was free."

I am forgetting my walls, or rather ng my head against one of my own gg. The Pretorian Camp, which was smantled until the age of Constantine, conveniently for the purposes of Stilicho e Prefect Longinianus, and it was there-dopted as a defence for that portion of st side of Rome. It was originally built perius, and therefore presents us with a ien of brickwork of eighteen centuries ig. The circuit of it as now forming lls measures 5,400 feet; in several places iginal work has been patched up with tones, not improbably by Belisarius, or the eunuch. Several popes have d their contributions, and thus made an geneous mass: but amidst it all the ed eye easily discerns the classical age gustus and the Cæsars. To mark the constructions and repairs of different they occur in the curtains and towers, nly be a wearisome repetition of bricks, ava, tufo, and blocks of stone and stolen, as occasion required, from the uring tombs. I shall, therefore, pass he Porta San Lorenzo, where the inscription of Honorius is to be still read, and which, therefore, fixes the certainty of the period when those walls were made. I shall go on to the Porta Maggiore, which has already been described by me when I treated of the aqueducts, and, leaving that gate to continue our circuit, we find another curious expedient for inclosing the city. The arches of the Claudian aqueduct are closed up, and adopted as the wall for a length of 1,200 feet, and then, quitting the direction, we begin again with the general aspect of Honorius' walls. The many breaches which in successive ages have been repaired between the aqueduct and Santa Croce, perhaps shew where the King of Naples in 1408 made his impressions upon Rome and the cardinals; but the next object we get into our circuit is the outer wall of half an amphitheatre. Its elevation consits of arches supported by half-columns of the Corinthian order surmounted by a second row of pilasters, all of brick; and the walling up of the arches is easily distinguished from the original work. The period of the building may be dated as far back as 211 A.D., and the great object for which this amphitheatre was built accords with the policy of Caracalla: it was to afford the favourite recreations of the Romans to the Prætorian guards, without the dangerous experiment of their mingling with the people; and it was therefore called the Amphitheatrum Cartrense. In passing from this to the Lateran Gate, we descend gently past the walled-up Porta Asinaria, which figured so conspicuously in the conflicts of Belisarius with Vetiges and Totila: many a struggle was here sustained by the besieged when the Roman general repulsed the foe and appeared to his soldiers to be every where present at the same time. The walls still tell the history of those battles: a large piece is built up of peperine stones, and upon comparing them we find they have been taken from the neighbouring aqueduct; and here we have unquestionably a specimen of the repairs of Belisarius, that is to say, the irregular-built wall, as we now see it, here stood for thirteen centuries. I have mentioned the Porta Metionis, which is now no longer used, because we have an undoubted specimen of work in the middle of the twelfth century: the inscription upon it bears date 1157.

The Porta Latina, now closed, and the Porta San Sebastiano, leading on the Via Appia, would tempt me to detain you with some observations; but I have not forgotten my pledge, that this paper should be of ordinary length. I shall therefore make a sweeping curve, and a sweeping assertion at the same time, that there is nothing remarkable in the walls from the Porta Metionis until we come to the Bastion di San Gallo. This is the earliest specimen of modern fortification where we see the upright plain wall, with the apertures for missiles, giving place to the projecting masses, to resist the thunder-bolts of war; and the apertures made to receive those more convenient implements called cannons. Pope Paul III. employed the celebrated San Gallo to erect this bastion. It is an object of great curiosity to engineers, on account of its being the earliest example of fortifications suited for a modern siege; it is now, however, fast falling into decay, and the resources of the papal states, in the present financial emergency, are not adequate to prevent its final ruin. It stands in the old line of walls, like a polished officer in a row of old-fashioned dowagers, where the one uses powder and shot, and the other arrows without points; it is a curious contrast, and takes us at once from the warfare of the sixth, to the tactics of the nineteenth century. The rest of the walls, to the Porta Ostiensis, is composed of towers and curtains, the patchwork of all ages. And here, again, Ladislaus must be blamed for the irregularities: he, like Totila, entered Rome by the Porta Ostiensis, and there was little to choose between the two visits of the Vandal and the Christian. "Besieging Rome by land and by water," says Gibbon, "he thrice entered the gates as a barbarian conqueror; profaned the altars, violated the virgins, pillaged the merchants, performed his devotions at St. Peter's, and left a garrison in the castle of St. Angelo." We now include in the walls, the pyramid of Caius Certius, at the foot of which, within, are the graves of our countrymen; and we reach the Tiber, after having made a circuit of eight English miles. The Transtyberian region now only remains for our consideration; but, as imperial Rome had but little to do beyond the Tiber, the whole being comprised in one of its fourteen wards, we must consider the circuit we have made as comprising the magnitude of ancient Rome. From documents of the fourth century we learn that in all the wards or districts there were 46,000 of those places called Insulæ, which meant a large building isolated from others, and inhabited by the common people. There were also 1800 and upwards of Domus, or houses of the rich; and making every allowance for the population, the barracks or stationes, I cannot make out that ancient Rome could possibly contain more than 1,104,000 souls. That is to say, the population of ancient Rome never reached that of our own metropolis.

The walls of Honorius were carried beyond the Tiber, so as to include that part of the Janiculum called Mons Aureus, or Montorio; and they still exist, though no longer serving the purpose for which they were originally made. The rest of the walls which are to occupy our attention are Papal, and possess a greater historical interest than the more ancient ones. It was when Rome was afflicted by the loss of Pope Sergius, and by the profanation and plunder of St. Peter's by the Saracens, that Leo IV. was elected by the unanimous voice of the people, in 847. The nefarious Saracens (says a writer of that day) in returning to Africa laden with their sacrilegious spoils, were overwhelmed in the sea by the intervention of St. Peter and Benedict; but this circumstance did not prevent the new pontiff from taking earthly precautions against a return of those fierce invaders. He set about repairing the walls of Honorius in one direction: but his main object was to secure the Shrine of St. Peter from the profane hands of those enemies; he therefore fortified that part of the Vatican Mount which rises behind the Basilica, and his walls and towers still remain, though now enclosed within the more ample circuit of Pius IV. The activity of Leo IV. is the admiration of his biographer. The pontiff on horseback, and sometimes on foot, went round the walls to encourage and promote the works; he found fifteen towers in the circuit entirely destroyed, which he renewed; two of them were near the river, and which were so arranged with a chain drawn across that no vessel could pass, and it was done, says the admiring biographer, "*cum magna sapientia et subtili prudentia.*" He began the walls round the Basilica in the second, and finished them in the sixth year of his pontificate. The Emperor Lothaire sent a large sum of money; the monasteries, cities, and municipalities within the pontifical dominion each gave a subscription to build the walls; and, when they were finished, the space enclosed was called the Leonine City. The consecration was done with great pomp, and at each of the three gates the procession stopped until holy water was sprinkled, and each put under the protection of a saint. The walls were built of tufo, of which I have a specimen; and the tower called the Torre dei Venti, rising above the heights of the Papal gardens, is still one of the most picturesque objects of modern Rome. The space enclosed by the Leonine walls is in shape quadritangal, and in circuit about two miles; they underwent repairs in 1370 and 1452, but they were rendered useless as walls by Pius IV., who made a large addition to the Papal city in 1560. Beginning at the Fort St. Angelo, he erected all those fortifications which now extend to Porta San Spirito. The line of his walls in one part nearly coincide with the Leonine, and in two places they come in contact. The next addition was made by Barberini Pope Urban VIII., now two centuries ago. The Urban walls enclose all the rest of the ancient Janiculum, but they afford but little matter for description.

We have then three distinct cities of the pope's besides the original space enclosed by the Emperor Honorius, and if we now adjust our works in some chronological order, we shall have a long range of about 24 centuries for our practice.

The Mamertine prison	A.C.	630
The remains of the walls of Servius Tullius, as observed in the Villa Barbarine	A.C.	520
The Tabularium.....	A.C.	26
Prætorian camp.....	A.D.	30
Claudian aqueduct.....	A.D.	44

Amphitheatrum Cartense	A.D.	211
Honorius' work	A.D.	403
Belisarius	A.D.	547
Narses the Eunuch	A.D.	552
Leonine walls	A.D.	847
Porta Metrones.....	A.D.	1157
Ladislaus' reparation	A.D.	1408
P. Nicolas V.....	A.D.	1452
Sextus IV.....	A.D.	1471
Pius IV.	A.D.	1560
Urban VIII.....	A.D.	1630
Benedict XIV.	A.D.	1750
Clement XIV.	A.D.	1770
Pius VII.	A.D.	1821
Leo XII. Monte Pincio works	A.D.	1828

If to the eight miles of circuit already given for the walls on the left bank of the Tiber, we add five for those beyond, it will make the whole circumference of Rome as it now is about thirteen Roman miles. The space enclosed has not above one-third of it populated; so that this ample city, capable of holding a million, remains for the convenience of about 160,000 souls: the walls are now of the same use as our coast guard,—viz. to prevent the contraband commerce of free-traders. In many places, however, they present a picturesque effect, and they are of use in rendering Rome an object of interest to the historian and the artist. There is yet room for an illustration of the Roman walls as they now exist, by shewing in chronological order the work of different ages; and with but few exceptions, we might find a specimen for each century. But such illustration requires the pencil rather than the pen, which would only be required to put the date beneath each drawing, and perhaps add a page of text for the sake of Belisarius. I know of no other use to which we can now put the walls which have cost emperors so much anxiety, and popes such a store of prudence. The city is not well off which must needs be defended by walls and fortifications. Schrapnel and Congreve would have astonished Stilicho and the prefect Longinianus; and perhaps some "long range" has yet to be invented which will bring to the ground the firmest fortress. The walls of a city are now best built of good laws, and national freedom, cemented with good will towards foreign or hostile nations; but if any others are wanting, *we* may be content with those old wooden ones which have served the purpose since the days of Queen Elizabeth. Commerce is the mighty engine which batters down walls; whether reared in the shape of national prejudice, or custom-house regulations: even the great wall of China promises to give way under the silent action of this civil battery. But Rome must be an exception to all such ruinous speculations: let her remain, I pray you, ye free-traders, as an old picture hung upon a wall, which, if you attempt to remove, will bring a cloud of ancient dust into your eyes, and antiquaries will haunt your slumbers. I know that opinions vary upon the mode of defending a city, or preserving an empire; and Gregory XVI. has just refused his consent to a railway run through the woods of Laurentum, by Appii Forum, and the Three Taverns. That is *his* mode of keeping out those Gothic invasions, which cost Belisarius so many stones out of the Claudian aqueduct. Our martial neighbours, not averse to frequency of intercourse, still are of opinion that brick walls are needed to defend their great metropolis, and the lines are now being drawn at an expense of countless millions. Mr. Polk thinks there is magic in the boundary of the Oregon territory to be a defence for the United States; the honest Swiss confides in walls reared by nature herself, and, safe behind their mighty barriers, claims his right to quarrel with their limits. But we are beginning to think that the sole defence of a kingdom is a tariff without duties, and the wall of defence a tax upon income that is of gold and silver. Perhaps I, and a few others, may think that there is nothing for national defence like the walls of our Zion, and the towers thereof; the circumvallation of our Christianity, and the defence of our national church!

TERRA COTTA.—A statue of Sir John Crosby, executed by Mr. Nixon in this material, is about to be placed in front of Crosby-Hall Literary Institution, Bishopsgate-street. We understand the artist has taken for his model the figure from the altar tomb of Crosby, in St. Helen's church, hard by.

ON THE ART OF CONSTRUCTION IN BRICKWORK.*

IT must be manifest to those persons who have made the constructive arts their study and profession, and therefore are conversant with the art of bricklaying, how greatly its quality has deteriorated within their memory. The style and character of brickwork executed now-a-days, compared with that executed formerly, are totally different. Very few modern structures, executed in brick, can compete with the neat and sound workmanship of buildings erected some hundred or two hundred years since; and it would appear that the debasement of the art of bricklaying has taken place simultaneously with the introduction of Roman cement, and the taste or necessity of architects and builders in applying it to the covering of walls. Among very many modern architects and builders rough and uneven brickwork is regarded only as the most fitting and efficient groundwork for architectural embellishments; and the coarser it be executed the better, as then there is no necessity for hacking and chipping the surfaces of walls in order to obtain a key for the adhesion of the *stuff*. The almost general practice of covering the exteriors of new walls with cement, so as to give them the appearance of stonework, has had a considerable tendency towards depreciating the general excellence of brickwork, as it has led to the execution of hurried, coarse, and unsound work. The cross-joints are commonly *struck* up for scarcely more than an inch back from the faces of the walls, and, in consequence, the interstices between the bricks of each course are usually left unfilled with mortar. The walls, therefore, are raised half-hollow and honeycombed; thus presenting an interesting but bewildering labyrinth for the passage of mice from the extremity of one wall to that of another.

The majority of the buildings which are now being erected, are built on speculation and competition; and, in order to obtain a great return for the outlay of their capital, it is the interest as well as the invariable practice of speculators to get them run up cheaply, and completed as quickly as possible, for the purpose of letting them, or getting them into the market, and so off their hands. Much of the bad qualities and unsoundness of brickwork, and the carelessness of workmen, is to be attributed to this system. The workmen, from knowing that their work is to be hidden with cement, take little or no pains in its execution; and, from being scarcely ever employed on any other kind of work, it leads them to habitual carelessness in the disposition of the bond; and they also become inattentive to the performance of their general work. Indeed, how is it possible, after this manner, that bricklayers, and young ones more particularly, can ever become accomplished workmen, seeing that during the last half-century, and more especially during the last ten years, they have not been exercised in neat, close, and proper ornamental work, but have been called upon to execute scarcely any thing else than that of the meanest and coarsest description? Care and attention are seldom paid to the general quality of brickwork, and the strength and durability of structures are hardly considered. The whole of the attention that is evinced appears to be directed towards the production of architectural show and effect on the exterior surfaces, and ornaments and small cornices are very often stuck upon a cradling of nails, which are driven into the walls with twine woven between them.

The fashion of late years of dressing up the doorways, windows, cornices, &c. of buildings with cement, and leaving the plain brick surfaces exposed, has also led to a prevalent system of carrying up those surfaces in a rough and uneven manner, for the purpose of being tuck-pointed afterwards. In the execution of all rough brickwork workmen do not evince that pains which they would do, provided it were required to be performed in a neat, clean, and regular manner; and thus, what would appear to be gained in present effect is sacrificed in quality and durability. These surfaces, therefore, should always be finished as the work proceeds, and afterwards protected from the cement dirt. The bricks at those parts should be laid evenly and uniformly, and with fine, neat, and parallel joints, of regular thicknesses, struck straight and flush with the surfaces of the walls; and the *perpends*, or alternate cross-joints, should be regulated vertically over one another throughout the whole height. The practice of carrying up the brickwork roughly, for the purpose of being tuck-pointed afterwards, is very often of more advantage to the bricklayer, when he has contracted for its execution, than if the joints were neatly struck and the work finished as it proceeds; for, whether the joints of the brickwork are to be left rough, or struck, it is very seldom any distinction is made in the labour prices of either. Tuck-pointing of new work is only an inducement for the bricklayer to perform rough and unsound brickwork. Any irregularities in the vertical direction of the cross-joints can be stopped, and false ones made on the bricks in order to correspond with those above or below them; in fact, all the visible faults and multitude of sins in its execution can be smothered, hidden, and dandied up by pointing. An extra price at per foot superficial is allowed (besides the price of the brickwork) for the pointing; whereas if this extra price were given for laying the bricks on the outsides in a proper and even manner, the perpends strictly kept, and the joints made fine and neat, struck clean, and their ragged edges cut off and picked out, much superior and effective work, and of far greater strength and durability, would be the result. By this method the work would not only look much better, but would retain its character for a considerable number of years afterwards. A beautiful old specimen of the kind of work the author means, may be seen in the Temple, facing the gardens.

It is perfectly notorious that the approved methods of execution which constitute excellence in the workmanship, both of the outer appearance of brickwork, and in the proper disposition and arrangement of the component materials of walls, are scarcely to be obtained without much watching and scrutiny, as well as by a great deal of trouble and anxiety. It would appear, therefore, from the influence of many concurrent debasing causes, that the age of executing close, clean, neat, and good sound brickwork has passed away, its decline being considerably assisted by the recent, as well as the continued speculative building mania; and even under the fostering care of the new Building Act what is termed good and durable brickwork is a mere subterfuge and a farce. The violent haste with which buildings have recently been and are now being run up, and the slovenly and scandalous manner in which brickwork has been, and is still being performed, are causes which not only tend to depreciate still more, if possible, the excellence of workmanship, but at the same time tend to create on the part of workmen a disposition to carelessness in the general routine of execution; and also reduce their moral character; as from these habits they are continually on the alert, when not properly looked after and watched, to heap up improperly bonded and irregular masses of deception, and, in consequence, no dependence can be placed in them or their performances. works, therefore, are sometimes brought to premature decay and ruin, and the character of respectable persons is liable to be injured by such lamentable and disgraceful practices. The materials of a vast majority of buildings already reared, and even many of those now under execution, are jumbled together; and the arrangements of the pressures formed contrary to all static principles. The medley is in such a disordered state, that attention to the proper disposition of bond, and the necessary rules and guidance in carrying up the work, would appear not to have been considered, and, in consequence, uniform gravitation, and equal solidity of the walls, are thrown entirely out of the question, and thus many portions of them, especially the parts over apertures, are split, rent, and cracked in all possible directions. The binding and adhesive properties of the mortar and the solidity and compactness of the walls are from the numerous fractures, altogether destroyed, and are thus rendered tottering and insecure.

Instead of a whole or united support being obtained, by a proper arrangement and combination of the materials, scarcely a wall is built now, in which great numbers of bats are not seen huddled together, and here and there

* See p. 216 *ante*.

throughout the base arrangements, two, four, six, and even more upright joints are seen, directly over one another, and the walls built up in an indirect and out-of-perpendicular direction, as may be observed in many modern streets by scanning the faces of the walls. And not only is very little attention paid to the arrangement of bricks in walls, but they are sometimes laid in a composition of mud, or vegetable mould, mixed with a small quantity of lime, and drowned with water; and the bricks are laid in this conglomeration, with great, staring, irregular joints, sometimes half an inch, inch, and more in thickness. It is impossible that the outer walls of buildings, carried up with this stuff, can ever become perfectly dry, or remain so but for a very short time, as the action of the atmosphere will be continually fretting the joints away; and it also readily imbibes and retains moisture from rain, &c., as such a mixture is always of a soft and spongy character.

With reference to the bond of brickwork, most bricklayers feel unconcerned, and scarcely evince any interest or take any pains about it; indeed, at the present time, such is the apathy of bricklayers that a vast majority of them are totally unacquainted with its properties—of the manner in which bricks should be disposed and arranged so as to obtain the greatest amount of strength, and that the walls may thus afford the utmost resistance both to transverse and longitudinal pressures. And this is very remarkable, when it is considered that bricklayers are constantly laying of bricks, and are thus continually observing their arrangements. But it is well known that invariably they evince the utmost degree of carelessness in this all-important particular. Experience has very often proved to us these facts, that whilst young workmen have been kept constantly upon the performance of the coarsest and meanest of work, they never evinced the slightest disposition to improve themselves in the execution of their work, which was always inferior and badly done; and no advice to act otherwise would induce them to alter their proceedings. But immediately that they were placed upon superior descriptions of work, and some little pains were taken to instruct them in it, it was remarkable to observe with what avidity it was received, and how very soon they improved in their manner of execution, and afterwards performed their general work better and neater. All who have had experience in building, know all well the trouble and anxiety that are usually caused in the selection of good, well-informed, and qualified workmen, fit for the execution of particular kinds of work in the art of bricklaying; in whom trust and confidence can be placed to execute work neatly, soundly, and regularly. The workmen's want of attention, and just appreciation of the paramount importance of the quality and soundness of their work, are well known; and the responsibility which they not only subject themselves to, but their employers as well, ought to deter them from attempting hasty, bad, and improper work of any kind; for any neglect or false arrangement is almost sure, sooner or later, to be found out, and the consequences of such neglect may be attended with serious disasters and expense. Failures are of common occurrence, and many of these cannot be attributed otherwise than to slovenly, improper, and inefficient execution, and to the ignorance of superintendents of workmen. Sometimes the carelessness and habitual inattention of workmen, both to the orders given to them and the general manner of executing their work, are the cause of failures. This state of things is to be deplored, and it behoves all who have any influence over the execution of works to aid and assist in having it performed at all times in a neat and sound manner; no matter where or in what position it may be situated. Works that are placed underground require more attention to these particulars than those which are placed on the surface, in order to ensure their stability and success. Works, therefore, of any magnitude, or where responsibility is involved, require in all cases to be strictly attended to and watched; and the performances of workmen should be placed under constant supervision as they proceed.

Good, sound, and regular bond, and neat, close, and clean workmanship, are the leading points to be observed by workmen in raising brick walls. The nature and properties of the materials used in the manufacture of bricks and in the composition of mortar are of that resisting or silicious quality—when the bricks are properly made and burned, and the ingredients of the mortar are proportionably and properly mixed together—that time and atmospheric influences will but very slightly affect or impair them; indeed, Pliny says, if he be considered as an oracle in the matter, that bricks which are well burned, hard, and of good quality, will last for ever. Then, as good materials can be procured, bad work should not stand in the way of so desirable an acquisition,—of handing our works down to posterity; and all parties, but more particularly workmen, ought to keep this always in view, namely, that good, sound, well-bonded work and sound materials will last for ages. The practical operations of executing brickwork are usually left to the supervision of a foreman of bricklayers, who ought to be a well-informed and an accomplished workman; and he should understand the nature and properties of the materials he is using—of brick-bond—of the general arts of construction, and of the principles of statics. During the supervision of his men he should endeavour to make them perform their work, at all times and in all cases, in a neat and sound manner; for then, not only will he bring credit to his employers, but to himself likewise; and he will stand a chance of being encouraged, and of rising in the world.

It is highly essential to the exterior appearance, as well as to the soundness, good workmanship, and durability of all vertical and direct walls, that every brick should be laid horizontally, perpendicularly, and straight with the outer face. In the cases of curved walls and arches, pains should be taken to lay the bricks tangentially to the curves, that is, the middles of the faces of each course of bricks next the faces of the walls, or next the centres, should be laid perpendicularly to the extremities of the radii of all those points; and in battering walls, the bricks should be laid with their beds at right-angles to the faces of the batterings. In all cases it is extremely desirable that the outer faces of all kinds of walls and the *soffits* (undersides) of arches should be made as even, smooth, and uniform, as possible; which are the principal points to be attended to for the purpose of warding off and preventing the penetration and action of the weather upon them.

The production of beauty in the plain surfaces of walls is mainly dependent upon the symmetry of their parts; and a more pleasing effect may be produced by neat, well-executed brickwork, than with irregular-sized stones. Succession and uniformity in the disposition of bricks arrest the attention, and impress the imagination; for, when the eye wanders over and traces the successive pyramidal and vertical directions of the perpends without any interruption, the whole uniformity creates an excitement and produces a pleasing and lasting effect; but when the succession is interrupted, or any irregularities are observable, the sense of beauty and effect is directly marred and checked. Perpendicularity, and absolute uniformity of disposition, then, should be the constant aim of the workmen in the arrangement and execution of brickwork. It is, therefore, of the utmost importance in the production of neatness, uniformity, and excellence in brickwork, that in the building of all kinds of brick-walls and arches the vertical joints or perpends should be preserved and *scrupulously attended to*, or, in other words, that the cross-joints of the alternate recurring courses of bricks should be kept straight, so as to correspond, and fall perpendicularly over those beneath. This important process in the art of bricklaying is, we are sorry to say, very seldom considered by workmen; hence the almost universal waving, and dissimilar direction of the cross-joints: and here we cannot too deeply impress upon the bricklayer, that, not only is a beautiful effect produced by paying particular attention to this important particular during the actual execution, but transverse and longitudinal ties, which produce strength and durability to walls, are also dependent upon its observance. The proper arrangements and disposition of bond are nearly destroyed when the perpends are neglected; and we are perfectly aware that irregularities, both in the widths and lengths of most common bricks, render attention to this truly irksome, or, indeed, scarcely possible; but still, when workmen take pains in the execution of their work, these little minor difficulties can be easily overcome, and are made to vanish by proper regulations in the thickness of the cross-joints, and during execution by selecting bricks of approximating widths and lengths.

JOHN PHILLIPS.

OBJECTORS TO THE CAMDEN SOCIETY.

THE determination of the general meeting reported in our last number has proved unsatisfactory to a large number of the members. A document containing the following passages has received the signature of a large number of influential persons, and is now in circulation among the resident graduates of the university:—

"At this meeting the Committee proposed no alteration in the laws to which we think it necessary now to advert, except that the law requiring periodical meetings at Cambridge should be abrogated. But whilst this change would not meet the objections which the committee had themselves avowed to exist against the society, it would throw the whole management of the society's affairs more exclusively than before into the hands of the committee. Added to this, the committee, with the majority of the society present, evinced their determination to continue to act upon the same principles, and to pursue the same course of operations which had deprived the society of its ecclesiastical and academic patrons: and, as an earnest of the spirit in which that majority are prepared to act, all suggestions for any material change in the executive of the society were rejected.

Thus the executive of the society remaining virtually unchanged, and being supported by a majority in the determination to maintain a position which we consider still to be pregnant with evil, and alike disrespectful to the authorities of the church and university, we deem our longer connection with the society inconsistent with the respect which we owe to both these bodies. At the same time we disapprove of the spirit which has of late guided the society's proceedings, and which will avowedly influence them in future, as alien from the objects for which the society was originally founded. We have, therefore, determined to withdraw from the society."

We have received several very strong letters on the subject, urging that the Protestant members of the society should at once form another society for the study and improvement of church architecture alone. An influential resident member writes us, what must be evident to all, that under the present executive the Cambridge Camden will continue to be a *polemical* association.

ART-UNION OF LONDON.

LIST OF THE PRINCIPAL PICTURES SELECTED BY PRIZEHOLDERS, TO MAY 21ST.

The Origin of the Guelph and Ghibeline Quarrel, by A. Elmore, price 262*l.* 10*s.*; Jews lamenting over the Ruins of Jerusalem, M. Claxton, 200*l.*; the Parting of Sir Thomas Moore from his daughter, S. A. Hart, 300*l.*; "Simchath Forah," S. A. Hart, 150*l.*; a Stone Quarry, F. R. Lee, 126*l.*; the Greeting, Witherington, 150*l.*; View near Ournelo Castrada, W. Leitch, 100*l.*; the Guagers are Coming! J. P. Philips, 150*l.*; Sunshine and Showers, F. R. Lee, 63*l.*; the Song of Olden Time, J. C. Hook, 80*l.*; One of the Propaganda Fide, S. A. Hart, 84*l.*; Mill Ford, Devonshire, F. R. Lee, 100*l.*; the Stranger inquiring his Way of a Hungarian Goatherd, Zeitter, 100*l.*; Landscape and Cattle, E. Williams, 40*l.*; a Summer's Evening on the Beach, Hastings, A. Clint, 84*l.*; Scene from Peveril of the Peak, Solomon, 63*l.*; Entrance to Newhaven, A. Clint, 70*l.*; Pedlars' Camp, W. Shayer, 84*l.*; the Market Cart, F. R. Lee, 100*l.*; the Happy Italian Boy, G. Stevens, 60*l.*; the Departure for Battle, J. E. Collins, 65*l.* 5*s.*; the Island of St. Giulio, G. E. Hering, 60*l.*; Bacchante and Bacchanal, W. Salter, 85*l.*; Bianca and Lucentio, Wehnert, 60*l.*; Crossing the Ford, A. E. Jeffray, 50*l.*; River Nid, near Knaresboro', H. Jutsum, 50*l.*; Fortune-Telling, E. D. Lealey, 60*l.*; the Gipsies' Retreat, W. Shayer, 47*l.* 5*s.*; Amoret and Prince Arthur in the Cottage of Sclaunder, F. R. Pickersgill, 50*l.*; Shady Lane, Summer, F. R. Lee, 60*l.*

THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

The committee appointed at a special general meeting, held on Wednesday, March 5th, have published the first number of their Journal, consisting of eighty-six pages of letterpress and forty-four illustrations.* It is prefaced by a very temperate and ingenuous statement of the events which led to the recent and greatly-to-be-regretted disagreements, and contains much interesting antiquarian information. On this statement we do not intend to enter; our readers are already acquainted with all the facts of the matter, and our own general opinion. We cannot, however, avoid saying, that the case of the appealing party—the party whose journal is now before us—has been greatly advanced in the minds of many who have not yet interfered, by the gradual explosion of certain *charges*, prejudicial to the reputation of individuals, which have been industriously circulated by unwise opponents. The high character of Mr. Crofton Croker, Mr. Planché, Mr. Barrow, Mr. Corner, and the other members of the committee, is beyond questioning, and affords of itself sufficient answer to some recent assertions.

The principal papers in the Journal are by, Mr. C. Roach Smith ("On Roman potters' kilns and pottery, discovered in Northamptonshire"), Mr. Daniel H. Haigh ("On Deerhurst Church, Gloucestershire"), Mr. Thomas Wright ("On Medieval Architecture," illustrated from illuminated MSS.), Mr. F. C. Lukis ("Cromlech du Tus, Guernsey"), the Rev. Stephen Isaacson ("On Roman remains and other antiquities, at Dymchurch, Kent"), and Mr. J. R. Planché ("Remarks on an enamelled Tablet, preserved in the Museum at Mans, and supposed to represent the Effigy of Geoffrey Plantagenet"), whose valuable paper is entitled to the attention of all heralds. Mr. Wright's paper we are enabled, by the kindness of the committee and the author, to print entire.

MEDIEVAL ARCHITECTURE ILLUSTRATED FROM ILLUMINATED MANUSCRIPTS.

BY THOMAS WRIGHT, M.A., F.S.A.

BUILDERS AT WORK.

In the volume of the "Archæological Journal" published under the direction of the central committee of the Association during the first year of its existence, several instances have been given of the valuable assistance which may be derived from the illuminated manuscripts of different periods, in illustrating architectural antiquities. The details of these old pictures are not in general drawn with sufficient minuteness to enable us to derive much benefit from a comparison with existing monuments; but we learn in them the disposition and arrangements of buildings of different classes, of which there are now no perfect examples left. It has been already shewn that, with regard to Anglo-Saxon architecture, the drawings in manuscripts of a date anterior to the Norman conquest furnish us with data of great importance in identifying the few existing remains, which without them are extremely doubtful. The Anglo-Saxon drawings present sufficient characteristics for our purpose. But after the conquest, when existing monuments, the dates of which are known, become more numerous, the drawings in the manuscripts have less value in this respect, and in many instances the architectural characteristics are so badly designed as to be altogether useless. But, as a compensation for this default, the manuscripts represent to us interiors and exteriors of castles and monasteries, palaces, manor houses, cottages, with street views, and the various buildings peculiar to town and country, as they stood in different ages and under different circumstances; and these are in general further explained by the descriptions in the corresponding text.

The earlier illuminated manuscripts are chiefly copies of the Scriptures, or books of a religious character, and the buildings represented in these are mostly ecclesiastical. We find little to illustrate the domestic and military architecture of the Anglo-Saxons. The same remark applies in some degree to the Anglo-Norman period; and it is not till the illuminated romances became common, in the thirteenth century, that we find many drawings of houses and castles. But there is one part of the subject which is illustrated by these illuminations at all periods when they are found, and one which cannot fail to have an interest for all our readers—the occupations and the tools of the builder and mason. It would be no difficult thing to give a very numerous and perfect series of drawings of builders occupied with their labours, at every period from at least the tenth century down to the sixteenth; but I will be satisfied in the present instance with giving a few examples, in regular succession of date, although belonging to periods separated by somewhat long intervals.



My first cut is taken from the same manuscript of the translation of part of the Scriptures by Alfric, which has already furnished our illustrations of Anglo-Saxon architecture (MS. Cotton. Claudius, B. iv. fol. 19), and which was executed at the close of the tenth or in the earlier years of the eleventh century. It represents the building of Babel, and is here considerably diminished from the original. The drawing is somewhat rudely executed, though not without spirit; and the workmen shew as much contempt for the laws of gravitation as the artist has exhibited ignorance of perspective. On the right, a workman is carrying the squared stones for the wall one by one up a ladder. On the left, two men are employed in raising either a large squared stone or a beam of timber to a rather singularly formed scaffold, on which another labourer is lifting a hod of mortar to the workman above. At the top a man is working on a dome with a hammer and chisel, while below him another is similarly employed on a sloping roof. Two others are working with tools of the same description at the door.

The next example is taken from the painted glass of a window in the cathedral of Chartres in France, executed in the thirteenth century. Our cut is reduced from a larger plate given in the interesting "Annales Archéologiques," by the distinguished French archæologist M. Didron. In the right-hand compartment two masons are at work on the stones which are apparently intended to form parts of mouldings; at their feet are their squares and their compasses, and the models of the mouldings are suspended above. In the other compartment a mason is employed in equalizing the surface of a stone, with a tool which appears to have a serrated edge; and the architect is applying a plummet to ascertain if the work be accurately vertical. Above are suspended another instrument, apparently a saw, and a board on which is traced the plan of a building with four corner columns and a large clustered pier in the centre. Two of the masons have small caps tied by a band which goes under the chin; and it is singular that both these and the third mason have crowns, apparently of laurel. M. Didron remarks that gloves, to be presented to masons and stone-cutters, are often mentioned in old documents. In a subsequent number of his valuable "Annales," he gives the following examples. In 1381, the Châtelan of Villaines en Duemois bought a considerable quantity of gloves to give to the workmen, in order "to shield their hands from the stone and lime." In October 1383, as we learn from a document of the period, three dozen of gloves were bought and distributed to the masons when they began the buildings at the Chartreuse of Dijon. At Amiens, in 1486 or 1487, twenty-two pairs of gloves were given to the masons and stone-cutters.



Our third woodcut is taken from a manuscript of the earlier part of the fifteenth century (MS. Harl. No. 4431, fol. 111), containing the poems of Christine de Pisan. The stones are here no longer carried up by the hands of the labourers, as in the Anglo-Saxon manuscript, but they are raised by a wheel and axle—a rather rude attempt at a crane. The mason at work on the wall is squaring his stone with a serrated tool, like that which is in the hand of one of the workmen in the foregoing scene. The other is measuring the stone with a compass. One part of the building on which they are employed is a church, with flying buttresses. All the dresses of the men employed here differ from each other, and perhaps dis-

* "The Journal of the British Archæological Association, established 1843, for the Encouragement and Prosecution of Researches into the Arts and Monuments of the Early and Middle Ages. No. I. H. G. Bohn, York-street, Covent-garden."



nguish the different classes of the work-
en.

The last example is taken from a beautifully uminated manuscript of the latter part of e fifteenth century (MS. Harl. No. 4376), ntaining an ancient history of the world in French. Each book is headed by a large miniature, several of them representing the building of towns and cities. Our cut gives only a portion of one of these miniatures, and is reduced from the original. The buildings of the town, seen in the distance, are neatly executed, and the ornamental conduit, behind the tower on which the workmen are employed, is extremely beautiful. The whole forms a very interesting picture. The crane employed here is a much more perfect machine than that exhibited in the preceding cut. The tools used by the workmen in front differ little from those seen in the two preceding groups. The architect, with his staff in his right hand, is represented in the act of receiving his orders from the prince or duke, under whose auspices the city has been founded. The smaller cut, taken from the same manuscript, represents a group of builders, with a trowel and hod of mortar, at work upon a tower,—not upon a chimney, as the artist's proportions would have led us to suppose.



In reviewing and comparing these various representations of the same process at so widely distant periods, we are struck much less with their diversity than with the close resemblance between both workmen and tools which continues amid the rapid and continual changes in the condition and manners of society. Whether this be in any measure to be attributed to the circumstance of the masons forming a permanent society among themselves, which transmitted its doctrines and fashions unchanged from father to son, it is not very easy to determine. But it is certainly remarkable, that at the period when architecture flourished most, the date of some of the richest portions of the cathedral of Chartres, the masons should be represented with crowns of laurel on their heads.



MARBLE CONSOLE FROM THE SOANE MUSEUM.



MARBLE CONSOLE FROM THE SOANE MUSEUM.

The engraving below represents a marble console from the collection in Lincoln's-Inn Fields, similar in character to the ornamental capitals which have appeared in former numbers.

THE BRITTON TESTIMONIAL.

Since our last notice of the proposed testimonial to Mr. Britton, the Earl de Grey, Mr. Decimus Burton, Mr. Edward Willson, of Lincoln, Mr. G. Baker, of Northampton, Mr. Moran, the Dean of Hereford, Mr. Joseph Hume, M.P., and many other eminent men have joined the committee. At a meeting held last Saturday it was decided, as Mr. Britton had disinterestedly declined receiving any personal offering, that a premium of 100 guineas should be offered for the best "Bibliographical Review of Illustrated Literature devoted to the Architectural Antiquities of Great Britain," to be inscribed to Mr Britton, and published by the committee. Of this essay every subscriber of one guinea will receive a copy, and it is further proposed, if the sum subscribed should prove sufficient, either to have a portrait of the worthy veteran painted and engraved for distribution, or a good medal struck. At the same meeting it was resolved that Mr. Britton should be invited to a public dinner at Richmond on the 7th of July, his 74th birthday, to meet his friends and the lovers of architectural antiquities; and a sub-committee was appointed to make the necessary arrangements.

Few men have laboured so long, steadily, and successfully as Mr. Britton. No one can examine his beautiful work on the Cathedral Antiquities, and then look at the works illustrative of our architecture which had appeared before his time, without seeing what a step in advance was then made; and we must remember that he could not then find artists to draw and engrave with facility and precision, as it is easy to do now, but was compelled to lead them up to it, and may be said to have produced a school. We sincerely hope, and have no reason to doubt, that the subscription will be very large, and the result a crowning gratification to Mr. Britton. We will gladly transmit to the committee any subscriptions which may be forwarded to our office.

MOVEMENT IN SOCIETY OF ANTIQUARIES.

Our readers will remember that a series of suggestions were referred by the members in March last to the council for their consideration, with a request that they should report on them at the anniversary. (See p. 139 *ante*). The anniversary passed by, and no reference was made by the council to the matters submitted to them; much discontent was exhibited, and many of the members have been led to fear that the governing body would draw upon themselves some sweeping interference from without, which might have been altogether avoided by a timely concurrence with the generally expressed opinions of the members.

We are glad to be the first to announce that the council have *begun* to act on the suggestions then made. The payment of 2s. 6d. to the librarian by each member on receipt of his half-yearly "part" of the transactions *is abolished:* the price of former publications of the society is reduced to members very considerably; and other alterations are contemplated, and it is to be hoped will be made, so that confidence may be restored and dissension avoided. A young and zealous man should be appointed to assist Mr. Carlisle in his duties as secretary; the council should meet a little oftener; and no gentleman should be elected president or vice-president who is not sufficiently interested, and sufficiently at liberty, to enter into the affairs of the society. To the council we say, seriously, continue to shew a desire to meet the wishes of the members, and on all accounts preserve peace.

It is singular, as well as unfortunate, that dissensions should exist at the same moment in three important societies. At the Antiquaries it will be entirely the fault of the council if unanimity is not restored forthwith.

TERRA COTTA.

Sir,—As my name has been mentioned in connection with Terra Cotta in your numbers of the 26th April and 5th May, and as statements were on both occasions made in reference to me without my knowledge or authority, you will, perhaps, admit a few words from me in explanation.

Your first correspondent inquires where Terra Cotta is to be obtained, and whether a church has not been built of that material near Bolton-le-moors. A note from yourself, at the foot, explains that the church at Lever Bridge was constructed from this material, and that the moulds were made under my superintendence. You also explained that the material was prepared by Mr. Fletcher of Vale Bank, who had established works at Ladyshore for the manufacture of the material, and that Mr. Sharpe would probably afford any further information that might be required. In all these statements you were quite correct, and I did not therefore, think it necessary to answer your correspondent.

Mr. Fletcher interposes, however, in your number of the 5th May, to save me all further trouble in this respect, and gives what may be looked upon as sufficiently good reasons; namely,—first, that I have no connection with his works; and secondly, that he can best answer such questions.

Now, in stating that I have no present connection with his works, Mr. Fletcher ought, in justice, to have added, that they owe their existence to me; that the application of fire-clay to architectural purposes, on a large scale, and in a highly ornamental form is, as I believe it to be, and certainly so far as he is concerned, due to me.

The church at Lever Bridge is, so far as I know, the first building constructed entirely within and without of Terra Cotta, in the rich style of the fourteenth century, in this country. The experiments which determined the committee to adopt this material were made under my superintendence, and by one of my workmen. And the *design of the construction*, so essentially different from that of an ordinary stone or brick building, as well as of all the ornamental details, was made by me.

And now, having claimed this much on my own account, I must at once explain, that in regard to the *preparation* of the material—the mixing, grinding, tempering, squeezing, drying, and burning of the clay, in fact, the whole of the potters' work—I desire to take no credit. Whatever merit the works at Ladyshore possess on account of the quality, colour, hardness, and durability of the material, belongs to Mr. Fletcher. Neither, on the other hand, do I desire to assume the responsibility which attaches to the proper execution of this department of the works in order to secure these essentials. I have satisfied myself of the excellence and durability of the material if properly treated: it rests with the manufacturer to maintain its character in these respects.

Having made this explanation, I will not trespass on your space further than to state, that I cannot subscribe to Mr. Fletcher's assertion, that works in Terra Cotta can be constructed from "Plans prepared in the ordinary manner," if by that he means it to be inferred, that a design for a stone or brick building is equally applicable to fire-clay.

It is clear, that a knowledge of the power of resistance, tenacity, porosity, and specific gravity of the material is as essential to the safe construction of buildings erected from it as a knowledge of the limits, in regard to size and form, which admit of the material being thoroughly and completely burned. It is upon these points, therefore, in designing the construction of such a building, that the skill and care of the architect, as distinguished from that of the manufacturer, has to be exercised, and upon which the safety and integrity of any such structure will depend.

I am, Sir, &c.,
Edmund Sharpe.

Lancaster, May 14.

Hackney New Church.—The foundation-stone of a new church for the extensive district of South Hackney was laid last week, in the presence of a numerous assembly of the residents of the district. The church is to be built by voluntary contributions, at a cost of upwards of 10,000*l*.

THE ROYAL ACADEMY EXHIBITION.

The general exhibition of works of fine art has been already characterized in The Builder as very satisfactory, though deficient in works of the first class. It is satisfactory, as exhibiting considerable progress on the part of the younger artists. Much has been said against the number of portraits it contains, but it should be remembered that, amongst the finest and most beautiful productions bequeathed us, the portraits of Vandyck, Holbein, Kneller, Sir Joshua, and others, hold a high station in the estimation of those who are able to appreciate such works. Pickersgill, Shee, Knight, Gordon, Herbert, and Grant have forcibly proved, in the present collection, the excellence of this branch of art. Maclise and other artists, whose works are missed in the present exhibition, are probably at work for the ensuing Government competition.

"Aurora and Zephyr" (12), W. Etty, R.A. A copy of Titian's Venus in the front figure is very palpable; the picture itself is wonderfully brilliant in colour. His picture of "Cupid interceding with Venus for Psyche" is even more excellent. No. 185, "A Flower Girl;" 186, "A Votive Offering;" and No. 259, are all beautiful specimens.

No. 13, "Amoret, Æmylia, and Prince Arthur in the Cottage of Sclaunder," from the "Faerie Queene," by F. R. Pickersgill; a good picture, broad and well drawn; but "The Four Ages" (362), by the same artist, is better.

Of Mr. Roberts's pictures "Jerusalem" is preferable: they are both in his best style.

"The Mole, at Ancona," with "Trajan's Arch," by Stanfield, is a very beautiful composition, true in colour, and natural in effect. There is a certain lucidity in all this artist's pictures peculiarly refreshing.

"Peasants bringing fruit into Naples" (92), by J. Uwins. This is a favourite subject of the artist, treated with his usual skill. Mr. Uwin excels in portraying Italian life.

Mr. E. Landseer's picture (141), without a name, is a beautiful work. The painting of the sheep's wool is miraculous; it seems disturbable by a breath. A solemnity, truly astonishing, pervades the picture; the very animals are engaged in prayer.

"Dressing the Bride" (127), by T. Clater. A very nice work, painted with truth; the still life is exceedingly well put in. Immediately under this is "The Favour," by J. W. Wright, another very pretty little picture, somewhat marred by the ill drawing of the arm.

144. "A Sketch," by W. Mulready, R.A. A wonderful bit of finish and colour. There is a lovely little sketch in chalk by this artist in the miniature room.

149. "Scene from Moliére," by C. R. Leslie, R.A. This work has a peculiar appearance of blotchiness, but is of good conception and clever composition. A very beautiful landscape is that by W. D. Kennedy (148), nicely toned and composed.

Turner, R.A., though extravagant and obscure, stands alone in his power, and is above either praise or censure.

200. "Fetching the Doctor." W. Collins, R.A. A humourous production; the pony is capital, the light well managed.

A nice piece of colour is No. 203, by Muller, entitled "Head of a Cingari, Xanthus."

"Dutch Boats running into Saardam, Amsterdam in the distance," by C. Stanfield, R.A. The water of this is a perfect master-piece, transparent, clear, and effective; this picture must be welcome to all who have any idea of the beautiful.

222. From "Milton's Comus," by C. L. Eastlake, R.A. A very fine production in the highest walk of art. It is to be regretted that one head has been made to serve for the whole of the Cherubim."

The landscapes of F. R. Lee, R.A., are of great beauty. Among the best are "The Water Cart" (233), "The Market Cart" (24), and No. 43, "The Mill Ford, Devonshire."

Creswick's "Spot to be Remembered" is a perfect triumph. Others of his are very beautiful, such as "Rain on the Hills."

"The White Cockade" (244), by Farmer, is a nice picture, with his usual little fat red-cheeked boy.

258. "Miranda," by R. Redgrave. A clever picture, the head remarkably beautiful: still we cannot imagine this the artless creature depicted by Shakespeare, but rather an actress playing the part.

A most beautiful landscape is that of Danby (272), unequalled for its intensity of warm light and shade: the effect of the rising sun behind the trees is perfectly marvellous.

The third picture from this is C. Landseer's "Eve of the Battle of Edgehill." An improvement on last year; but a monotony pervades the picture which is disagreeable.

E. M. Ward's (292) "Scene in Lord Chesterfield's Ante-room." This work, evidently of much research, full of Hogarthian feeling and humour, is an excellent picture, deserving high commendation. The heads, well studied, are characteristic of their several professions; and the whole is carried out with care and skill. We understand Mr. Vernon has bought this picture.

"Ariel," by J. Townsend. A fanciful idea, in the style of German illumination; but with too much of the manner of Maclise.

E. Frost has a fine composition, illustrative of "Sabrina borne by Water Nymphs to aged Nereus' Hall," from Comus.

327. "Burial Ground, Smyrna." W. Muller. This seems an excellent picture, but is placed so high as to defy examination, even at the risk of a broken neck.

A very good specimen of Herbert's peculiar style is "St. Gregory" (338). The monks' heads are very clever, as are some of the boys'.

Mr. Kennedy's picture of "The Two Nymphs" (347), for colour, style, and perfect keeping, cannot be too highly praised.

"Repose" (357), by A. D. Cooper, is a beautiful bit of colour, but is too close an imitation of Sir Joshua.

Mr. Webster's "Dame's School" (360), and Goodall's "Le Bon Curé" (361), are fine specimens of finish and refinement.

Mr. Marshall Claxton's picture, "Jews lamenting over Jerusalem," can boast of much that is clever, but has a chaotic effect.

Mr. Haydon has produced a fine study of a head in 394.

"Gregory passing through the Slave Market," by J. Sant, is clever, but weak.

459. "The Bandit Mother," by W. D. Kennedy, a good picture in an excellent style.

A miracle in point of finish and study is No. 471, by Mr. Lance, though the general effect is not pleasing.

Robinson Crusoe has made his re-appearance in a picture of Mr. Fraser, whereof the tone is excellent.

Mr. Middleton's "Jeanie Deans" appears deserving of better treatment than it has received.

Mr. Muller's beautiful painting, immediately under this, is remarkable for depth and solemnity of tone. We prefer it to those by the same artist already mentioned.

"The Young Squire's Wedding," by T. F. Marshall. A very nice picture, full of truth, and displaying a visible improvement on the part of this artist.

Frith's "Village Pastor" (498) is a perfect piece of truth, genuine feeling, and good drawing; it awakens sympathy and touches the heart.

A picture near it, by A. Solomon (502), has much that is good in it, but the faces are decidedly too long.

Mr. M'Jans' (514) is an interesting picture.

"Going to Pasture," by J. S. Cooper, can boast of its nicely painted cattle, but wants his accustomed warmth.

Mr. Johnson's fine work (546) will be appreciated by all; the style is broad, clean, and effective. The head of Lady Russell is not sufficiently characteristic: still this picture is one of the best in the collection.

"Connamara Girls bathing their Feet," by F. Goodal, is nicely coloured, but in parts has the fault of being horny.

Mr. Bell has succeeded in his water nymph (552), but the figure of Hylas is awkwardly placed. "Autolycus," from the "Winter's Tale," by Egg, is exquisitely painted and drawn, tells its own tale, but is rather hard.

The hackneyed subject of "Boaz and Ruth" is again presented to us by Mr. Le Jeune, who makes a pretty picture of it in spite of its want of originality.

A fine picture of Mr. Eddis, under the title of "Jochebed," hold a prominent situation in the exhibition.

"The origin of the Guelph and Ghibelin Quarrel," by A. Elmore, is an ambitious and clever picture, with much in it to be admired and praised, though not without faults.

"Uriel and Satan" displays Mr. Haydon's knowledge and his love of grandeur.

Mr. Harding, the water-colour artist, has contributed the "Mountain Pass," deserving of the highest praise.

Among the pictures in the black hole (octagon room) are some good works; the best, by Mr. Philip, "An Illicit Still," is rather too melo-dramatic; the rolling of the woman's eyes, as if to court the plaudits of an audience, might be dispensed with; but the light in this painting is skilfully managed.

Among the miniature painters, Thorburn, Ross, Carrick, Newton, and Cruikshank display the finest works. Some by Thorburn are pictures.

A miniature, by Hiedmanns (761), is well worthy of notice for its beautiful finish.

There are some good specimens of sculpture, by Bell, Marshall, Weekes, and others. Nothing can be more beautiful or simple than Mr. Marshall's "First Whisper of Love," or Mr. I. Bell's "Child's Attitude." J. A. S.

PROVINCIAL WATER WORKS.

The health of towns so much depends upon plentiful and cheap supply of pure water, and the public at large are now so thoroughly convinced of its importance, that a company has been formed for the purpose of affording provincial cities and towns this necessary of life. In almost all localities there exist ample sources, which require only skill and capital to make them alike valuable to the inhabitants, and profitable to those who shall render them available. In our last number we stated that a private company was being formed to establish water-works on an extensive scale at Bristol. Since then a meeting of the town-council has been held, and the propriety of the city being supplied by the corporation, instead of by a private body, was discussed.

Mr. Thomas impressed upon the council the importance of taking the subject in hand before it was too late. The docks had fallen to private hands, and now the step was lamented; they ought certainly to be the property of the city. At Manchester the people are supplied with gas by the authorities, and from the profits made by it great improvements had been effected and were still going on in the town. He contended that Bristol might be not only well supplied with water by the council, but that a profit would accrue, which could be expended in improvements.

Mr. Green thought there could be hardly a doubt that a measure would be introduced into Parliament empowering or compelling local bodies to form water works. He trusted that the council would take the subject in hand, for there was no doubt that such a work would not only be remunerative for the outlay of capital, but also that a large sum would be derived from it, to be expended in public improvements. A supply of water ought to be secured, not only for private purposes, but for the establishment of public baths, and a ready supply to be used for the extinguishing of fires. Had the gas-works been in the hands of the council a large profit would have been secured.

The Edinburgh Water Company, which is, I believe, a private body, charge only *four*, and in some instances, only *three* shillings per ton for water supplied to cottages let for less than 5*l.* per annum.

Metropolitan Railways.—The project of a metropolitan railway tunnel is said to be seriously entertained, and a prospectus has been issued, pointing out its practicability. It is proposed that this subterranean railway should commence at Hyde-Park corner, and have intermediate stations at each chief thoughfare with a street frontage. A prospectus has been issued for the formation of a London Central Railway Terminus in the vicinity of Charing Cross, and the direction of various lines, by means of a double line of rails, adjoining the Hungerford Suspension Bridge. A South-London Subway Railway, on the atmospheric principle, is also proposed, for the accommodation of Kennington, Stockwell, Clapham, Balham Hill, Tulse Hill, Brixton, and other rural districts. The rage for speculating in shares is now so great, that if a railway from Hyde-park corner to the middle of August were advertised, all the shares would be subscribed for in twenty-four hours.

THE IMPROVEMENT OF WESTMINSTER.

As some of our readers have expressed a desire to know exactly what the committee appointed February 7th stated to the public meeting on the 10th inst., alluded to in our last number, we are induced to print their report entire:—

"The committee were appointed to consider the various lines of improvement proposed to be made by new or enlarged streets in the vicinity of the Houses of Parliament, and to report to a future general meeting, and were directed by the meeting to impress on the government and the legislature the propriety of withholding their sanction from any plan for improvement which may not be approved of by the inhabitants.

The committee having by public advertisement invited communications relative to the best measures for carrying out the improvement of the neighbourhood, received several plans to promote this object.

Mr. Wason attended the committee and stated, that he would not take any step in parliament for one month. In consequence of further advertisements by the committee for plans accompanied by written statements, shewing their practicability, they were favoured with several plans, accompanied by explanations and estimates, relative to proposed lines of improvement.

The committee having solicited an interview with Sir Robert Peel upon the subject, explained to him the objects for which they were appointed, and his attention was drawn to the several plans which had been submitted, and which the committee were assured were practicable. Sir Robert stated that he would speak to Lord Lincoln upon the subject, and recommended the committee to put themselves in communication with his lordship. In conformity with this recommendation, the committee addressed a letter to Lord Lincoln, and the following correspondence ensued:—

Literary and Scientific Institution, Great Smith-street, Westminster, 18th March, 1845.

My Lord,—The Committee for the Westminster Improvements having been honoured with an interview with the Right Hon. Sir Robert Peel, and authorized to enter into communication with Her Majesty's Office of Woods and Forests on the subject of the proposed improvements, request to be permitted (before they solicit an interview with your lordship) to submit the various plans and calculations on which they have been induced to conclude, that no plan should be finally adopted without full consideration of all the peculiar circumstances of the improvement, and the various suggestions made by experienced architects and surveyors.—I have the honour to be, My Lord, your lordship's most obedient servant,

W. H. J. Traice,
Secretary to the Westminster Improvements Committee.

To the Right Hon. the Earl of Lincoln.

Office of Woods, &c., 19th March, 1845.

Sir,—I have to acknowledge the receipt of your letter of yesterday's date, and beg that you will inform the Committee for the Westminster Improvements that I shall be happy to receive the plans and calculations, and will not fail to give my best attention to their details whenever the committee may favour me by sending them for my inspection.

I remain, Sir, your obedient servant,

Lincoln.

W. H. J. Traice, Esq., Secretary, &c.

March 22, 1845.

My Lord,—The Committee for the Westminster Improvements desire me to convey their sincere thanks for your lordship's early reply to their communication requesting permission to submit certain plans and statements, furnished to the committee for your lordship's examination.

In conformity to your lordship's kind assent to the committee's request, I am, therefore, directed to forward several plans and statements of the estimates on which such plans have been prepared, of the following architects, viz., Mr. Sidney Smirke, Messrs. Scott and Moffatt, Mr. Bardwell, Mr. Tarring, Mr. Lapidge, and Mr. Donthorn.

The committee also beg to solicit the honour of an interview with your lordship as early after your lordship's examination of the plans and estimates as may be convenient to your lordship.

I have the honour to be, &c.,
W. H. J. Traice.

Whitehall-place, 29th March, 1845.

Sir,—I have looked over the various plans for the improvement of Westminster which you have been good enough to send me, and with one at least of which I have been much pleased. The Commission for Metropolis Improvements meets on Wednesday, the 9th of April, and it will then be my duty to report to the commissioners the communications which I have received from you, and the fact of several new plans having been proposed since the report in favour of Mr. Wason's line was agreed to.

It may possibly be the wish of the commissioners to see the gentlemen composing the Committee for Westminster Improvements, and I would therefore prefer postponing any further communication upon the subject until after the meeting on the 9th of April, which I hope will not occasion any inconvenience to the Committee. I am, Sir, &c.

Lincoln.

To this the secretary replied, that in the event of an interview being desired a deputation would be prepared to attend the commissioners; and represented that the committee assumed that the bill before parliament would not be allowed to pass to a second reading till the further decision of the commissioners should be made.

The concluding letter was as follows:—

10th April, 1845.

Sir, — The Commissioners of Metropolis Improvements met yesterday, and agreed to the report to her Majesty in favour of the new line of street through Westminster proposed by Mr. Rigby Wason, the substance of that report having been decided upon at the last previous meeting.

I laid before the commissioners your letter, and informed them that you had sent me several plans, as substitutes for that which they had sanctioned.

The commissioners felt that they were committed to Mr. Wason's plan, and could not in fairness adopt any course which should prejudice the bill now before parliament. They therefore concluded the report with the following words:—

"Your Majesty's Commissioners, since their engagement to recommend the plan already noticed, have very recently received intimation of the existence of other plans for the improvement of the same district, which, however, by the fact of such engagement, they do not feel themselves at liberty to call for with a view to their investigation."

Under these circumstances, I shall be glad to learn from you whether it is the desire of the "Committee for Westminster Improvements" that I should return the plans to you, or that I should retain them for the present, in the event of the Commissioners being willing to examine them at some future time when Parliament shall have decided upon the bill now before it. I am, Sir, &c.,

Lincoln.

The committee have since had several communications with the promoters of Mr. Rigby Wason's plan, who express a disposition to extend their lines of improvement as much as possible upon certain conditions; but they have not been attended with any definite result.

(Signed) W. Freeman, Chairman.

10th May, 1845.

With the proceedings of the Metropolis Improvement Commission, in this matter, we are far from satisfied, but, for want of space, must defer comment.

Improvements in the Tower of London. — Upwards of 100 of the military are daily employed, in addition to the ordinary labourers, in proceeding with the works of this ancient fortress. The site of the old armoury has been nearly excavated, and concrete laid for the foundations of the new barracks. The earth taken out of the latter has been thrown over the Tower into the moat to fill it up, and it is not now intended to make it into a plantation, but into an exercise ground for the military, and a promenade for the inhabitants of the fortress.

HAND-BOOK FOR LONDON.

Mr. Murray's hand-books for travellers are known over Europe. Wherever you meet English tourists—and where can you go without meeting them?—you may be certain of seeing the red-covered guide book. Uniform with these he has just announced a hand-book for London, past and present, wherein it is proposed among much new matter, to give the origin of the names of places, and to distinguish, as far as possible, the residences of remarkable men. The author of the book is Mr. Peter Cunningham, and we anticipate, from his zeal and ability, a peculiarly interesting volume. In a morning's walk we pass many houses without emotion which, if we but knew the names of former occupants, would afford matter for much pleasant thought. Look at one paragraph, for proof, in Mr. Cunningham's prospectus:—

"Particular residences of remarkable men, or streets connected with their names: Chaucer, and his account of what he observed in Friday-street; the house in Aldersgate-street in which the first Lord Shaftesbury lived, in the time of Charles II.; Milton's house in Petty France, Westminster; Andrew Marvell's rooms in Maiden-lane, Covent-garden; and Voltaire's London lodging at the *Blue Periwig*, in the same lane; Dryden's house in Gerard-street; Southerne's house in Tothill-street; Sir Isaac Newton's house and Observatory in St. Martin's-street; Hogarth's house on the east side, and Sir Joshua Reynolds' house on the west side of Leicester-square; Dr. Johnson's house in Gough-square, and the site of his house in Bolt-court, Fleet-street; Lord Byron's residence in Piccadilly; the house in which Gibbon wrote his defence of his 'Decline and Fall;' the house in which Boswell, the biographer of Johnson died; the house in which Horace Walpole died; the house in which Thomas Gainsborough lived; the house in which Wilkie painted his 'Blind Fiddler;' the studios of Flaxman and Chantrey, and the residence of Sir Thomas Lawrence."

WIRE ROPES.

Mr. Carpmael read a paper at the Royal Institution on the 9th inst., on the manufacture of wire-ropes. He stated, that the process had grown up within the last four or five years. Till the year 1839-40 there were no real wire-ropes in this country, *i.e.* no manipulation of wire, first producing strands, and then combining these strands into a single rope.

He briefly noticed the improvements which had been made in the manufacture of hempen cordage during the last fifty years, and laid great stress on Captain Huddart's contrivance for varying the length of the yarns, according to their distance from the centre of the rope, so that each, throughout its course, being kept at the same distance from the central strand, was subjected more nearly to the same amount of tension. The characteristic difference between the mechanical principles of the manufacture of the hempen and the wire-rope was then inculcated. *Twisting is essential to the structure of the former, but would be destructive of the latter fabric.* This principle, long overlooked, was discovered by Mr. Newall, the patentee of the improved wire-rope, and the object of his machinery is to carry that principle into effect. The wire-rope consists of a hempen core, the horizontal section of which exhibits seven equal circles,—six round a central one; these, according to a known geometrical law, touch the central circle, and also each other. Round this central core are six strands, formed exactly in the same way, except that while the central core is of hemp (as is the core of the rope), it is surrounded by six wires,—the diameters of these wires being equal to those of the yarns of the core; so that a section of the rope exhibits forty-nine equal circles (thirty-six wire and thirteen hemp), arranged in a sort of hexagonal form, the lines joining the centres of the hempen cores of each strand producing a regular hexagon. Having exhibited the machines by which Mr. Newall *lays* the wires in the strands, avoiding all *twist*, Mr. Carpmael stated some of the purposes to which this manufacture had been applied. He premised, that the greatest strength is obtained when wire made of *hard* iron is used. Ropes thus manufactured are stronger, lighter, and cheaper than hempen cordage bearing equal weights; consequently, when materials are raised from a depth in mines, a heavier load may be lifted with equal power whenever the wire-rope is used. For the same reason, this fabric is preferable in the fixed rigging of ships; and its value for railway purposes has been proved by decisive tests. As long as hempen ropes were used on the Blackwall Railway, there were often two or three breakages a-day. Since these have been superseded by the iron-wire, there have not occurred more than twelve fractures in twelve months, and during six thousand journeys.

Correspondence.

CHURCHES AND CHURCHYARDS.

Sir,—In your account of Norfolk churches no minute is given of—1, Length; 2, Breadth; 3, Height to roof-ridge; 4, Ditto of tower; 5, Materials with which fabric is built; 6, Churchyard, as to size, trees, keeping.

In foreign churches we often find the height from the floor to the roof-ridge 60 feet to 100 feet,—in England seldom or never so much. Our modern churches are most of them "playthings" in comparison with those of our forefathers.

As to *materials*, we should find, I think, that they were chiefly taken, very wisely, from such matter as was found in the locality.

As to *churchyards*, a report would shew, I fear, that our English cemeteries are a disgrace to us. Horses, sheep, geese, footpaths, weeds, and filth are the usual features of an English churchyard.

Our clergy would readily, as a body, resign the right of making a churchyard a piece of grazing ground, wherein the kicks and knocks of animals deface or break to pieces tombstones, and others violate the sod of the poor man's last tenement.

Whilst trees add much to the beauty of a churchyard, an avenue of limes, *kept clear of boughs inside*, forms a fine arcade to the west door of a religious building. Besides, if a parish was once invited by its pastor to make the graveyard *an object of attention*, there is no doubt but a wilderness would soon be turned into a garden; and then, by arraying sepulture symmetrically, the spot would become an ornament, instead of eyesore, to every village in the kingdom.

I am, Sir, &c.,

W. Mason.

Swaffham, Norfolk, May, 1845.

MODERN BRICKLAYING.

Sir,—As you invite remarks on the subject of bricklaying, I consider it my duty, being a journeyman bricklayer, and having the welfare of my trade at heart, to accept the offer. I wish to remind you that the generality of our modern builders know nothing of bricklaying, and care less; and I wish to call your attention to the total disregard many surveyors pay to the art of brickwork, who consider that to make a drawing that looks pretty to the eye and can be worked out in cement no better than mud (as "J. Phillips" justly observes) is all that is required of them. The common system of builders is to let those have the work who undertake to do it for the lowest price, without any regard to quality; and I have worked on jobs of this kind where the bricks have been thrown in the wall quite dry without any mortar. If you wish it I can give you the name of the place and the parties also. My humble opinion is, that the art of brickwork has been declining since we have had so many *Builders:* men who care nothing and know nothing about trade, and whose only object is to realize all the profits they can; for I think we had better work done when we had master-bricklayers and master-carpenters, and each man kept to his own trade; I do not consider there is one builder who knows the right bond of brickwork, if I except Mr. ——, and it was in his employ that I saw so much bad work done. I wish to point out to you the manner in which some surveyors appoint their clerk of the works. They mostly seek for some carpenter to superintend a building,—a man that don't know Flemish bond from old English, and who never thinks of gauging work to see what it rises; so, instead of having four courses to 11½ inches, he mostly gets three courses and a half to the foot; and here is the evil, for instead of having so much brick you have the quantity in mortar, and that not of the best sort.

It is a great pity that surveyors do not appoint a man that is competent to see to the brickwork, and have it properly bonded together and executed according to the specifications, and not allow so much bad work to be done; I can mention a firm in London, who made an excavator foreman of their bricklayers, because he was a bully to the men, and hurried them on. In the same firm that I am now speaking of, I have seen (and I have done it myself) two 4-inches carried up for an 18-inch wall, and the inside 9-inches filled in with the clearing of the brick-field, and a course of headers run on the top: then it has had grout covered over it, and run down the sides of the wall. Yes, Mr. Editor, there is a firm in London, I can mention, who employ the greatest bully they could find as their foreman of bricklayers; a fellow who could not obtain his living as a journeyman, and who takes the brickwork piece work. On Saturday night he is allowed to pay the men, and what is the consequence? Why he employs one or two good tradesmen, and the remainder consists of any thing he can pick up that is cheap, he charging his employer 5s. per day for all his men, and paying the majority of them 3s. or 4s. per day, while he pockets the remainder. By this system of *building* a respectable workman has but a bare chance of getting employment, much less of having the opportunity of exerting his skill.

I am, Sir, &c.,

Henry Johnstone.

ERRORS IN CATALOGUE OF EXHIBITION AT THE ACADEMY.

Mr. Leeds presents his compliments to the Editor of "The Builder, and begs to say, that among the strange mistakes in the catalogue of the exhibition, No. 1205 has a wrong title affixed to it. Instead of being called "Street Architecture: study for the façade of a small palazzo,"—as which it must seem little less than absurdity,—it should have been, "Capricio: Architectural Innovation;" it being like No. 1204, not a design for any thing in particular, but merely intended to shew some novel ideas, fanciful or fantastical—certainly by no means orthodox ones,—and hints for composition and detail.

*** Our correspondent is not the only exhibitor who has reason to complain of the carelessness shewn in the catalogue.

BUILDERS' ESTIMATES.

Sir,—The following are the prices given in for a new parsonage and out-offices to be erected at Brocklesby, in the county of Lincoln.

Bricks, lime, and sand found by the proprietor; architect, Mr. S. S. Teulon, of London.

Morehead, Hull	£2,640
Fewster, Hull	2,486
Forman and Frow, Hull	1,650
Downs, Hull	1,591
Enderly	1,459

I am, Sir, &c.,

Hull, May 20. A Subscriber.

*** We occasionally receive letters objecting to the publication of builders' tenders; and indeed are not quite certain ourselves that any advantage results from the indiscriminate insertion of such. In a case like the above, however, where the difference is so frightful as to shew conclusively that something *must* be wrong, we consider it our duty to publish it to draw attention to the system, and induce greater care on the part of builders when estimating.

Decoration of Houses of Parliament.—Mr. Pugin, the architect, has had several artists employed in Lynn, making casts of different parts of the architecture of St. Margaret's church, and St. Nicholas's chapel, as examples for the decorative parts of the New Houses of Parliament, the arrangement of which, it seems, has been intrusted to him.

Miscellanea.

Ancient Monuments. — The *Morning Chronicle*, in a notice of the British Archæological Association, says — "From ancient monuments we derive more vivid impressions of past ages than we can in almost any other way. They are themselves portions of the reality of those ages, and they give a wonderful stimulus to our power of conceiving the life and manners with which they were originally associated. On this account the minutest fragments of antiquity are worth preserving. Every ancient building, however much decayed— every half-effaced inscription — every broken weapon or industrial tool, aids us in recreating the magnificent picture of a by-gone age. The minute and painful diligence of the antiquary, therefore, which so often provokes a smile, is as truly scientific, and ultimately as productive of important results, as the close observations of the naturalist. Walter Scott, perhaps, is entitled to the merit of making it widely felt, that the miscellaneous collections of the antiquary may suggest more valuable knowledge than the elaborate and classical narratives in which such things are neglected as unworthy of the dignity of history.' We shall not know how much we are in the memorials of the past in England until an interest in the subject has been created in every part of the country, and that interest we trust will be excited by the proceedings and publications of the Archæological Association. Wherever an ancient monument of any kind exists—whether church, castle, or tombstone, or even the earthworks of an ancient encampment—the people of the neighbourhood ought to be inspired with a pride in it which would lead them to guard it from further injury. In many cases no feeling exists, and produces a disposition to restore ancient buildings as nearly as possible to their original state. Whatever tends to strengthen this feeling contributes not a little to the education of the people. If there were no other reason than this, the Archæological Association is well deserving of public support."

Steam Boat Piers on the River.— Some time since, in consequence of an alleged claim on the part of the authorities of the city of London to the soil and bank of the river, and under such right of way and soil to erect piers and other buildings thereon, some communications took place between the Lords Commissioners of the Woods and Forests, who claimed the right of way and soil of the river on behalf of the crown, and denied that the right to the bed and bank of the river was vested in the Lord Mayor and Commonalty and city of London. The authorities of the city, however, asserted their right, and an action is now pending at the instance of the Lords and Forests, on behalf of the Crown, to try that right, and which is expected to come on for argument during the ensuing term before the Lord Chancellor. Notwithstanding these proceedings, the city authorities thought fit to commence the erection of a steam-boat pier at Blackfriars'-bridge, and a number of piles were driven into the bed of the river. Representations of these facts were made known to the Commissioners of Woods and Forests, from a communication was forwarded to the Lord Mayor, requesting that all further progress in the erection of the pier should be suspended until the question of right, which had been at issue between the Crown and the City, and which of necessity involved the same question, should be disposed of. Since the receipt of this communication, the Navigation Committee have not met, and the works are proceeding to proceed, notwithstanding the remonstrance of the Woods and Forests on the part of the Crown.

University College Hospital. — A public dinner in aid of the funds of this hospital will take place at the London Tavern on Tuesday proximo, Viscount Morpeth in the chair. The committee have issued an appeal to the public for funds to complete the building. The site of the north wing is now unoccupied: such a wing, if completed, would admit of an increase of fifty in-patients, and would confer facilities much desired for the more classification of cases of disease, and for other improvements in the administration of the hospital by affording accommodation for a larger number of resident officers.

Society of Arts. — At a meeting held May 14, the secretary read a paper by Mr. Napier on separating metals from their ores by means of electricity. After giving an account of the progress made in the application of electricity for the purpose of manufacturing metals from their ores since the year 1839, the paper described the author's method of operating, for which purpose he uses a black-lead crucible, lined inside, within an inch or two of the bottom, with a coating of fire clay, which is allowed to dry, and a second and third coat superadded. The ore to be operated on (which if a sulphate should be previously roasted) is put into the crucible together with a little lime or other flux for the purpose of giving it fluidity. The crucible with its contents is then placed in a common crucible furnace; a battery of zinc and copper is prepared with five pairs of plates excited by very dilute sulphuric acid. To the zinc of this battery is attached an iron rod, the end of which is inserted in the furnace, and caused to touch the outside of the crucible. Another rod, either of iron or copper, is used, having at one extremity a disc of iron, or coke, which is made to rest on the surface of the fused mass in the crucible; thus the electricity passes down through the whole fluid mass in the crucible, and in the course of an hour the metal is separated from the ore, and deposited at the bottom of the crucible. The society's repository was lighted with two gas lights on Mr. D. Grant's ventilating principle, the chief novelty of which consists in substituting earthen or glass ventilating tubes for those of metal, whereby less heat is given out and the unpleasant odour arising from heated brass or iron entirely obviated.

Proposed New Dock in Jersey. — The Committee of Harbours met on the 11th inst., and had a lengthened conference with Mr. Walker respecting the proposed new outer dock. Mr. Walker read the draft of a report embodying his views on the subject, and submitted also to the committee four designs. He also gave an approximate estimate of the cost of each plan, as follows:—No. 1, 200,000*l.*; No. 2, 210,000*l.*; No. 3, 240,000*l.*; No. 4, 280,000*l.* In these sums are included 10,000*l.* for unavoidable expenses required for the improvement of the inner harbour in the event of its being left a dry harbour; and also 10,000*l.* for the filling up of sites for stores on each side of the dock. The cost of the inner dock had been estimated at 130,000*l.* Mr. Walker's plan for certain improvements at Rozel Harbour, estimated at 2,000*l.*, was approved of; and he was instructed to prepare a plan for Bouley Harbour. Mr. Nixon, Mr. Walker's assistant, remains on the island to complete the plans and estimates.

Substantial new Warehouses at Hull.—The contracts for the Hull Dock Company's new warehouse, at the south end of the Junction Dock, have been let during the past few days. The warehouse will be entirely fire-proof. The length will be 217 feet, the breadth 60; and the height five or six stories; the cellars will be vaulted, the pillars and groining of the floors cast iron, and the floors themselves of brick, in arches; the thickness of the walls above the ground 3 feet 2 inches, tapering to 18 inches at the roof, which will be of iron. The warehouse will stand 40 feet from the edge of the dock, and equi-distant from the lock-pit. The company are erecting another strong warehouse on the Old Dock-side, near Lowgate, for a depôt, the walls of which, are to be three feet thick.

Lancaster and Carlisle Railway. — A few days since the foundation stone of the last under-bridge on the line in the neighbourhood of Penrith, situate at a place called Thucka Beck, in Messrs. Harper and Booth's contract, was laid, with the usual ceremonies, by Mr. Virtue, Mr. Stephenson's managing engineer. Under the south wall were deposited a number of rare and curious coins, namely—from George I. to Queen Victoria; a bronze coin of the reign of Augustus Dominitian, and several Roman, English, French, and Spanish coins; they were forty in number. One of the coins deposited was 1,600 years old, which when re-discovered, if ever it may be, will no doubt give rise to much speculation to the antiquarian and the wise in centuries yet to come, and prove a rare and valuable relic of antiquity.

Bridge across the Tweed.—The bridge which it will be necessary to erect over the Tweed, for the connection of the North British and the intended Newcastle and Berwick Railways, should the latter obtain the sanction of Parliament, will be 726 yards in length, and 100 feet above high-water mark. It will consist of thirteen arches (the present bridge has fifteen), each of 70 feet span, nine or ten abutments being in the river. The expense of this undertaking, inclusive of the viaduct which must be formed on the south of the bridge, will be 65,000*l.*, while south, again, of the viaduct, it will be necessary to construct an embankment 56 feet high, and half a mile long, the expense of which will amount to 30,200*l.*

Yarmouth Suspension Bridge. — Mr. James Walker, the engineer, has surveyed the bridge, and is investigating the cause of the late accident by direction of the Home Office. Before the date of our publishing, Mr. Walker will probably have made some statement to the jury now sitting on the bodies of the sufferers. Mr. Corry, the owner of the bridge, has met the inquiry most openly, and has produced all the original drawings and specifications of the construction.

The Rotunda.—After undergoing various mutations, this building in the Blackfriars'-road, is about to be opened as a branch of the Government School of Design at Somerset House. Scarcely twenty years have elapsed since it was known as the Surrey Institution, at which Dr. Crotch and Mr. Goldsworthy Gurney were accustomed to deliver their attractive lectures on music and chemistry; and the Rev. Thomas Hartwell Horne and Mr. Millard to officiate as librarians.

Tenders.

The following Tenders have been received for erecting a Rectory in the parish of Flowton, near Ipswich.—J. M. Clark. Esq., architect, Ipswich.

W. P. Ribbans	£847
B. Backhouse	830
Bennett and Whight	777
S. Baldiston	750
Fred. Mason	698

Mr. Mason's tender was accepted.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed.. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For taking down part of the present County Gaol of Lincoln, and erecting a New Building on the site thereof, with airing yards and other requisites.

For the erection of the Borough Gaol, Birmingham.

For the erection of a Building in London for a highly-patronized purpose, at the estimated cost of about 30,000*l.*

For the performance of the necessary works in the construction of a New Dock in the Borough of Kingston-upon-Hull.

For a quantity of *proof chain* 2¼, 1¼, 1, ¾, and ½ inch, wanted by the Universal Salvage Company.

For the reparation of Ten houses in Hounsditch. The whole to be finished by the end of August.

For Lighting the Public Lamps within the City of London with gas, for the term of one year, from Midsummer-day next.

For Building Sewers in the east end of Tower-street, Harp-lane, and St. Mary Hill, and other places adjacent thereto, within the City of London.

For Building the Carcasses of certain first-rate Houses, with Shop Fronts, in the new line of Oxford-street, leading into Holborn.

For the execution of certain Works to be done in the parish of Bethnal-green, for the extension of the Goods Depôt of the Eastern Counties Railway Company.

For the supply of British Iron, also Ironmongery and Screws to the East-India Company.

For executing Works on the Leeds, Dewsbury, and Manchester Railway, being a distance of about 4¼ miles. The principal work on this division is the summit Tunnel, near Morley, which is upwards of 3,000 yards in length.

For supplying the trustees for repairing Grosvenor-place, and the squares and streets adjacent, with the best Pit Flints, Kentish Rag-stone, Pit Gravel, Chalk, Aberdeen Granite Kerb, York Paving and Guernsey Granite, &c.

For such Masons' and Paviers' work as may be required during one year, from Midsummer next, by the trustees of the parish of St. Luke, Middlesex.

COMPETITIONS.

Plans, sections, and elevations for a Terminus, and other requisite accompanying offices, for the Great Southern and Western Railway, Ireland.

A premium of 30 guineas will be presented to the party offering the best plan of Docks, capable of admitting ships of 1,000 tons burden, to be erected at Burnham, in the Bristol Channel.

Designs for houses to be erected at Dover. The ground is nearly seven acres in extent, and lies on a gentle slope between the south-west boundary of Dover Castle and the town. A premium of fifty guineas is offered for the set that may be most approved of.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

The timber and other trees now standing upon the estate at Woodseaves, Salop. By order of the Lord Chancellor made in the cause "Dickin *v.* Barker."

At Wiston Woods, near Nayland, Essex: all the Timber, Timber-like Trees and Saplings (consisting of Oak, Ash, Elm, Asp, Birch, and Cherry) arising from the Wood of 13 Acres called "Hills."

At Kersey, near Hadleigh, Essex: 130 Capital Oak Timber Trees, 70 Oak Standels, and about 30 Pollards, lying on "The Ivy-tree Farm."

At the Three Swans Inn, Hungerford: 400 valuable Oak Trees of first-rate quality, felled on the Chilton Lodge Estate.

The Fourth Portion of the Materials of the Fleet Prison, comprising the entire South Wing of the Principal Building, and the Infirmary.

At West Wickham: 31 Oak, Ash, and Elm Trees of good quality, and 60 sound Pollards.

At Eversden Wood, Cambridge: 80 Oak Timber Trees, clean, sound, and of useful dimensions.

At Bourn, Cambridge: a capital Fall of prime Oak Timber, comprising about 100 Trees of good dimensions.

At Monk Sherborne Brick Kiln, Basingstoke, Hants: upwards of 200,000 new Building Bricks, 40,000 Arch ditto, 25,000 Tiles, &c.

At Little Bentley Hall, Essex: several Acres of Plantations, consisting of superior Firs, Larch, Spruce, &c., to be taken down by the Purchaser.

At Brandon, near Coventry: several Thousand prime Oak Trees, and a quantity of Planks and Quarterings.

BY TENDER.

A Virgin Forest of Valuable Timber in Walachia. The principal part of the Trees is Oak. The said Forest may produce about 500,000 cubic feet of Timber.

MEETNGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, May 26.—*Geographical*, 3, Waterloo-place, 8½ P.M. (anniversary); *British Architects*, 16, Grosvenor-street, 8 P.M.; *Medical*, Bolt-court, Fleet-street, 8 P.M.

TUESDAY, 27.—*Medical and Chirurgical*, 53, Berners-street, 8½ P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.; *Zoological*, Hanover-Square, 8½ P.M.

WEDNESDAY, 28.—*Society of Arts*, Adelphi, 8 P.M.; *Geological*, Somerset-house, 8½ P.M.; *Pharmaceutical*, 17, Bloomsbury-square, 9 P.M.

THURSDAY, 29.—*Royal*, Somerset-house, 8½ P.M.; *Antiquaries*, Somerset-house, 8 P.M.

FRIDAY, 30.—*Royal Institution*, Albemarle-street, 8½ P.M.

SATURDAY, 31.—*Institute of the Fine Arts*, (Society of Arts), Adelphi, 8 P.M.

TO CORRESPONDENTS.

"Westminster Abbey."—"A lover of Gothic" *complains of the incivility of the vergers here, and of the haste with which, against his will, he was hurried round the church and not allowed to pause, on the ground that "if let alone he might do some injury." Surely some arrangement could be made so as to allow visitors who wish to use their own eyes, and examine the wonders of this building for themselves, to take their own time in doing so?*

"An Architect" (Nottingham), "Cam. Cam.," "the Rev. J. S.," *will see that the subject of their letters has not escaped our attention.*

"C. A. jun." *is thanked for his communication.*

"John Ledger."—*We shall be glad to receive local papers containing notices of the proceedings at Lille.*

"Sir Robert Peel's Portrait Gallery."—*The number of* THE BUILDER *containing the engraving of the premier's new portrait gallery at Drayton Manor, is still on sale at the Office in York-street.*

"W. L. Short."—*The account forwarded is generally known, and hardly requires to be reprinted. We are nevertheless obliged, and may make some use of it.*

"X. Y. Z." (Nottingham.)—*We cannot cast a slur* by implication *on the parties employed. If our correspondent has any direct charge to make, and will favour us with his name in confidence, it shall have all consideration.*

"A Constant Subscriber" (City), *asks a very wide question. Mr. Manby, the secretary of the Institution of Civil Engineers, could probably give him the information he seeks.*

"G. Collier."—*The weight of the tin box should be given.*

"Plan for Ameliorating the Evils and Improving the Condition of the Working Classes," *is left at the publisher's for the writer, with thanks.*

"Tubes for Chimney-flues." — *A subscriber wishes some information on this subject, and to know where they can be obtained.*

"C. T." (Norwich.)— *Two copies were sent to Reepham as directed, another shall be forwarded.*

"New Churches."—*A correspondent remarks, that in several of the new churches no "closets" are provided for the use of the congregation, and urges their necessity.*

"Hotel, Whitehaven."—*Messrs. Burton, Aldersgate-street, request us to state that the letter signed "Semper Idem" did not emanate from them.*

F. T. (Newcastle)." —*We cannot give any general reply to the inquiry. If submitted, we shall be happy to remunerate our correspondent for whatever we may consider available.*

Received.—"*Messrs. Rigby*"—"*Proceedings at the Institution of Civil Engineers.*"

ADVERTISEMENTS.

HOLBORN AND FINSBURY SEWERS, MIDDLESEX.

THE COMMISSIONERS of SEWERS for the LIMITS give NOTICE, that their Office, Hatton Garden, is open daily between the hours of Ten and Four, where information can be obtained (gratis) by persons about to Purchase or Rent Houses or Property, or take Land for Building purposes, of the situation and level of the public Sewers, capable of affording sufficient Drainage, and which they recommend all such Persons to apply for at the above Office.

By the Court,
STABLE and LUSH, Clerks.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. (chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, or public way, or in any part intended to become a street, lane, or public way, or to carry off or drain off water from any house, building, yard, or ground, into any sewer under their management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewer or sewers shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, upon application being made at this office previous to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, whenever the lower floors or pavements of buildings shall have been laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings must in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners will be cut off, and the parties making the same will subject themselves to a fine.

By order of the Court,
LEWIS C. HERTSLET, Clerk.

WESTERN LIFE ASSURANCE SOCIETY,
OFFICE, 49, PARLIAMENT STREET, WESTMINSTER.

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H. Edgeworth Bicknell, Esq.	James Hunt, Esq.
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The attention of the unassured portion of the community cannot be too pointedly drawn to the unusual advantages offered to the Public by *this Society* over those of many others, as it enables all classes to effect life assurances in the manner most convenient to themselves, and amongst other of its popular features that of allowing the Assured (by Table 2) to leave HALF THE ANNUAL PREMIUMS unpaid for seven years, will not be found undeserving public attention.

Immediate and deferred ANNUITIES, and every description of Life Assurance business, undertaken by this Society.

Prospectuses and all other requisite information will be furnished on application to the Secretary, or the Country Agents of the Society.

EDWARD T. RICHARDSON, Secretary.

NOTICE TO INVENTORS.

OFFICE FOR PATENTS OF INVENTIONS and REGISTRATIONS of DESIGNS, 14, Lincoln's-inn-fields.—The printed INSTRUCTIONS gratis, and every information upon the subject of PROTECTION for INVENTIONS, either by Letters Patent or the Design Acts, may be had by applying personally, or by letter, prepaid, to Mr. Alexander Prince, at the office, 14, Lincoln's-inn-fields.

ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architecture and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

MARTIN'S PATENT CEMENT.
TO ARCHITECTS, BUILDERS, AND PAINTERS IN FRESCO.

STEVENS and SON, PATENTEES and SOLE MANUFACTURERS, beg respectfully to announce that this beautiful cement has now arrived at a degree of excellence far surpassing their most sanguine expectations. For all internal work it possesses a great superiority over every article hitherto in use; it is now being used extensively by Government in the British Museum and other public buildings. IT DOES NOT THROW OUT ANY SALT, but presents a beautifully plain and perfect surface, which may be painted upon dry work within four days without peeling. It is equally applicable for walls on lath, for mouldings, architraves, skirting, or flooring; and is admitted to form the best ground for fresco painting, having been used for many of the prize frescos lately exhibiting in Westminster Hall. It will bear an intense heat without cracking, and for hardness, durability, and economy, cannot be equalled.

186, DRURY-LANE, LONDON.

Agent for Liverpool and Manchester, Mr. R. Part, 11, Atherton's-buildings, Dale-street, Liverpool.

KEENE'S PATENT MARBLE CEMENT.—The Patentees of this composition beg to refer to the British Museum, the Royal Exchange, the new works at Bethlem Hospital, Greenwich Hospital, and the Coliseum in the Regent's-park, as buildings finished or in progress, in which Keene's Cement has been used as an internal stucco. Its superiority to common plastering consists in its extreme hardness, and the rapidity with which it dries, which qualifies it to receive paint or other finishing sooner than other water Cement.

When employed for skirtings, architrave, and other mouldings, in place of wood, it checks dry-rot, is impervious to vermin, prevents the spread of fire, and is more economical in its application than the material for which it then becomes the substitute.

Confirmation of these statements is to be found in the almost universal adoption of Keene's Cement for Skirting and Hall flooring in the new houses on the Hyde Park Estate, where its application is to be seen to the fullest advantage.

In Liverpool and Manchester, Keene's Cement has in several cases been used for the covering of the fire-proof warehouse floors, where its lightness and hardness give it the preference over tiles and flagging, which are much heavier and necessarily leave the floor intersected with numerous joints, whilst Keene's Cement is laid down in one unbroken surface.

The high polish and marble-like hardness of which this Cement is susceptible render it the most suitable material for the manufacture of Scagliola.

Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

Depôt in Liverpool, 36, Seel-street; James Woods, Agent.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will not vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep its hard and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for exposure. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climate at any season. It will adhere to any substance, even Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, &c., to be obtained on application to MANN and CO., 39, WHITE AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOURED STUCCO PAINT, expressly intended for Painting over the interior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the exit thereby rendering the wall proof against weather, and imparting a finish producing a pure stone-like effect, producable by no other Paint whatever. It is cheap in its application, and may be used by any Painter, in any climate, even in the exposed Marine situations.

The Builder.

No. CXXI.

SATURDAY, MAY 31, 1845.

THE late dreadful accident at Yarmouth has led various correspondents to address us; some on the safety in general of bridges erected on the suspension principle, me on the cause of this particular accident, d one on the apparent lightness and instabi- y of the new Hungerford Bridge. We have fore us various statements, too, for and ainst Dredge's principle, and a notice of drew Smith's suspension and parabolic ten- n bridge, which does not require piers.

"A fatality seems to attend chain bridges," ys one writer, "even when the most eminent gineers erect them. At Paris, two attempts led a few years since, through, I fear (good thematicians as our neighbours are), some issions in the formula. The Montrose sus- sion bridge partially gave way at the open- some years ago; and at the time, I was told, veral individuals were impaled on the iron- rk for hours, before tackle could be brought bear to relieve them. Since that, both it d the Menai have been injured by storms; d I must say, from what little consideration ave been able to give to the subject, as a chanic of the humbler class, I do not think pension bridges are built strong enough or ciently braced."

The Broughton suspension bridge at Man- ster broke under a body of only sixty sol- rs passing over in marching order,—the sultaneous tread of the feet having the effect a series of heavy blows.

One of Mr. Dredge's bridges in the Regent's rk is understood to have fallen with only a en boys on it; and others are said now to in a state of dilapidation, if not danger.

have no wish, however, to be alarmists, to raise fears which may not be so easily ated. Still, feeling that calculations are not e entirely relied on in these cases; that h depends on the goodness of workman- which *has not been tested;* and that the e fact that a suspension bridge has carried vy loads nineteen times is no reason why it uld not break down the twentieth,—we are elled to urge the necessity of constant ex- inations by efficient persons. "From the d advances which have, of late years, been le in the sciences," says a writer in the *ning Journal*, "and their application to the , we have discovered that iron undergoes t important changes under various circum- ces—such as continual percussion, elec- ity, galvanic action, &c.—and I think it omes a subject of deep interest, and one ch ought to be most searchingly inves- ted, whether these agents, or any of them, contributed to produce the effects in ques- ; and the public must be informed whether and what, examination of the chains, sus- sion rods, &c., takes place in these eree-, and how often; for, be it remembered while a stone structure gives token of y, and openly exhibits to the eye any dan- or necessity of repairs, one corroded bolt suspension bridge—one portion of iron, ch, though having stood the proof before g used, may, from some of the above- ded causes, have become chemically altered—may at once, unnoticed, and without the slightest warning, be the cause of irreparable mischief."

The jury who investigated the late melancholy catastrophe at Yarmouth are much to be commended for the determination they evinced to have the cause of the accident examined into by a scientific engineer. When the town-council refused to furnish them with such assistance they addressed a memorial to the Secretary of State, setting forth: "That in consequence of the excitement which exists in the town and neighbourhood, and of numerous reports in circulation as to the state of the bridge, your memorialists considered it absolutely necessary that they should have the evidence of some scientific practical engineer, in order to enable them to arrive at a just and proper conclusion; but the coroner having no power to pay the expenses which would be incurred by the employment of such engineer, your memorialists addressed a representation of the circumstances to the town-council of the said borough, requesting that body to authorize the employment of an engineer for the purpose before mentioned. That your memorialists have received a formal communication from the town-clerk of the said borough, stating that the town-council, at a meeting held on the 8th inst., had declined to comply with your memorialists' request, feeling that it was not in their province to do so. That your memorialists are still of opinion that the evidence of an engineer in their investigation is imperatively called for; because they not only know that it would be satisfactory to themselves and to the public, but they also believe that the publicity which would be given to his evidence might be the means of preventing the recurrence of so frightful a catastrophe:"—and praying that he would direct some civil engineer to attend on the spot.

Mr. Walker was accordingly sent down, and there can be no doubt that much good will result from the clear and able statement which he made after his survey. This statement involves several questions of great importance, and we deem it desirable to transfer it to our pages nearly entire; the more so, too, as it gives a history of the bridge, and the addition that was made to it.

"The bridge belonged," said Mr. Walker, "to the late Mr. Cory, father of the present owners, and was constructed from a design of Mr. Scoles, an architect in London. At first it was only a substitute for a ferry over the river Bure to the marshes, and to certain pleasure grounds called Vauxhall-gardens, belonging to Mr. Cory. Mr. Scoles, who has attended from London on this occasion, and who has assisted me very liberally with his drawings and calculations, states, that he made designs for a bridge of sufficient width for a carriage and two footways. The design was made from memory of the particulars given to him by Mr. Cory, but I understand that he never was at Yarmouth until the day before the bridge was opened; that these drawings were given to Mr. Green, a surveyor at Yarmouth, who was at that time employed here, and who was well known in this district. Mr. Scoles thinks Mr. Cory had at that time in view the making of a new turnpike-road from Yarmouth to Acle- which-road, which was to pass over the bridge, although Mr. Cory at that time did not so inform him. It appears that the work was offered for competition, and that Mr. Goddard was the contractor (who is since dead) for the bridge work, according to specifications prepared by Mr. Green, the surveyor I before referred to. These specifications were embodied in the contract, which contract I have seen, but which does not give the size of the principal parts, although it refers to drawings which it states are attached to the contract, but which are not, nor have I been able to see them. It appears that they are either mislaid or lost. The specifications describe that the iron shall be of the best quality. The specification describes it as the best charcoal iron. Now, this is a description of which very little is made in this country; the meaning of the term is, that it was to be British iron of the very best quality. The specifications make no mention as to the quality of the iron being tested, as far as I have observed. From a drawing which is now in Mr. Scoles's possession there appears no reason to doubt that the main or suspending chains and other parts of the bridge are of the size which was intended. The drawing which I have in my hand is executed in a very excellent and workmanlike manner. There are altogether four suspending bars, two on each side, to form a chain. The bars are connected together by bolts passing through openings or eyes at each end of them. These bars are 2¼ inches wide by seven-eighths thick; from them rods of 1 inch square were suspended to carry the roadway, which was 14 feet 9 inches in width, and divided by an iron kerb or carriage-way from a footpath on each side 4 feet in width. The length between the centre of the towers is 92 feet; the deflection of the chains is 7 feet 4 inches. An Act of Parliament, constituting the bridge a turnpike-road, was passed in May, 1830, and the road was opened in 1832; in 1842 the Yarmouth and Norwich Railway Act was passed, which contains a clause, obtained, as I understand, after much litigation and opposition, by which this bridge was constituted the only communication between the railway station and the terminus, Mr. Cory agreeing to receive the tolls, stipulating to widen it and afterwards to suspend it. It appears that on this occasion Mr. Scoles was again consulted respecting the widening of the carriage-way to a width sufficient for two carriages to pass abreast—the footway being formed on each side by planks separated by iron straps attached to the framing of the bridge. This footway was therefore outside the suspending chains. That was in 1844. Mr. Cory says, that after the above alterations were made, he consulted an eminent engineer as to the sufficiency of the bridge, who said that it was fit for any traffic. I cannot help observing on this, that any opinion taken from an engineer, however eminent, in an off-hand manner, is what the engineer would not consider himself bound by, and which I should think it very unfair to implicate him in; because sometimes a gentleman is asked a question in an off-hand manner, and either from a feeling of politeness, or a desire to get rid of it altogether, he answers in a favourable manner; much more so than he would if he had an opportunity of examining it. The foundations appear to have been piled well, and to have stood well. Mr. Scoles shewed me a drawing of the piling, and, if the work were executed according to that, I have very little doubt of the soundness of the foundation. You are probably aware that I am very well acquainted with the foundations of this part of the country, having been consulting engineer to the Haven and Pier Commissioners for many years. I have also made drawings for a fixed bridge over the Yare, and I erected the temporary bridge which is now there. It is stated that the crowd collected on the 2nd of May was confined to the south side; that the crowd was composed chiefly of children in the front rank, with adults behind, to see some exhibition which was then to be seen on th water. They were supposed to be four or five deep, and it appears that they had collected on the bridge to the number of from 300 to 500. The coroner has stated to me that he has seen double the number on the bridge (or even more than that), but that on those occasions they were spread over on both sides of the bridge, so that all four bars or two chains were equally loaded. It has been stated, I believe, by one of the witnesses who has been examined before, that some sort of cracking noise was heard, which induced him to look up, when he saw that one of the bars or rods of the suspending-chain was broken—that two points where the fracture had taken place were entirely separated, and that in about five minutes afterwards came the fatal catastrophe. This cracking was no doubt occasioned by the snapping in pieces of the bar which first gave way. There was now only one bar left to support the whole weight, and this bar consequently gave way in five minutes after the one on the opposite side; the platform, being then entirely unsupported, fell in the river. I

have seen and particularly examined the two bars which gave way — they form the link next but one to the saddle or top of the chain on the east or Yarmouth side of the bridge. The fracture in the bar which first gave way is about eight inches from the other end, and there is the same distance from the lower end of the bar. It appears that in forming these bars the two circular ends and about six inches of the straight bar were first made. Between these a straight bar of the proper length was afterwards introduced, each of the pieces having been what is termed scarfed—that is, terminating diagonally, and not in a straight line across. These three pieces being heated and welded together made one bar or link. Then each bar had in it two joints, six inches from one and six inches from the other. In work of this kind there is great difficulty in getting iron so constructed as to make a perfect union or junction with the two ends. It was at these points that both bars in the present case broke. On minutely examining the fracture of the bar, it is evident that for some length of time, or from perhaps its original manufacture, the "weld" was imperfect—not more than one-third of the melting surface being united, and the other two-thirds presented a rusty surface. This would have been doubtless seen, as it is evident on a very slight inspection. The joint or weld of the other link is good—the corresponding one forming the bar. But I find that this bar (the second one) is one inch longer than the one which broke first; in the bar which broke second, putting the bolts through the eye at the lower end, I find that it does not fit, but passes obliquely, and is one inch longer than the other. This extension or difference of length is caused without doubt by the stretching of the unsupported rod before it broke, during the five minutes that it had the whole weight to carry. I have no doubt but that this caused it to stretch quite an inch in length. Having had the quality of the iron tested in a variety of ways, by a very intelligent blacksmith (Mr. Gooda), I find the straight pieces, or middle of the bar, to be much better than the other end; the straight piece is better than the end pieces, which contain the eyes, which are very coarse and inferior in quality. This (holding a bar up to the jury) is one of the middle pieces; not the one which broke, but one taken indiscriminately. I desired Mr. Gooda to lengthen it, and to apply a power to twist it. As far as I can judge this iron is good. I also desired a screw to be formed in another bar, and I am of opinion that that bar is also good. There is another straight piece between the two ends. I think generally that the quality of the ends is not according to the specifications, nor are they in my opinion proper for the purpose. Had any sufficient means been used to prove and test them, the inferiority of this iron must have been at once discovered. This is a piece of one of the ends, which is a very open, coarse-grained, and inferior piece of iron, and which broke when the blacksmith referred to was applying a hammer to the middle of the bar; the part which he did not strike broke like a piece of cast-iron. The blow was applied, remember, at some distance from where it broke. If care had been taken to test this iron properly, it is impossible but what this defect must have been discovered. No one could have expected that it was going to break, but it did. Another bar was taken by my direction for the purpose of testing it as to fibre, and it broke in pieces just in the way a carrot would do, and did not bend like a piece of stout fir timber, which it would have done had it been sound. I shall now make a few remarks upon the strength of the bridge, as compared with the load. Taking the load at the time to be all on the south chain, I find by calculation that the two rods of 2¼ inches by ⅞ are capable of supporting a temporary load of 56 tons without injury. Of course, I am assuming in that, that the bridge should be properly constructed. I need not say, that in order to arrive at any thing like accuracy, a great deal of calculation is required, because the deflection of the iron and the span of the bridge ought to be taken into account. I find that the strain, taking 400 individuals at an average of seven stones each, and allowing for the weight of the bridge, was, at the time of the accident, about 44 tons. Therefore, but for the defect in the quality of the iron and in the workmanship, the strength of the bridge exceeded the load upon it; but even then the excess was not sufficient where the effects of failure are so important. I say so because experiments are generally made with good iron, and at all times large allowances ought to be made for imperfections. If we suppose any of the pieces to be bad, as was the case here, then we have the strength less than the strain. The bridge appears to me to have been by no means too strong as originally formed, and the additions made to its width have been in the present case exceedingly injurious by the weight being placed outside the suspending chain. The weight had therefore to be carried entirely by that chain in place of being equally borne by all, which is the case when the weight is within the chain. In reference to the sufficiency of the bridge to carry the greatest load which could be placed upon it, I find that its strength is somewhere a little above the weight which it would carry, but so small as not to be practically sufficient, even without any allowance for imperfections. It is proper, however, to say, that the question is not, how many people can be packed *en masse* upon the bridge, although even that contingency ought to be provided for. After the bridge was widened the strength exceeded the strain, of course, less than it did before; but, even before, it does not appear to me to have been sufficiently strong to ensure perfect security, supposing a mass of people to have been packed upon it in the way in which I have described. It appears that on other occasions a very great number of persons had been upon the bridge, and that it had borne them without falling; the coroner has informed me that he has known twice or thrice the number upon it that was collected on the occasion alluded to, and therefore we have it evident that for the load at that time the strength of the bridge was adequate. It is also evident that when a bridge has been frequently loaded to the utmost which it will bear, it becomes weaker and weaker each time, and the bridge may ultimately give way, although at first it was sufficiently strong to resist the weight put upon it. I have now only a few remarks to add in the shape of general conclusions from what I have stated, and they are these:—

1. I consider the immediate cause of the accident to have been a defect in the joining or welding of the bar which first gave way.

2. That the quality of the iron and the workmanship, as far as I have been able to examine them, are defective; and I believe that the accident would not have happened had the work been properly examined at the time of construction.

3. That the widening appears to have been made without sufficient reference to the original strength of the bridge, and the weight which it had to support, and therefore that it acted as an aggravation of the evil.

4. That in the original construction of the bridge, the casualty of a great load, all on one side, does not appear to have been contemplated; if it had been, I think that the links on that side would have consisted of more than the two bars, any one of which was unequal to the load which the bridge was likely to carry.

I am bound to add, that in this investigation I have received every possible assistance from Mr. Cory with reference to all documents which were in his possession; this has enabled me to come to the conclusions I have done in less time, and I hope with a greater approximation to accuracy, than otherwise I could have done. I believe I have said all I have to say, as far as the case has gone. I can only add, that under the direction of Sir James Graham any question which any gentleman might put to me I shall be very glad to answer. Perhaps I may also add, that the whole weight of the bridge has been taken with great accuracy by Mr. Scoles, and that the addition to the width, as far as its own weight goes, is comparatively unimportant. The weight of the bridge, including the suspending chains, before the additional width was added, was 17 tons, 14 cwt. 3 qrs. 25 lb.; with the additional width, and the railing added, its weight was 20 tons, 8 cwt. 9 lb., making an addition of 2 tons, 13 cwt. The evil of it is, the footway being outside the chains, and therefore throwing the whole load upon the two suspending chains, without any part being thrown upon the chain on the north side.

In answer to questions put by Mr. Evans, Mr. Walker said—I saw in the original specifications that all the wrought iron should be proved by beating it red-hot; and, if this had been adopted, we should not have had the weldings which we have seen to-day. I observe, in the specifications, that all the materials to be used in the before-mentioned work should be of the best quality, and that it should be in the power of Mr. Cory, or his surveyor, to reject any materials which he or they might deem insufficient for the works. It was most undoubtedly the duty of the person undertaking to be the surveyor of these works to have ascertained by some such means as I have described the quality of the iron, and the manner in which it had been welded. If the surveyor, who is since dead, and whose duty it was to watch and see the contract carried out according to the specifications, had done so, this accident would not have happened, in all probability;—I mean that the defect must of necessity have been discovered. If a person had watched, as he should have done, the welding of every link, this defect would not have arisen: the defect in the quality of the iron must have been very apparent to any one at all acquainted with the subject. I have made my calculations as to the weight of the people upon the bridge upon six to the square yard. I should think that, practically, such crowding seldom, if ever, occurs. It is with reference to such packing that I have spoken, and I think the bridge would hardly have borne it. I think even if, as I believe to have been the case, the crowd consisted chiefly of women and children under fourteen, that seven stone is about a fair average weight. It is too much of course for children, but not enough for a good fat woman. It is perhaps rather a large average. I took it partly because it has been frequently adopted before. Looking at the contract generally, I do not think the gentlemen who built the bridge originally have taken the necessary precautions to have the work properly done, more particularly as regards the mode of doing it. I think the contractor should have given the engineer or inspector of the work the power of having it tested in such a way as he should think fit. I do not find that in the contract. The clause which empowers the engineer to reject any materials which he might deem unfit gave this power indirectly, and in a manner; but I think the surveyor ought to have the power to do so without such a clause as that.

By the Jury.—In my opinion, and speaking from the general result of experience in these matters, the defective iron bars were probably made in the country; they were sent here, and the good iron (the middle pieces) was supplied at Yarmouth and used here. The welding, or joining, was most likely done here. The difference between good and bad iron was shewn mainly by the breaking; good iron broke like a piece of good fir timber; bad, as I have before said, like a carrot—it snaps in two. He had estimated the number on the bridge at 400, because the statements he had heard were 300 and 500. If 300 were the proper number, you have only to deduct one-fourth from the estimated weight on the bridge.

GOVERNMENT GRANTS.—In the Parliamentary estimates, under the head of "Public Works and Buildings," we find the sum of 112,217*l.* appropriated to public buildings as royal palaces, 6,500*l.* to the palm-house at Kew, 8,395*l.* to the temporary houses of Parliament, 85,000*l.* to the new houses of Parliament, 3,836*l.* to Holyhead harbour and road, 50,000*l.* to the Caledonian Canal, and 24,665*l.* to public buildings in Ireland. Under the head of "Education, Science, and Art," we find a sum of 75,000*l.* applied to public education in Great Britain, 75,000*l.* to public education in Ireland, 4,911*l.* to schools of design, 2,006*l.* to professors at Oxford and Cambridge, 4,540*l.* to the University of London, 7,380*l.* to universities in Scotland, 5,910*l.* to the Royal Dublin Society, 2,100*l.* to the Belfast Academical Institution, 52,040*l.* to the British Museum, 52,020*l.* to the British Museum buildings, 6,217*l.* to British Museum purchases, 1,500*l.* to the National Gallery, 8,850*l.* to the Museum of Economic Geology, 5,839*l.* to scientific works and experiments, 1,500*l.* for the monuments of Sir S. Smith, Lord Exmouth, and Lord De Saumarez.

WESTMINSTER IMPROVEMENTS AND THE WESTMINSTER REVIEW.

[In our leading article of March 15th (p. 121 ...e), we drew attention to the lethargy of the ...tropolitan Improvement Commission, and ...tain defects in the plan sanctioned by them the improvement of Westminster; and we ...cribed some plans emanating from the ...tropolitan Improvement *Society*, wherein a slight deviation from the intended line ...l the sacrifice of an old workhouse, the ...ey was brought into view; the roadway was ...tinued round the south side of the abbey, ...ving the cloisters untouched, and termina... with the Victoria Tower of the new ...uses of Parliament.

These latter were afterwards submitted to ... commissioners; but they declined to re... the question, considering themselves ...dged to the plan now before the House; and ...ess some effort be made, the new road will ...formed so as to shut out the abbey and ...der its isolation unlikely for many years to ...e. The same society proposed a road ...n Buckingham-palace to the new Houses ...Parliament, which would dovetail admirably ...h their proposed Westminster line, and is ...peratively required, and by which the ...storia Tower would be visible at the palace ...es. If the Westminster plan now adopted ...carried out, this important improvement ... be entirely prevented.

...n a very interesting article on Old and ... New London, that appears in the present ...mber of the *Westminster Review* (for June), ... to which we may have occasion to refer ...n on other ground, there are some remarks ...he subjects that may be usefully circulated, ... we accordingly transfer them to our columns.

The site of Westminster Abbey was, in ... Roman time, an island formed by a branch ...he Thames, and a stream from the uplands, ...ed the Ty-bourne. It was a wild place, ...run with thorns, and was hence called ...rney Island; the name it still retains in ...writings.*

...he ground, in the course of centuries, has ...n considerably raised, but a large portion ...he district, where the old streams flowed, ...till below the level of high-water. The ... church, or *Minster*, erected here, was ...ed the *West Minster*, from its being situated ...e west of London.

...othing is known with certainty of the his... of any buildings in Thorney Island at the ...od alluded to by the old monk, when he ...: 'the suburbs of Thorney offer incense ...pollo.' A church or an abbey was un...btedly built about the seventh century, and ...rding to Flete, by Sebert, King of the ... Saxons, and nephew of Ethelbert; insti...d to the work by Mellitus, Bishop of ...don. The account of its dedication is ...lous, but not more so than that of a thou... other churches; and is curious as cha...eristic of the times.

...t was to be dedicated to St. Peter, and the ...parations were already made for that august ...mony, when, according to the relation of ...ral writers whose fidelity we leave our ...ers to judge of, the apostle himself ap...ed on the opposite bank of the Thames, ...requested a fisherman to take him over. ...e he was desired to wait while St. Peter, ...mpanied with an innumerable host from ...en singing choral hymns, performed the ...mony of dedication to himself; the church, ...while, being lighted up by a supernatural ...nce. On the return of St. Peter to the ...aished fisherman, he quieted the latter's ...n, and announced himself in his proper ...acter, bidding him at the same time go to ...itus at day-break, to inform him of what ...passed, and to state that, in corroboration ...of his story, the bishop would find marks ...e consecration on the walls of the edifice. ...atisfy the fisherman, he ordered him to ...is nets into the river, and present one of ...ish he should take to Mellitus; he also ...him that neither he nor his brethren should want fish so long as they presented a tenth to the church just dedicated, and then suddenly disappeared. The fisherman threw his nets, and, as might have been expected, found a miraculous draught consisting of the finest salmon. When Mellitus, in pursuance of the apostle's mandate, went to examine the church, he found marks of the extinguished tapers, and of the chrism. Mellitus, in consequence, contented himself with the celebration of mass. We may smile now at such a story, but there is no doubt whatever that for ages it obtained general credence. Six centuries after, a dispute took place between the convent and the parson of Rotherhithe, the former claiming a tenth of all the salmon caught in the latter's parish, on the express ground that St. Peter had given it to them; eventually a compromise was agreed to for a twentieth. Still later, or towards the close of the fourteenth century, it appears fishermen were accustomed to bring salmon to be offered on the high altar; the donor on such occasions having the privilege of sitting at the convent table to dinner, and demanding ale and bread from the cellarer.'

The abbey was rebuilt by Edward the Confessor in the eleventh century, a short time prior to the foundation of old St. Paul's. A portion of the Confessor's building still remains in the Pix-office,* and adjoining parts against the east cloister and south transept; but the greater part of the existing abbey was erected by Henry III., about the year 1250.

Henry the Seventh's Chapel was commenced January 1503; but was still unfinished when Henry died in 1509. In his will, in which provision was made for the completion of the chapel, he names the Prior of St. Bartholomew, Smithfield, as 'the master of the works.'

Henry the Seventh's Chapel is the *chef-d'œuvre* of decorative architecture. In its construction, to use the words of Washington Irving, 'stone seems by the cunning labours of the chisel to have been robbed of its weight and density, suspended aloft, as if by magic, and the fretted roof achieved with the wonderful minuteness and airy security of a cobweb.' But we need not comment upon a work of which the exquisite beauty is acknowledged; we seek only to interest the reader in its preservation, and to shew its connection, at the present moment, with the measures now in progress, professedly for the improvement of the metropolis.

The fire of London, which laid eighty-nine churches in ruins,—the fire of Hamburg, which lately destroyed the Church of St. Nicholas, an extensive edifice, nearly as large and as lofty as St. Paul's,—the fire which consumed the two Houses of Parliament, in which Westminster Hall escaped by miracle,—shew the importance of effecting a complete isolation of Westminster Abbey, by detaching it from the old and decayed buildings by which it is in part surrounded; while public convenience, and the architectural embellishment of our streets—both of which require a worthy approach to the tomb of kings, warriors, poets, and statesmen, and the seat of British legislature—point equally to the same object.

What stands in the way? The apathy (apparent at least) of a Committee of Taste sitting as a Metropolitan Improvement Commission; the natural obstructiveness of a chancellor of the exchequer upon all questions of ways and means not belonging to routine, and the cost of purchasing a mass of inferior third-rate houses and miserable tenements.

The houses in Snow-rents stand in the direct course of a straight line drawn between Buckingham Palace and the Victoria Tower of the new Houses of Parliament; a line which, if adopted for a new street, would isolate the abbey by bringing a roadway on the south side.

A plan for such an improvement was submitted to the commissioners a twelvemonth back, and is given in plan 3 of their third report, just published.†

It is dismissed with the following brief remarks:—

'The Society for Metropolitan Improvements submitted a plan, of which copy is appended, involving a total re-arrangement of the district. Her Majesty's commissioners have declined, therefore, to include the plan of the society in their inquiries.'

The reason assigned appears singularly inconclusive, for 'the total re-arrangement of such a district as lower Westminster' was almost, in the very terms of the commission, one of the objects for which it was appointed. The line proposed would have been a short one, entering the park near the Broadway, and thence proceeding to the palace through an avenue* of trees. From the palace gates the Victoria Tower, 300 feet high, would have been visible as the termination of a grand vista, corresponding with that of the Champs Elysées and the Triumphal Arch of Napoleon, but superior in effect; and the cost of a line, thus forming a fitting connecting link between the residence of the monarch and the seat of popular representation, would not have been attended with a very serious expense. The cost, we believe, would have been less than that occasioned to the French by the removal of the column of Luxor, now standing in the Place de la Concorde; which was 100,000*l.*

Another line was at the same time proposed with the same eastern terminus, consisting of a modification of Mr. Wason's new street leading to Belgrave and Eaton squares; and the commissioners took a right view of the subject when they decided, that a thoroughfare in that direction was of more immediate importance to the public than an improvement upon the communication with Buckingham Palace already existing by way of Great George-street. They would have been fully justified in deferring the latter project: they were wrong in abandoning it; and they have put themselves still more in the wrong by adopting such a deviation from the plan as, if carried into effect, will render the complete isolation of Westminster Abbey for ever impracticable.

Mr. Wason's line is the proposed street to which we have before alluded; sanctioned by a committee of the House of Commons in 1832. As modified, it will be a street 80 feet wide, with a natural and excellent terminus at the upper end of the Vauxhall Bridge-road, leading to the new and fashionable suburbs of the south-west. So far all is well; but at the other end of the line, approaching Westminster Abbey, what have the commissioners done? To avoid the additional outlay required to purchase an old and dilapidated workhouse, held upon a lease which has but sixteen years to run, the commissioners have made the line crooked at its eastern extremity, cutting off the direct approach to the new Houses of Parliament, and building out of sight, to all persons passing down the line, both the Victoria Tower and Westminster Abbey.

Let us hear no more of taste in England. Love of art, reverence for its noblest monuments, respect for the dead, pride in the past, progress in the present, are sacrificed to a pseudo-utilitarianism; not that which Bentham loved, but scorned;—a rotten workhouse is weighed in the scale against the most sacred objects of British nationality, and the latter, in the estimation of a Metropolitan Improvement Commission, kick the beam!

When the intentions of the board became known the commissioners were urged by the Metropolitan Improvement *Society* to reconsider the plan in reference to the eastern terminus, with a view that nothing might be done to impede further and greater improvements in the vicinity of the abbey; however long they might be delayed. The application was unsuccessful. The society then forwarded to the commissioners a new plan, accompanied with a sketch shewing the abbey as it would appear on the south side, with the cloisters, chapter-house, and other parts of the old cathedral restored, if the abbey were isolated as proposed, by a roadway carried entirely round the edifice; but the commissioners again declined to re-open the question, on the ground that a definite engagement had been entered into with the promoters of the bill now before the house, which could not be honourably broken. The society might have replied, that the practical part of this question is not one of keeping or breaking engagement, but simply of money. We will answer for Mr. Wason and his friends that they, at least, will be willing to re-open the question, if the Government will re-open its exchequer.

The abbey is now chiefly seen from the north; a view of the southern elevation would

...he whole of the abbey and palace precinct, south of ...Hall, was called by the Normans, "Thorney Island and ...le champ." From the latter phrase Mr. Bardwell ...s the word Tot-hill. As there is no hill near the Abbey ...ll Street would be a misnomer, but it is certainly not ...mprobable that the French phrase of *tout le champ* ...st clipped into *tout le* and then corrupted into *toutle* ...*t-hill*. In like manner the favourite Norman sign of ...ne Mouth became the Bull and Mouth; *L'aigneille* ...was corrupted into the Eagle and Child; and the more ...al sign of the Satyr and Bacchanals was ultimately ...d into the Devil and Bag of Nails.

* The *pix* was the box for the consecrated host.

† Hansard, price 5*s*.

* This is not properly shewn by the plan published in the report, which, as coloured, makes the road appear as an encroachment upon the park.

be a novelty to the oldest inhabitant of the metropolis."

A copy of the drawing referred to is given in the review, and the following extract from the explanatory statement by which it was accompanied.

'3. The society, therefore, propose that the line should be so far modified, that its present eastern termious should be in front of the western towers, and that thence the line should be prolonged on the *south side* of the abbey, through great and little Dean's-yard, leading directly to the new Houses of Parliament.

4. While suggesting this line of roadway, the society desire that it should interfere in the smallest possible degree with the legitimate connection between the abbey, the college, and the ecclesiastical buildings and residences attached. With this view they propose to accommodate as great a number of residents in immediate connection with the abbey as practicable, and to construct connecting archways across the roadway, forming covered communications between the abbey, the college, and the residences. At the same time, by the extension and restoration of the cloisters for the convenience of the residences, the most beautiful perspectives and effects of light and shade would be opened to the roadway. A picturesque foreground is obtained to the general elevation, as seen from the south; and it is from the south that all buildings should be viewed, from the superior effects produced by the direct rays of the sun.

6. The magnificent architectural combination of the cathedral buildings with the Victoria Tower of the new Houses of Parliament, which might thus be realized, would cost a very inconsiderable sum, as the buildings required to be removed are of very inconsiderable value, exclusive of that part of Abingdon-street which, it is understood, the Government have already determined to pull down without any reference to the present plan. The improved value of the ground available for building, should the plan be adopted, would, it is thought, be nearly equivalent for the purchase-money required in the first outlay.

7. The property belongs chiefly to the dean and chapter, and the proposed plan would allow of far more eligible sites than at present for the buildings required, either as connected with the abbey or the school.

The society, taking into consideration that we owe to the church the noblest architectural monuments in the world, cannot doubt the co-operation of the dean and chapter, and of the highest ecclesiastical authorities, if the object be favourably recommended to their attention by her Majesty's commissioners.'

It is certainly within the bounds of possibility that another prior of St. Bartholomew may arise in Dean's-yard; but at present, the dean and chapter of Westminster have the reputation of being hostile to all improvement connected with the abbey, or the district in which they reside. We believe this supposed hostility is merely indifference. The wretched state of their property arises from the system of forty-years' leases, which is about to be changed. They have submitted no plans of improvement to the commission, and contemplate none, only, as they say, because they are not projectors of schemes they could not carry into effect. Sleeping men carry nothing into effect; and it is natural to deans and prebendaries to think more anxiously of preserving a secluded corner for quiet dreams that of Henry the Seventh or of Edward the Confessor. But what have we to do with a dean and chapter! They are but the trustees, not the owners, of Westminster Abbey; it is not for them to decide for the public what approaches shall or shall not be made either to the abbey or the imperial senate house. Let the nation look to its own.

An act of Vandalism is about to be perpetrated. It may yet be stopped. Without interfering with the progress of the private Bill Mr. Wason and his friends have introduced, powers may be taken by the Crown to reserve the question of the eastern terminus of the proposed street, or to repurchase, before new houses are built, the ground required to isolate the abbey, and complete in a satisfactory manner the approaches to the new Houses of Parliament.

We appeal to the Metropolitan Improvement Commissioners to revise their judgment, although at the eleventh hour. Among them are men for whom we entertain the highest personal respect, but we would not see them shut their eyes (nor should the best friend they have) to the true nature of their position. They have undertaken the discharge of a great public duty; and they owe it to themselves—they owe it to their countrymen—they owe it to posterity, which, if we mistake not, will criticize their proceedings with more severity than the present age,—that the mischief now in progress should be remedied, ere it be too late."

THE DISTRICT SURVEYORS.

Sir,—In the *Times* of May 22nd, there are the following remarks:—

"The best friend to the lawyers is a crotchety law reformer, who is permitted by the courtesy of Parliament to turn his conceits into statutes; but such a legislator is any thing but a blessing to his country. If, in addition to an irresistible inclination to alter, he happens to try his hand on subjects with which he is but imperfectly acquainted, the risk that the country, minus the lawyers, will run of regarding him with any thing but gratitude will be so much the greater."

Are not these observations, Mr. Editor, very applicable to the new Building Act? Again in the *Times* of May 24th:—

"The Hong Kong papers have been received, but they contain little more than a number of ordinances exhibiting extreme fertility of invention in the art of raising taxes" (*alias fees*). "Such legislation, as was to be expected, had produced considerable discontent, especially as it was feared, if commerce were shackled with so many burdensome regulations as were either in actual operation or proposed, merchants would resort to some port with a less active legislation."

Would not a *less active legislation* in building affairs be equally desirable?

The case of arbitrary and dictatorial supervision under which the profession labours by the working of the Metropolitan Buildings Act (as set forth by your correspondent "Mr. Thomas Little," in your paper of the 17th May) must come home to every professional man.

However, by the report in your paper of last week, 24th instant, of the decision of the official referees in the Lewisham case, there is a gleam of hope that the building world will not be so much annoyed and *badgered* as the inclination of some officials would cause them to be.

It is to be hoped that the frequent complaints of the system will have the effect of causing amendment, as dripping water operates, "*non vi, sed sæpe cadendo.*"

I am, Sir, &c.,

Philoclarus.

Sir,—Some observations having been made through your journal against the new Buildings Act and the surveyors appointed to carry it into effect, allow me to state that, in my humble opinion (if honestly carried out), it is a great improvement on the old, and you will find the majority of the surveyors appointed under it are men of sound judgment; and I do hope before the public condemn the whole, they will observe in the several districts how their surveyors act, and report accordingly to the several magistrates in the respective counties, in order that efficient men may fill such offices; for it is a more serious matter than has been heretofore considered for the general good of the working class and the public.

I can assure you, with truth, that many buildings have been abandoned in the parish of Bermondsey, owing to the surveyor having been very litigious; and (if I am informed correctly), in six cases out of ten which have been forwarded to the registrar, he has failed. Now, if this be a fact, it is quite time one of our members for this county should move in the House of Commons for a return of the number of cases sent before the registrars under the new Metropolitan Buildings Act, and their results.

I think that would in a great measure make known who are the inefficient persons, and who are competent to fill the office of district surveyor.

Allow me to trespass further on your time, in giving you a statement of facts as to a circumstance which has occurred to me within these last few weeks. My child having re ceived a present last summer of a pair pigeons, I had a house, or cage, made for the at the back of my dwelling, but finding I ha not made it sufficiently high for the child view the birds from the window of the sitting room, I had it raised four feet higher, merel elevating the same covering and enclosing with lattice-work. This was done either th last of December or beginning of January be that as it may, I have received notice afte notice from the district surveyor to pull it down and at last a meeting of the referees, who, afte some conversation on the subject, viewed; but have not yet heard the result: when I do, I sha feel great pleasure in forwarding the same your journal for the benefit of the publi I send you a copy of the several notices re ceived, as also the questions to the referees.

Can you inform me if or not I can procee for the expenses I have been put to in opinion on the Act, caused to be taken through the re ceipt of the several notices,—not wishing act on my own opinion, which is, that the dis trict surveyor has no jurisdiction over it, an which I find to be the opinion of most su veyors? Leaving you to make what use yo please of these,

I am, Sir, &c.,

W. S. Hollands.

Bermondsey-square, May 24th.

*** As this matter is now before th referees it would be unwise to discuss When the award is taken up we will give atte tion to it.

The new number of the Westminster R view (for June), has the following note:—

"An occupier of premises in the city wish to introduce in his house some of the zi ventilators recommended by Dr. Arnott (pri 2s.), but was informed that before any cuttin in an external or party wall (without whic they could not be inserted), notice must given to the district surveyor, pursuant to se tion 13; and a fee paid. On consulting list of fees in schedule L, it appeared that th fee would be 1*l.* 15s. the house being a firs rate, and possibly 3*l.* 3s. if the cutting wer made in a chimney breast. The offici referees had, however, the power to reduc the fee if they thought proper, and an applica tion to them would only cost a guinea the hearing. The ventilators are, of cours deferred for the present; and as the act make no mention of any apertures for ventilatio beyond a window and a chimney, it is to hoped the official referees will publish som instructions on the subject, without waitin till an object of such importance is brough before them on appeal. All decisions, how ever, of the official referees should be adve tised and sold, with the act, or they will useless to the public, as district surveyors not hold themselves bound to supply informa tion gratis. The act does not enjoin them give any assistance to a builder in the form explanation or advice, but, on the contrary, places them in the position of public informe profiting by every error committed; one being chargeable if the act be duly observe treble fees in every case of neglect."

We may again mention that all awar made by the referees are open to the public payment of 6d. for each *class* of awards co sulted. We have taken some pains to co municate to the public all the most importa decisions pronounced by the official referee and shall continue to do so, with even great minuteness, as we are satisfied we may th prevent much litigation and ill-feeling.

The district surveyors meet periodically, f the discussion of the various questions whi arise from the act: if they would enable us place the result of their deliberations befo the public also, difficulties would sooner cea and much advantage be gained.

Reduction in the Price of Gas.—Mr Hedley stated a few days since before the com mittee of the House of Commons on the Cale donian Railway, that in consequence of im provements effected by him in the manufactu of gas, so great a saving in price to the co sumer had been effected, that in Liverpool alon it amounted per annum to 20,000*l.* He furth stated, that all over Scotland the gas w better in quality than in England, owing the superiority of gas-coal in the north.

TTACHED OFFICES TO BUILDINGS COMMENCED BEFORE LAST JANUARY.

One of the latest awards made by the official eferees is still further confirmatory of the view e have taken of attached offices and projecons, not yet formed, to buildings commenced efore January last. After what has appeared n our pages, it ought not to be necessary to ublish this award, but as it affects a large umber of persons, and some of the surveyors re not convinced without difficulty, it may ot be useless to insert it.

Mr. James Bonnin had commenced, and in ome instances covered, in before January ast, a number of houses in Thurloe-square, in he district of South Kensington. He was in ourse of completing them by the construcion of certain offices attached, and party ence walls, when the district surveyor claimed he superintendence of these offices and walls, n the ground that the footings had been aid since the 1st of January, that they were utside the houses, formed a distinct addition, nd were therefore subject to the regulations f the Act.

The builder appealed to the official referees nd urged that the offices and walls were a omponent part of the houses as commenced, nd had been delayed merely for the convenince of scaffolding for the higher parts.

The referees awarded (May 24th), that insmuch as the buildings in question formed, ogether with the main buildings to which ney are or are to be attached, one general deign, as shewn by the plan, and that such main uildings were commenced before the 1st day f January, 1845, the said buildings in quesion, that is to say the aforesaid attached ffices and party fence walls to the three unnished houses in Thurloe-square, are not ubject to the operation of the said Act, as to he original building thereof.

And with regard to the costs, they further warded, that, "inasmuch as the case was one f reasonable doubt," the same (4*l.* 2s. 6d.) hould be paid by the builder and surveyor ointly.

ENGLISH ARCHITECTS AT HAMBURG.

The committee for rebuilding the church f St. Nicholas at Hamburg (destroyed by the reat fire) having some months back offered remiums for the best designs for that buildng, which they wish to make one of the inest modern churches in Europe, have lately, ut of forty-four designs submitted to their onsideration, selected that of Mr. George ilbert Scott and William Bonython Moffatt, f London, as deserving of the first, and those f Professor Strack, of Berlin, and Mr. Ludvig Lange, of Munich, as those meriting the econd and third premiums. In coming to his decision, they were aided by the advice of Mr. Boisserte, of Munich, and of Mr. Zwirns, he architect to Cologne Cathedral. A design y Mr. Atkinson, late of Manchester, is said o have been much liked.

The selected design is in the style of the ourteenth century (the decorated); and may e regarded as one of the most successful fforts of modern architects. The tower is in he centre of the west end, and is surmounted y a lantern and lofty spire of open-work panelng, the whole very elaborately adorned. A eculiar effect is given to the upper part of he tower by a parapet around the base of he spire which projects considerably before he face of the building. The aisles outside resent a series of gables, with buttresses and erocketed pinnacles at the points of junction. The commencement of the chancel is shewn by a stone lantern, rising from the ridge of the roof, and a small turret with pinnacle gainst the clerestory wall on each side. We hope the architects may see their very beautiful design satisfactorily carried out.

Absurdity. — A country correspondent tells us that a gentleman in the neighbourhood of Dudley has recently offered to give the sum of 5,000*l.* for the purpose of erecting a new church, provided that penny postage stamps to the amount of 2,000*l.*, which have been obliterated by passing through the post-office, are sent to him within a limited period. We said "how great!" on commencing the paragraph, but ended it with "how small!"

INSTITUTION OF CIVIL ENGINEERS.

At a meeting held on the 20th inst., the president in the chair, Mr. P. Barlow presented, as an appendix to his paper on the atmospheric system, the result of a series of experiments upon the force employed in drawing carriages up an incline plane of 1 in 43, by a stationary engine and rope traction, upon the Canterbury and Whitstable Railway. From these experiments it appeared, that the stationary engine of 25-horse power, with a rope, would produce a useful mechanical effect equal to the engine of 100-horse power on the Dalkey Atmospheric Railway; thus proving, by direct facts, the deduction of Mr. Stephenson as to the amount of lost power by the latter system. These statements were ordered to be printed with Mr. Barlow's paper.

A paper by Mr. Thorold, M. Inst. C. E., gave an account of the late failure of the Suspension Bridge at Yarmouth. After giving the dimensions of the structure, which appear to have been altered from the original design without the consent or superintendence of the architect, the immediate cause of the failure of the bridge was attributed to the fracture of one of the main links near the point of attachment to the pyramid: on examination it appeared that the iron was originally of indifferent quality, and that the weld had been made so imperfectly that only one-twentieth part of the sectional area of the bar had been welded: it was therefore evident that these links could never have been properly tested. An interesting discussion ensued, in which the principles of the construction of suspension bridges were laid down; and it was insisted upon, from the experience of the Menai, and Montrose, and other large bridges, that the platform of such bridges should be rendered perfectly rigid, so as to prevent any undulation, and that the chains should be merely used to support the actual weight of the platform and the road. The novel and ingenious plan for the bridge over the Menai straits, proposed by Mr. Stephenson, (?) to be constructed of a large wrought-iron tube, supported by chains, was also mentioned, and the principle appeared to be considered sound.

The next paper was by Mr. Grantham: it gave an interesting account of the wreck of the "Vanguard," iron steam vessel, which went on shore on a ledge of rocks, at the entrance of the Cove of Cork, and after remaining there until the rocks were cut away at low water, so that a high-water tide carried her off, was found to be so little injured that a few days sufficed to repair all damages. The engines were scarcely strained, and nothing was broken. This led to mention of some very remarkable instances of the power of resistance of iron vessels, and to the experiments now in progress of trial at Woolwich, on the powers of iron vessels to resist shot. It appeared that with a light charge of powder a hole was merely punched through the plate by the ball, but that with a heavy charge the ball striking the plate with great velocity rendered it brittle, and the fragments fled about in an extraordinary manner.

On the 27th instant, the paper read was by the president, giving "An account of the ancient Harbour of Ostia." From the concurrent testimonies of the classical writers, Ostia was originally founded anno 634 B.C. by Ancus Martius: it was situated at the mouth of the Tiber, about fourteen miles below Rome, and as the supplies for the capital arrived by the river, it was of importance to improve the navigation, and, at the same time, to provide for the shelter of the fleet which usually lay in the roadstead. Accordingly the Emperor Claudius determined to construct a new harbour entirely independent of the river, but at the same time having a connection with it. The general plan of this work, as described by Suetonius, and as given in Cannia's great work on the architecture of the ancients, is shewn to have consisted of an extensive outer harbour, formed by two artificial moles, each projecting about 1,900 feet into the sea, enclosing a space of about 130 acres. Between the extremities of the moles was situated another detached mole, which formed a breakwater, supported a lighthouse, and gave two entrances to the harbour, across which chains could be drawn, to form a closed port in time of war. A small inner harbour was also constructed, in which vessels could always remain afloat. This covered about 7 acres, and communicated with the Tiber by means of two parallel canals, furnished with stop gates, in order that the water of the river might be turned through the harbour, for scouring away the mud, or for other purposes. There is no evidence to shew that the pound lock was known or used. The walls of the moles were constructed upon arches, so as to give free access to the current, but at the same time they were sufficiently solid to break the sea, and to produce tranquillity within. This was very necessary, for, from the geological condition and the geographical position of Ostia, the coast was subject to constant advance from the alluvial deposit brought down by the Tiber: by this means a delta has constantly been in progress of formation, and in the course of 2,480 years the line of shore has advanced about 3 miles 600 yards. All the attempts to improve the entrance of the Tiber were, by this deposit, rendered completely abortive, as the projecting walls only increased the deposit. Eventually the ports of Claudius and of Trajan suffered the same fate, and although the works at Ostia were considered by the Romans as their greatest labour, they were of necessity abandoned, and the harbour of Centum Cellæ, or Civita Vecchia, was constructed as a substitute.

In the work of Ostia there was visibly much novelty and ingenuity in design and in construction; indeed, it must be observed, that almost every principle adopted by the improved skill and science of modern times, appears to have been there carried into effect with singular perseverance and ability. By a careful study of the original plans of these ancient works and the results, engineers might read very useful lessons for the treatment of many of the harbours of England, particularly those on the south-eastern coast, where, as at Dover, great difficulties are to be contended with from the motion of shingle and silt. The position of English harbours differs in some degree from that of Ostia, on account of the former being subject to the action of a great rise of tide and strong littoral currents; while the latter was situated in the Mediterranean, where there is scarcely any tide, and of which the shore currents are sluggish. The deposits of silt would be in the latter case very rapid, as the water of the Tiber entering nearly at right angles with the shore, would arrest the current, and the whole speedily would become comparatively stagnant.

In the discussion which ensued upon this paper, the cases of Dover, Rye, Ramsgate, and many other harbours were explained, and the probable result of the present works commented upon.

INSUFFICIENT SCAFFOLDING.

The daily papers speak of a fearful accident which happened last week at a house opposite Bow Church, where five men were employed upon a scaffold in front of the building. Whilst thus engaged, one of the putlogs, intended to sustain the planks upon which the workmen stood, gave way from the wall, and the cross pieces, being thus left unsupported, broke down, and precipitated all five men, four of whom fell with great violence to the ground, while one clung to a scaffold pole. One of the poor fellows had his leg dreadfully smashed, so that it is feared amputation will be necessary. The other workmen, happily, have not sustained any very serious injury.

Hardly a week passes without the occurrence of an accident through want of care in the preparation of scaffolding, or the use of improper materials: it is really incumbent on masters to see that their workmen are provided with sound and proper boards and poles for the purpose, and are enjoined to avoid unnecessary danger. All who are in the habit of ascending many scaffolds must occasionally shudder at the imminent peril to which workmen are sometimes exposed in this respect.

Improvements at Gainsbro'.—It is proposed to benefit the town of Gainsbro' by converting certain premises situate in the market-place, and recently in the occupation of Mr. F. Otter, into public rooms, corn market, covered butter market, &c., for which they are said to be in every respect peculiarly eligible.

GOTHIC ORNAMENTS FROM THE CATHEDRAL CHURCH OF YORK.



Fig. 14.

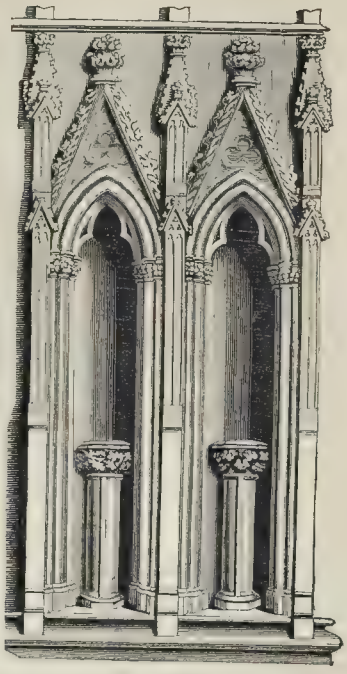


Fig. 15.

GOTHIC ORNAMENTS,
FROM THE CATHEDRAL CHURCH OF YORK.

As we are informed that the details already given have been found useful by a certain number of our subscribers, it has been deemed advisable to extend the series.

The annexed examples are both from the outside of the church, at the west end.

Fig. 14 represents a group of seven statues on a buttress. The figures are 6 feet high, and 76 feet 6 inches from the ground. There is one of these groups on each side of the west window.

Figure 15 represents two niches. The height, from the ground to the moulding at the top, is 17 feet, and the width from the centres of the pilasters 3 feet 6 inches, they are 48 in number.

THE (LAUREL-CROWNED) ARTISANS OF THE PAINTED WINDOW OF THE CATHEDRAL OF CHARTRES.

By J. L——y.

It is with considerable pleasure that the readers of "The Builder" will have perused those well-selected extracts and illustrations, by our talented friend Mr. T. Wright, which appeared in the last number of this periodical. Certainly, architecture (*building*) is the very exponent and criterion of human civilization. But it is to be excused, as it lays, at the same time, beyond the *limits* which Mr. W. has assigned to his researches—that he eschews to broach matters *esoteric*, or such as are connected with the *royal* craft of *masonry*, or modern social science.

The building of the magnificent cathedral of Chartres is coeval with those of Strasburg, Cologne, Vienna; and we know full well that at the latter cities (at least) existed those mediæval *secret associations* of masonry which may well be traced back, and are certainly analogous, to those which existed at the time of the building of the temple of Solomon. Under such circumstances, nothing extraneous to, and incompatible with, the customs and habits of our present artisans can astonish us, or be difficult of explanation. If the *whole* of those painted windows of Chartres were to lay before us, we should certainly recognize some of the well known *symbols* of that ancient association, to which the problematic laurel-crowns might be referred. Besides, those good and democratic olden times were equally famous for the many national festivals (and sports) in which the artisan had his adequate share. The laurel crowns, therefore, may also be marks of honourable distinction, which their bearer might have obtained on such occasions— nay, perhaps, the very mark of their proficiency or *mastership* in their own art.

What Mr. Wright has also not taken notice of is, the tidy, regulated, cleanly appearance which the garments of these artisans exhibit—a striking antithesis of that shreddy, disorderly, and slovenly attire our present working men exhibit in their hour of *work*. But "the work a man performs ought to be *holy* to him"—and such it was with our happy and blessed forefathers. Goëthe (the shrewd—*German* Goëthe) expatiates in one of his works on mediæval *physiognomies*—those also of the humbler classes. "Look at them"—says he—"as they stand before us in their works of statuary and painting!—they are serene, elevated, tranquil, composed." Would this were also the characteristic of our present age of civilization!

The data which Mr. Wright has brought forth, about the wearing of gloves by the *workers* of those times, are rather novel—still, at the same time, a libel on us *moderns*. The workers of the middle ages wore gloves to *protect* their hands from the inroads and injuries of work; their hands, therefore, were probably like their faces—those of human beings. The workers of the present age wear no gloves *during* work—reality is nothing with them; they thrust their hands in kid gloves on a *Sunday*—to hide that abnormity, or ugliness, which our forefathers chose rather to *prevent*. "The times are *worse* than we usually are inclined to think"—says a friend of the working classes, *Lamartine*.

BATHS AND WASH-HOUSES FOR THE LABOURING CLASSES.

A public meeting to promote this object was held at Willis's rooms on the 22nd inst., when the Duke of Cambridge took the chair, and made an urgent appeal for further subscriptions. The selected plans are now being adapted to the site purchased, near Whitechapel, and will provide more than 100 baths, and nearly 200 wash-tubs.

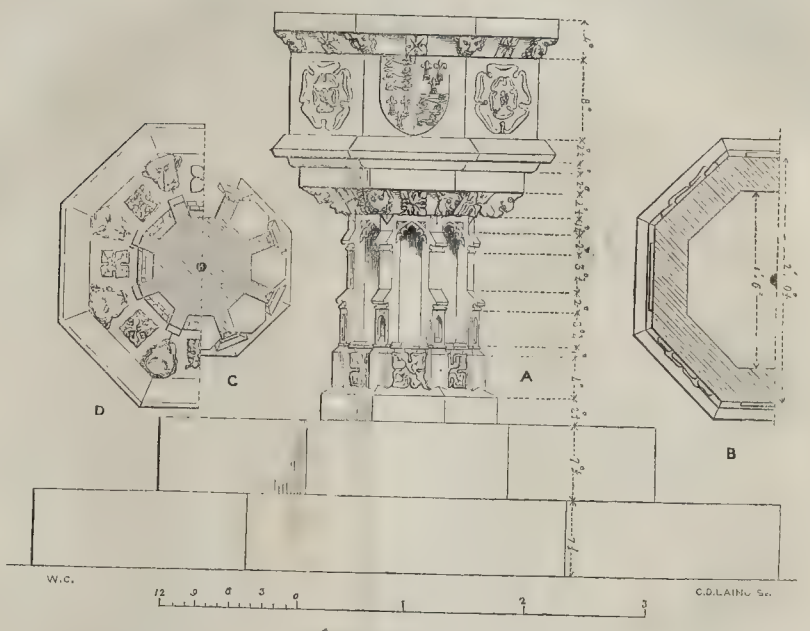
It is proposed that there shall be two classes of baths—the cheaper at 1d. for a cold bath, and 2d. for a warm bath; the dearer at 3d. for a cold bath, and 6d. for a warm bath. The charge for the use of the wash-tubs, and drying and ironing rooms, is proposed to be 1d. for the first four hours, with an increase for a longer time. The committee have reason to believe that with these charges the establishment will become self-supporting in the course of the second year after its opening, and in subsequent years will afford a surplus, applicable to the support of smaller establishments.

For the purchase of the land and the erection and fitting up of the premises about 15,000*l.* will be required.

The subscriptions already announced amount to 7,353*l.* 8s. 3d., and the committee call on the public to aid them in raising the remainder.

Lord John Manners remarked at the meeting alluded to, that he felt the greatest interest in the success of their undertaking, and he did trust that it would be carried out to completion, unless, indeed, it was intended that we, with all our boasted civilization, should still remain in the commonest matters of life, far behind ancient Rome and Greece, where ample provision was made for the necessities of the people in this respect, and whose magnificent baths remained, even yet, proofs of the interest which they took in the social condition of the people, and monuments of the height to which the building art had at that period arrived. The model of part of the proposed establishment, of which we spoke some time ago, was submitted to Prince Albert last week, and may probably be seen by subscribers on application at the office, in Crosby-square.

FONT FROM ST. JOHN'S CHURCH, MARGATE.



FONT FROM ST. JOHN'S CHURCH, MARGATE.

The church of St. John, Margate, is a very ge structure, but is particularly devoid of hitectural beauty: it contains little worthy notice, except the subject of the present stration, the font; which is a good speci- n of late Perpendicular. It is an octagon plan, with shields and roses on alternate s: the only shield which remains intelli- e, is that shewn in the engraving, having arms of England quartered with those of nce. Hasted, in his "History of Kent," es that other shields bore the arms of the que Ports. The top of the font appears nished, or as if it had been deprived of e mouldings.

, shews the elevation. B, half-plan across bowl. C, half-plan of pedestal. D, the e, looking upwards. W. Caveler.

JOHN RENNIE'S CONVERSAZIONE.

he new president of the Institution of Engineers gave his first *soirée* to the bers of that body on the 24th instant, at esidence in Whitehall-place, and invited tinguished party to meet them, including mber of ladies.

increase the accommodation, a temporary ding was "waved up" at the back of the e, and formed the chief saloon, with a ry below for models. The walls and ceil- f the former were decorated in the Italian on with painting, by Mr. Sang,—*encore* Sang,—who we have no doubt feels as surprised himself at being put over the of English artists as we *know* his coun- en abroad are at the favour with which he seen visited. Why, in the world, we d go to Germany for decorations such as pretty as they may be, it puzzles one to ver. There *are* decorators in Bavaria an do fine things, and might advance us y were to work here for a time; but as painter in question—lud! what foolish e we Englishers are!

is, however, is not to disparage Sir John e's elegant room and profuse hospitality. ings, bronzes, models of bridges, steam- es, and atmospheric roads filled every and the house was crowded with the men who had designed them, and others who could appreciate.

Amongst the models we may mention, Mittchell's screw-pile battery; the Air Point Lighthouse, by Messrs. Walker and Burgess; Captain Boswall's plan for harbours built with arched piers; the original design, by Mr. Stephenson, for an iron bridge of two arches, each of 360 feet span, to carry the Chester and Holyhead Railway across the Menai Straits, but which is now to be superseded by the suspended tunnel-bridge, formed of wrought-iron; the Folkstone Viaduct, by Mr. W. Cubitt; a cast-iron trussed girder bridge, by Mr. Borthwick; and a model of a stone bridge, with flat elliptical arches, designed some years since by Mr. Rennie, to replace Westminster-bridge. There was a fine model of the "Great Britain," and several of vessels to be propelled by the screw, designed by Mr. Guppy; a steam-frigate, with direct-acting engines and screw-propeller, by Mr. Rennie; a beautiful pair of marine engines, by the late Mr. Henry Maudslay; Mr. Bodmer's proposed horizontal engines and screw-propeller; Mr. Hick's improved locomotive engine; and Messrs. Grissell and James's combinations of a weighing machine and crane, to ascertain the weight of an object while raising it.

ECCLESIASTICAL ARCHITECTURE.*

"In the preceding portion of this article, we have described *six* existing types of the *Augustan Basilica: a seventh* remains, destined to exercise, even more than the Roman fabrics, a permanent influence upon Christian architecture. In the Augustan Basilica, the horizontal principle (to adopt the term sanctioned by Whewell and Willis) predominated. Such a Basilica is a building consisting of *single columns or bearing shafts*, supporting either a continuous entablature, or a continuous range of arches, covered by an open roof connected by transverse beams. The *Basilica of the Lower Empire* consists of *compound piers, to which columns are annexed*, but more for ornament than use, and supporting the vaults and arches by which the edifice is roofed. This type completed what the others began. The Basilica of the Lower Empire is the remote though lineal progenitor of the Gothic style, and through the Gothic, of all the ecclesiastical architecture, properly so called (for we exclude such monstrosities as the Madeleine at Paris) of modern times. Palladio, Michael Angelo, Wren, the greatest of all, whenever they build churches, are Goths in heart. They could not do without Gothic. St. Paul's is a Gothic cathedral in disguise. Vaulting, as observed by Mr. Willis, whose observations we shall now freely adopt, was brought to great perfection by the Romans at the period when, according to the usual conventional phrase, the arts have been said to decline. Compensation is a universal law, both in the intellectual and the physical creation. When taste and elegance, the fine sense of beauty, and the talent for æsthetic decoration waned away, the science of architecture acquired a new dignity and a new power. The art of vaulting, now fully developed, was employed in the vast and complicated structures of the baths, the villas, the piscinas, the amphitheatres, whose ruins linger in Rome, or decorate the magic landscapes of the Bay of Naples, where some of the most remarkable specimens are found. Many difficulties were offered in these structures, when the architect was required to connect and combine the vaulting with the supporting walls; but the hindrance became a stimulant.

The endeavours made by the architects to master these difficulties, brought the art of vaulting to great perfection. Omitting less important examples, or buildings of which we do not possess sufficient details, we are fully enabled to understand the general scheme. Three of the great ruins of Rome will afford us the requisite knowledge of the scheme of construction. The great halls of the baths of Caracalla and Diocletian supply what is wanting to restore the ruins long considered by antiquaries as the *Temple* of Peace,—ruins now clearly ascertained by Bunsen to be the remains of the *Basilica* erected by *Maxentius*, either in the vicinity or upon the site of the magnificent temple raised by Vespasian. If the vaultings of the Thermæ be added to the ruins of the Forum, we shall obtain an accurate idea of the Maxentian Basilica. The vast fragment of the building now standing is known to every one; other portions have been made out by excavations, and by uniting these remains with the analogous halls of the Thermæ, fitting

* See page 233, *ante*.

into the one the details furnished by the other, we shall completely understand the form which the Maxentian Basilica assumed. The nave, for so we will term it, consisted of three huge compartments of Roman vaulting, really resting upon piers, but apparently owing their support to eight magnificent columns, of which several remained till they were removed under the pontificate of Paul V. for the adornment of the church of Santa Maria Maggiore. On either side, the lofty arches opened into as many vaulted apartments, which, resting on one side on the piers of the nave, and on the other on the piers inserted in the wall, formed the side aisles. Windows (in the nature of clerestory windows) were pierced in these lateral walls of the aisles, whilst the inferior height of these collateral portions allowed, or rather required, the insertion of other windows in the walls supporting the arched roof of the nave. The nave terminates in the usual semicircular apse, but we also find in this Maxentian Basilica another apse, proceeding from the middle division of the side aisle. Bunsen supposes this lateral hemicycle to have been a subsequent addition: and in his plan he meets it, as it were, on the opposite side, by an entrance. Speaking, however, with entire respect for the opinions of so competent a judge, we see no reason for supposing that this second apse was other than an original portion of the building; and if we are to conjecture, we would rather suppose that, as required by symmetry, and as in some degree evidenced by what we shall term derivative buildings, there was an opposite apse, giving to the whole structure somewhat the form of a cross.

This Maxentian Basilica is the only specimen now subsisting at Rome of the vaulted basilica of the lower empire. But the principle of construction which it elucidates, had become incorporated with architectural science.

Whatever may have been the original use of the structure so well known as the *Palais des Thermes*, the halls and chambers presented to the inhabitants of Lutetia the model afforded by the capital. Quitting the Seine we advance towards the Rhine. The same style prevailed in other portions of Belgic Gaul. *One* venerable city yet subsists (we shall soon arrive at it), in which we may behold the walls and arches of the baths, imitating, though humbly, the mansions of luxury provided by Caracalla; and here we trace, united with more recent constructions, the outline of a basilica, combining with the *double apse* of the Ulpian basilica the piers and vaulting of Maxentius. Whether the result of the imagination of another people, or the exertion of an inventive faculty, other buildings in the same locality, though erected under the Roman domination, display forms equally unknown to Rome;—double gateways—portals, rising in successive stages of decoration — projecting towers, whose semicircle offers ranges of arches which may have been suggested by those of the coliseum, but which, in this example, assume a totally different character, from the smallness of their scale.

In describing the basilica of Maxentius, we have, as it were, involuntarily described a Romanesque cathedral. The familiar terms of mediæval architecture convey the most intelligible notions of a construction which the technical nomenclature of the classical age cannot define. Alipius, who enjoyed the patronage of Julian, might have enabled us to describe in architectural phrase the interior arrangement of the Maxentian basilica: Vitruvius gives us no help at all.

Whilst the origin of the *Romanesque* is unquestionably to be sought in the imitation—the degradation, if you choose—of classical architecture, the character this style assumed beyond the Alps, shows a great independence of the Christian basilica of Rome. The Christian architecture of Rome and the Teutonic Romanesque are in the nature of cognate languages derived from the same mother tongue, whose characteristics testify their common origin, but establish their distinctive differences. The roots may be the same, but in each there is a diversity in the inflections, a variety in the construction, a nationality in the phrase."

The writer then proceeds to examine where the mode of building, which afterwards spread over the largest portion of western Christendom, arose.

"In the recollection of the traveller, the scenery of the Rhine and Moselle will always be connected with the venerable ecclesiastical buildings decorating the banks of these rivers, and spreading on either side in the regions once possessed by the prince-prelates of the empire. Abounding with manifest imitations of Roman architecture, and therefore very analogous to those which he may have seen in England or in France, many peculiarities nevertheless shew that they belong to a distinct genus. Tall square bell-towers, consisting of many stories, divided from each other by corbel tables, falling down into semi-circular festoons, and these festoons running down at the angles into flat or slightly projecting pilasters, which panel the walls, afford the first lines which are inserted in the sketch-book. The draftsman will then have to add the round arched windows, usually in couplets, supported by a short central pillar, nearly like what is found in some of the towers now considered to be Anglo-Saxon. Notwithstanding this one similarity, the slenderness of the German Glocken-Thürm, and its many stages, ending in a pyramidical roof, give it a character entirely different from our own structures. The sanctuary, presbytery, or choir, always ends in a portion of a circle or polygon. The exterior of the apse is ornamented by an open gallery; a range of arches, standing upon small columns or shafts, sometimes formed into groups, occurring at symmetrical intervals, or by panellings imitating the gallery. The larger churches exhibit a remarkable peculiarity—a double choir, found in no other part of Christendom; an apse at the east end, an apse at the west end; and not unfrequently the transepts take the same form. Nor are those features confined to the immediate vicinity of the rivers; they extend through the whole of the ancient imperial dioceses—*Cologne, Treves, Worms, Mayence, Spire, Constance;* and if we pass into the imperial territory now annexed to France, we shall find a specimen, and a very remarkable one, as far as *Besançon*.

As the traveller then pursues his journey towards Italy, crossing the Alps by the ancient passes of the Mont Cenis or St. Gothard, the same form still appears, excepting that the double choir is no longer apparent. Trent has her cathedral in this style. It extends over the whole of Lombardy, which includes the modern Piedmont, Parma, Piacenza, and Modena. In Tuscany this *Moselle-Rhenane* style contends with the Roman Basilica. With some slight though distinctive alterations, which will first have become apparent in the St. Gothard's pass, the Glocken-Thürm annexes itself, though as an extraneous adjunct, to the Papal Basilicas. Tuscany displays the style in question, though more rarely. Lastly, it meets with and abandons us at Rome. Unwilling as the ancient capital was to adopt ultramontane taste, the usage of the bell compelled her priesthood to employ the Teutonic structure; and in one example at least, San' Giovanni e Paolo (of which Mr. Knight has given a plate and description, No. xxii.), the sacred structure originally raised by the Roman patrician Pammachius, husband of Paulina, St. Jerome's sister, was replaced by a building of which the design was brought from the colonies of Germany or Belgic Gaul.

Now this general similarity of style was not the result of accident, taste, or fancy. The buildings are, in the strictest sense, *historical illustrations* of the countries to which they belong. They are portions, so to speak, of its *historical costume*. Architecture is the *dress* of man in the aggregate, of human society. If the region in which this Teutonic Romanesque style prevailed be traced out upon the map, it will be seen to agree very nearly with that portion of the empire of Charlemagne which was assigned to Lothar, his grandson."

At Treves the writer finds the *one* example of a Basilica consecrated as a Christian church, in which you see the Corinthian capitals just displaying their foliage. This he considers the model for the structures which, far more than those of Rome, assisted in the development of Christian architecture.

For want of space we abandon the Romanesque for that to which it led:—

"Bunsen adopts a theory similar to that suggested by a reviewer of Mr. Knight's 'Sicilian Antiquities' in a contemporary journal (*Ed. Rev.*, vol lxix. p. 95). Gothic architecture was not the result of an accidental development of art, of obscure masons and labourers of the trowel and mallet advancing and halting in their attempts, until the work started into perfection; but the creation of the genius of some *one* great master, employing the forms and availing himself of the ideas existing in or suggested by the edifices of his age, but who combined them with that power which constitutes originality. He cast the Gothic style at one jet, with all its peculiarities.

In what school was *he* trained? Evidence, we believe, exists, enabling us to conjecture the individuals under whose influence the talent of the *Protogoth* was fostered; but if we can guess at the teachers, we are denied the name of the disciple. Like so many other benefactors of mankind—for *he* was a benefactor who provided for future generations the hallowed glory of the sanctuary—he will probably always remain concealed.

In the continental Gothic, the *main idea* of the Basilica was consistently maintained. Compound shafts became clustered columns ascending with increasing boldness, the vault rising rose amidst the pointed arches—but the main type continued unchanged. Each region, however, had some peculiarities. *Berne* and *Lausanne* may be compared with Aracœli and St. John Lateran for their plans. Both have the apse, but Lausanne the transept, copied from the Augustan Basilica. Although Rome did not adopt the Teutonic or Gothic style still she constantly influenced her daughters. But the changes in Liturgical usages naturally affected the buildings in which the rites were to be celebrated. The multiplication of altars necessitated a multiplication of chapels; hence the magnificent plan of Cologne, which exhibits a crown of chapels surrounding the apse of the Roman Basilica. The plan is very remarkable, for Pisa was evidently in the architect's mind. In England, our *Gothic* architects rejected the apse almost unanimously at least we cannot recollect more than one unequivocal example to the contrary—Westminster Abbey. In other cases, allowing for interpolations, and for the prolongation by the building affectedly (and often erroneously called the Ladye Chapel, the east end of our Gothic churches terminates in a straight line so that the national form of our choir and presbytery was rectangular. In Italy, the apsidal form prevails in all the Gothic churches we doubt if more than *one* example can be found of a rectangular termination, and we shall soon see the importance of marking this contrast.

Mr. Knight has made the very important discovery, that Gothic architecture was *introduced into Italy from England*. The English traveller who enters the church of *Sant Andrea* at Vercelli, will at once be surprised at beholding an edifice repeating the most familiar features of the style, to which the name of *early English* has been applied. The plan of Sant' Andrea is entirely English; pronounced and decided cruciform transepts; straight-lined rectangular choir; lancet windows, supported by tall detached pillars; simple-foliaged capitals; the plain groined roof. There is somewhat of a foreign accent, if we may use the expression, apparent, if you closely examine the details; yet, in spite of this foreign accent, you might almost suppose yourself at Salisbury.

If the traveller inquires who was the founder of this magnificent structure, he will hear a name which often occurs in the pages of Matthew Paris. It is that of the Legate Cardinal Wala, or Guala, who appears as an influential statesman in English affairs during the eventful period of the last years of John and the accession of Henry III., when "it seemed as if the crown of England might be transferred to a foreign dynasty."

Guala's architect was a French ecclesiastic named Thomas, but there is every reason to believe the working drawings were brought from England. The Duomo at Milan is a transplantation from Germany, with the same prototype as Cologne or Strasburg. Concurrent with the erection of this splendid specimen of the "Gotico Tedesco" in Italy, was the revival of the classic style as commenced by Brunelleschi, and here the writer ends the article from which we have so largely quoted.

Somerset Lunatic Asylum.—In reply to various correspondents we are informed that the selected design for this building is by Messrs. Scott and Moffatt.

ROYAL INSTITUTE OF ARCHITECTS.

At an ordinary meeting of the institute, held on Monday evening last, Mr. J. B. Papworth, V.P., in the chair, Mr. Walker, late president of the Institution of Civil Engineers, who was elected an honorary member a short time since, was admitted.

Mr. Joseph Wilks, to whom the portfolio of the institute is much indebted, presented coloured representations of one of the stained glass windows from the church of Notre Dame des Secours, in the faubourg of Au, at Munich.

Mr. Donaldson, in giving various points of information from France, drew the attention of the meeting to a premium of 50*l.* left by the will of an individual, which is to be adjudged annually to a young architect who unites to ability and knowledge of his profession, the domestic virtues. Mr. Donaldson afterwards read a paper on the architectural and iconographical application of the form of the cross during the middle ages, from the French of Mons. Didron, prefacing it with a statement of his desire to let the members know what was going on abroad. The essay read forms part of a series published by the *Comité Historique des Arts et Monumens* of France, under the startling title of "L'histoire du Dieu," and would satisfy the stanchest admirers of Durandus and symbolism. The use of the form of the cross for the plan of ecclesiastical buildings was traced, and the numerous varieties of it adopted for decoration were explained.

An announcement in the bulletin of one of the French societies, that an English antiquary had applied to them for advice respecting the investigation of Richborough Castle, Kent, led to some comments. Mr. Britton being called up, urged architectural students to lose no opportunity of investigating the antiquities of their country; and to make the study of them the recreation of their leisure hours. He mentioned Burgh Castle, near Yarmouth, as analogous in many points to Richborough Castle; and suggested it as an interesting subject for inquiry. Mr. Scoles remarked that they must make haste if they wished to investigate it; he had just now returned from that part of the country, and had learnt that those remains were in the schedule of a railway bill, and would probably soon be destroyed.

NEW MATERIAL FOR FLOORING, PAVING, AND ROOFING.

The new material or compound, which forms the subject of a patent taken out by Mr. Cassell, of Millwall, consists of many varieties, but possessing all these common properties—that they are perfectly impervious, very elastic, and (there is reason to believe) exceedingly durable.

When intended to be employed for *paving* or *flooring*, or other like purposes, it is composed of four varieties, which, for the sake of distinction, are designated as compounds No. 1, No. 2, No. 3, and No. 4, and are thus described:—

I prepare No. 1 compound in manner following:—I saturate a quantity of chalk, or marl, or lime, or loamy clay, or sandy earth, previously reduced to the state of a fine powder, with oil of tar, or mineral tar, or vegetable naphtha, or any other resinous, oily, or fatty matter. I take one cwt. of rosin, and melt it in a caldron exposed to a gentle fire, until all the water in it has evaporated. I then throw into the caldron two cwt. of the saturated chalk or other earth, and mix it well with the melted rosin. I next add from 3 to 5 lbs. of liquid caoutchouc, or from 1 to 3 lbs. of essential oil of tar, or turpentine, or some other oily, or fatty, or cementitious substance (varying the quantity according to the degree of elasticity desired to be given to the ultimate compound), and after that, from 3 to 5 lbs. of sulphur; and finally, two cwt. of fine dry grit, keeping all the while the contents of the caldron well stirred, till the whole are thoroughly amalgamated. When cool, this compound is of a slatish grey colour, and of a close granular texture. No. 2 compound is prepared in the same way as No. 1, and composed of the same materials, and in like proportions, excepting only that I substitute for the rosin, vegetable pitch, and use a larger proportion of sulphur, say from 6 to 8 lbs. No. 3 is also prepared in the same way as Nos. 1 and 2, and composed of the same materials in the like proportions, excepting that instead of the rosin or vegetable pitch, I use equal parts of rosin and Stockton tar, and reduce the quantity of sulphur to about 4 lbs. No. 4 compound differs from No. 3 in the substitution of equal parts of rosin and mineral, or coal tar, for the equal parts of rosin and vegetable pitch.

These compounds may be used by themselves—"being laid down in a hot and fluent state, and of sufficient thickness;" or they may be employed in any of the following states of combination:—

Firstly, they may be combined with any of the natural asphaltes or bitumens, or any artificial compound of a bituminous quality.

Secondly, they may be formed, in combination with small pieces of wood, into large blocks for use.

Thirdly. Any of the compounds before described may be used in combination with wood, in manner following, to form a flooring for the ground floors of buildings, which will be quite impermeable to under damp, and exceedingly durable. The ground is to be first covered over, to the depth of about an inch, with a layer of any of the four compounds before mentioned (being previously well beaten down and levelled), and then small square blocks of wood of equal sizes are to be set in this composition while yet warm, with the grain uppermost, and placed in regular order, side by side. Any interstices which may be left between the blocks are to be carefully filled up with the compound. Or, instead of using small blocks of solid wood, composition blocks of a large size, prepared as follows, may be employed:—I take a number of pieces of deal, from 3 to 5 inches wide, and from 10 to 18 inches long, such as may be picked out of the woods imported from abroad under the denomination of fire-wood, and which, paying a small duty, may be had cheap, and lay them in an iron frame or mould, in the direction of the grain, jointing them roughly together lengthwise, but so that they shall break joint transversely. I then cover them to the depth of one or more inches with any of the four compounds before described, in a hot fluent state, and leave this coating to settle and cool, whereby it becomes firmly united to the wood beneath. On removing this mass or block from the frame or mould, and fitting it into a piece of flooring, it is placed with the wood uppermost, which remains ever after beyond the reach of damp from beneath. For such a description of ground flooring no joists are requisite. The blocks may be made of any length or breadth most convenient; but I prefer making them of about 4 feet in length, by 2 feet 6 inches in breadth. When a very strong flooring of this kind is wanted, I cross the layer of wooden pieces before described with a second of exactly the same description, but laid the reverse way, and upon an interposed bed of one or other of the four compounds before mentioned. The two layers are then pressed together; and when the compound which unites them has cooled and set, I pour over the whole another coating of the same compound, so as to cover completely the second layer of wood. Instead of the blocks being all of one sort of wood, or of one colour, they may be of different woods and different colours, so as to give the flooring a tesselated appearance.

Of the suitableness of the material for road paving there have been as yet but slender opportunities of judging. In Kensington Palace Gardens there is a small specimen to be seen; and another in Camphine-road, Millwall, Poplar. It is laid down in blocks of about the dimensions of York paving stones, and is pleasant to walk on.

For *roofing*, and other purposes where lightness is desirable, Mr. Cassell makes use of a compound different from any of the others, which is called "No. 5 compound," and thus described:—

It consists of a mixture of 1 cwt. of rosin or vegetable pitch, or 1 cwt. of rosin and vegetable pitch in equal proportions, or 1 cwt. of rosin and Stockton tar in equal proportions, or of 1 cwt. of rosin and mineral tar in equal proportions, 1 cwt. of fine grit, 8 lbs. of sulphur, and from 4 to 5 lbs. of cork cuttings or raspings, the whole being compounded in the manner before directed, to be followed in the preparation of the other cements, and thoroughly incorporated together. While yet hot, this compound is removed from the caldron and formed into sheets, by subjecting it to strong hydraulic pressure between plates of iron perforated with numerous holes, and having also channels or grooves in them, in order that any liquid matter squeezed out by the pressure may run over at the sides and ends. The sheets, when intended for roofing, should be reduced by the pressure applied to about one-fourth of their original bulk, say from 4 inches to 1, and should be coated with some anti-igniting substance or composition. Where greater strength is required, each sheet may be covered with canvas or paper cemented to it, by any of the compounds, 1, 2, 3, or 4.

The specification of the patentee explains also how the material, in one or other of its several varieties, may be applied to the formation of pipes, casks, tanks, cisterns, garners, railway sleepers, &c.

ARCHITECTURAL MEMS. FROM THE COUNTRY.

The Manchester Exchange-room is about to undergo very considerable alterations. The present room contains about 699 square yards, and, when completed as proposed, will possess an area of 1,414 square yards. A portico fronting Bank-street is to be erected, to consist of a lofty colonnade of eight pillars, supporting a massive pediment. The design is by Mr. A.W. Mills.——The Trinity House board have determined upon erecting a lighthouse at Trevose head, in the parish of Padstow, Cornwall. A road is already being prepared for the conveyance of materials to the spot.——A subscription for erecting a church for the Tewkesbury-road district, in Cheltenham, has reached the sum of 1,500*l.* An additional 500*l.* is required to carry out the work.——The small old chapel at Birch, in the township of Rusholme, near Manchester, having been found inadequate to the accommodation of the growing community in that district, the proprietor of the estate, J. W. H. Anson, Esq., in conjunction with his brother, the Rev. George Anson, has determined on building a good church in its stead, towards which Mr. Anson has given 200*l.* and the land, and also land for a churchyard, and the Rev. G. Anson has contributed the munificent sum of 2,000*l.* In aid of these sums a grant of 500*l.* has been made by the Manchester and Eccles Church Building Society. The site selected for the church is about twenty yards to the east of the present chapel. The church will be in the early English style of architecture,—that which prevailed about the middle of the 13th century. ——At Bury St. Edmund's, the spirit of improvement has suggested to the inhabitants the restoration of their fine old Norman tower. A committee has been formed for the purposes of obtaining from Mr. Cottingham plans and specifications for the necessary works, and of inviting builders to make tenders for carrying the same into effect.——Three new churches are about to be erected at Birkenhead; one at the sole expense of William Potter, Esq., to be dedicated to St. John the Baptist; the second at the sole expense of William Jackson, Esq., to be dedicated to St. Andrew, and the third at the joint expense of Messrs. W. Potter, W. Jackson, John Laird, Macgregor Laird, and W. Laird. The site selected for the last-mentioned church is on the corporation road, in the vicinity of Wallasey-pool.——Considerable improvements have recently been effected by the removal of an accumulation of earth from the basement of the north and south sides of Peterborough cathedral. This had been for some time a growing eyesore to the admirers of the architectural beauties of this venerable pile. The fine Norman door is now seen, as no doubt it was originally intended, but which has for some time been in a great measure hid by this earth.——On Wednesday, the 21st inst., the opening took place of the Victoria schools erected at Chesterfield in commemoration of the Queen's passing through that town on her way to the seat of the Duke of Devonshire, at Chatsworth. The building is in the Elizabethan style, and capable of accommodating about 600 children. —— At Bridlington, in Yorkshire, efforts are being made by the directors of the Mechanics' Institute to raise a sum sufficient for the erection of a lecture

room, &c.; 200*l.* have been already subscribed, and there is no doubt but the sum will be considerably augmented. —— At Melpash Green (midway between Beaminster and Bridport) the foundation stone of a new church was laid last Thursday week by the Hon. and Rev. Somerville Hay. It is to be 109 feet long, 60 feet wide, and to have a steeple 60 feet high, with five bells therein. It is estimated to hold 400 persons. Mr. B. Ferrey, of London, is the architect.——It is in contemplation to make the village of Hunstanton, in Norfolk, a very attractive and convenient place for seaside visitors, by appropriating some portion of its celebrated cliff and the fields adjoining to the formation of a village, with an hotel, bath-house, library, shops, and other buildings necessary for the establishment of a sea-bathing place. In the arrangements of the plan a site for a chapel is to be reserved, and a pleasant walk formed to the chalybeate spring, which is within a mile of the village. —— The committee for the formation of public parks and play-grounds in Manchester have purchased Endham Hall estate, at Harpurhey, the residence of Mr. Jonathan Andrews, for a sum of 7,250*l.* A few weeks ago they purchased the Lark Hall estate, in Salford, from Mr. Wm. Garnett, for 7,000*l.*; and we believe these two properties will be laid out as parks, and ready for occupation in the course of a few months. —— His Grace the Duke of Cleveland has given 100*l.* to the schools about to be attached to the collegiate church, Wolverhampton, and become a subscriber of 20*l.* per annum. —— A meeting of the committee for promoting the establishment of public baths and places of recreation at Birmingham, was held on Tuesday week, when it was resolved that steps should be immediately taken for the erection of two sets of baths.——The restoration of St. Mary de Crypt Church, Gloucester, is to commence forthwith, the sum of 1,450*l.* having already been subscribed.——The Bishop of Durham has contributed 500*l.*, and the Rev. George Fielding, the incumbent, 100*l.*, towards the enlargement of St. George's Chapel, Bishop Auckland.——The Collegiate School at Marlborough increases so rapidly in favour with the public, that it is found necessary to make very extensive additions to the buildings, without delay. The suite of rooms appropriated to the accommodation of the head master has been made ready for the reception of additional pupils; and amongst the additions now contemplated, a suitable residence for that functionary will be erected. The number of pupils at present in the establishment is upwards of 200, and the applications for admission are very numerous.——Dr. Warneford, who has already expended 7,000*l.* in the erection of charitable institutions in Birmingham, is now making arrangements for laying the foundation for a House of Recovery for persons afflicted with contagious diseases. Earl Howe has also subscribed 50*l.* for the same object.—The Rev. Dr. Warneford has just paid over to the Rev. Chancellor Law, the Rev. Vaughan Thomas, and William Sands Cox, Esq., his munificent donation of 500*l.* towards the additional building at the Queen's Hospital.—— At a preliminary meeting held at Dee's hotel, Birmingham, last week, it was resolved to establish a public cemetery, for the town and neighbourhood, in connection with the Established Church. The proposal has received the sanction of the Bishop of the diocese, and the principal church authorities of the town. ——The old houses at the west end of St. Peter's Church, Sudbury, are now levelled to the ground, this labour of many years having been completed last week, when that fine ecclesiastical edifice, so long encumbered by the encroachments of a tasteless age, was once more displayed in all its fair proportions. The church now stands entirely clear of all obstructions in the middle of the area; but the removal of these obstructions has disclosed the barbarous manner in which parts of the windows have been blocked up, and the ornamental work has been defaced; and a large sum will be necessary for its complete restoration.——A company has been formed for the purpose of erecting a landing-pier and slip, at Weston-super-mare, in the Bristol Channel. The pier is to be of solid masonry, commencing from the junction of the Knightstone-road, continuing in a north-west direction to the Isle of Bearnbeck, passing over the island and extending into the channel to dead low water, the whole length being little short of a mile, and of the width of 30 feet throughout. The approach from the channel will be at all times at a depth of water sufficient to insure the safe landing of passengers, being at lowest point not less than 18 feet, and will give a safe, speedy, and cheap mode of communication to parties visiting or trading to the western, Welch, and Irish coasts. It will be so constructed as to afford a delightful promenade to visitors and inhabitants. The engineer is Mr. Daniel Horwood, of Bristol.

THE IRON TRADE.

The reduction of 2*l.* per ton in merchant-iron, announced in our impression of this day fortnight, has been general throughout the South Staffordshire district. The present price is probably not higher than can be steadily maintained until some of the heavy orders for rails are cleared off. The speculation in pig-iron in Liverpool received a very serious check during the past week. Many of the needy holders have pressed sales, and large parcels of Scotch pigs have been offered at 75*s.* per ton. Early in March, purchases were made at 110*s.*, and none of the makers would take orders under 120*s.*

The feverish state of the present year's market is expected to occasion the iron trade a permanent injury, from the fact that the Americans are now strenuously endeavouring to produce more iron. The produce of iron last year in the States amounted to 500,000 tons; the estimate for the present year is much larger; and in ten years it is calculated that the make will reach a million of tons, unless the fall in prices in Great Britain should be such as to render it cheaper for the Americans to purchase our produce than to manufacture for themselves.

A correspondent of the *Glasgow Herald*, who we are given to understand has good means of obtaining accurate information as to the present and future prospects of the iron trade of Scotland, says that the quantity of pig-iron made at preseut in Scotland will amount annually to from 400,000 to 420,000 tons. Of this quantity about 100,000 tons are used for the manufacture of malleable iron in Scotland; of the remaining 320,000 tons, 50,000 tons, or thereabouts, turn out to be what is called white or forge pig, which is not used for making castings, so that the present annual production of pig-iron in Scotland, suitable for foundry purposes, is 270,000 tons. There are ten new furnaces in the course of erection, some of which may be in blast this year. These furnaces belong to the present manufacturers of iron, and, when all in operation, will add about one-eighth to the present production; but, as the manufacture of maleable iron is on the increase in Scotland, a large additional supply of pig-iron will be required for this purpose. It is obvious, therefore, that the statements which have recently appeared, as to the increase in the make of pig-iron in Scotland, are incorrect; and it must be kept in view that, while the present makers are erecting new works, the produce of the older ones must decrease, in consequence of the exhaustion of the mineral fields on which they depend for the supply of materials.

To Cure the Diseases which arise from the Use of Lead in certain Trades. — Take two baths of soap and water every week, occasionally adding a little sulphur, and carefully wash the uncovered parts of the body with soap and water at every interval between your working hours. You must drink one or two glasses of lemonade, made with sulphuric acid, every day, according to the greater or lesser quantity of dust or poisonous vapour with which the surrounding atmosphere may be charged. At the same time you should be more careful than the followers of any other trade, to abstain from the use of spirituous liquors. The efficacy of this preventive treatment is easily explained by the fact, that the mineral poison absorbed is thus converted into a soluble, and therefore innoxious salt (sulphate of lead), and the saturnine particles deposited on the surface of the body are taken away.

BRITISH ASSOCIATION FOR ADVANCEMENT OF SCIENCE.

There seems every reason for believing that the approaching meeting, to be held in Cambridge next month, will be brilliant and successful. A local subscription has been commenced with good spirit to defray the expense of the requisite preparations for receiving the association, and all the necessary arrangements are in progress. The attendance of distinguished foreigners is expected to be great. A programme has been issued to members, from which we learn that the general committee will meet on Wednesday, the 18th of June, at one o'clock, for the election of sectional officers, &c. From Thursday, the 19th, to Wednesday, the 25th of June, inclusive, the committees of sections will meet daily at ten precisely; and the sections will meet from Thursday to Tuesday at eleven precisely. General evening meetings will be held on Thursday, the 19th, and Wednesday, the 25th, at eight o'clock. A room will be provided for the reception of philosophical apparatus, and specimens of natural and artificial products, which may be brought for the purpose of illustrating particular communications, or for exhibition to the members generally. We would remind the public of what the Dean of Ely stated in the Town-hall, namely, that persons may be admitted to the sectional meetings *only*, on being nominated in writing by a member, and paying 1*l.*, and that ladies' tickets may be had, through the application of a member, on payment of the same sum. Strangers need be under no sort of apprehension on the subject of lodgings: accommodation will be secured for them by the committee at a perfectly reasonable rate.

One of the local papers says, "Extraordinary as the statement may appear, we claim credit for entire accuracy when we state that the Town-hall of Cambridge is undergoing a process of cleaning and smartening-up. The presenting of such a miserably shabby old place to the members of the British Association would have been a disgrace which Cambridge, we are glad to say, is now likely to escape. The plasterers, carpenters, and painters are hard at work, uniting their efforts to make the place presentable, and in a week or two its most intimate friends will scarcely recognize it."

Correspondence.

BRICK AMATEURSHIP.

"Quot Homines, tot sententiæ."

Sir, — Your correspondent, "Mr. John Phillips," is a thorough English amateur of *brickwork*, with all its "reticulated or decussated pieces of work, with interstices between the intersections," as Dr. Johnson has said on another occasion: but lest all the world in such case should be thought to let judgment go by default, because they do not offer any opposing opinion, I beg to say, as one of the architectural and fine-arts-loving public, that to *my* eyes nothing more outrages good taste and deforms English towns and English landscapes than these structures of brick-building amateurs, whose deformities in *blazing red*, *dirty yellow*, or *plastery white*, destroy the picturesque in city, town, or country; and though I do not rejoice in *unsound walls*, yet I think it quite compatible *with* sound work to employ stucco, where marble or stone is precluded from necessary views of economy; and I hope and trust the day is fast arriving when people will only let brick walls be seen where they can afford to have nothing better.

Hoping to find more "sympathisers" on *my* side of the question than that of your worthy correspondent "Mr. John Phillips,"

I am, Sir, &c.,

W. Mason.

CEMENT ON IRON.

Sir,—I shall feel greatly obliged to any of your correspondents who will inform me of the best cement I can use for running mouldings on iron girders; I am afraid to use plaster of Paris for fear of corrosion.

I am, Sir, &c.,

Worcester. Subscriber.

Miscellanea.

MOVEMENT IN SOCIETY OF ANTIQUARIES.—At a meeting held on the 22nd inst., Dr. Bromel, in order to induce stricter attention to the business of the society than has latterly been given, handed in a draft for a new statute, enacting that the council shall meet at a certain hour of one fixed day of every month the first Tuesday for example), and that it shall not separate except by a vote of two-thirds of the members present. We are glad to find that the remarks which appeared in our last and a former number, have been received with the same kind feeling with which they were written. All agree that something must be done to meet the times and prevent disruption. One of the first steps should be to make the library useful to the members, and facilitate access to it. At present it is very nearly useless.

CHURCH DECORATIONS.—The Bishop of Norwich, in his charge delivered lately at Woodbridge, says, with regard to this subject, that—"He admired the motive of those who ought to repair the ruined and dilapidated condition of those venerable places of worship, many of which were utterly unfit for the sacred purposes to which they were devoted. In this, the advocates of a less-enlightened region had displayed a zeal which those who boasted of a purer faith might have done well to avoid. He could not exactly comprehend the arguments of those who could oppose the development of their acquirements to their fullest extent in the service of Him from whom they derived their talents. On that ground he would encourage the taste for decorations, whether external or internal. Who could behold without gratification the finest specimens of art, whether architectural or pictorial, or regard without pleasure the productions of the painter or the sculptor, and not feel that religion had patronised these sister arts? There was, he admitted, an antiquated objection to such decorations, because they had formerly been the objects of superstitious worship. In a previous age, when men's minds were under the control of superstition, when they were enslaved by the priesthood, such an argument might have had some weight; but in the present more enlightened era there was little foundation for such apprehensions. The friends of the Protestant church might now look without danger upon what had been once dangerous, and they should have no sympathy with the spirit which went forth as the destroyer of all that was beautiful.

WELSH LEAD MINES.—English manufacturers derive great benefit from the Welsh mines; it is from the purity of the galena of lead ore, purer in Wales than any other, that the Staffordshire pottery has maintained its superiority in foreign markets, as it produces a better glazing, and makes a more beautiful porcelain than any other. Wales is rich in fossiliferous marble,—the carbonate shell marble of South Wales, and the encrinitic of North Wales: the serpentine of the Rhos Kolin is equal to the verd antique of Genoa. It is not generally known that schools of metallurgic chemistry existed in Wales before the wars of Edward the Third: the college of Pherillt, in Llanaron, on Mount Snowden, was celebrated as a school of this order that gave the British name of Celvydda Pherill to these arts; they were in possession of eminent books on these sciences, now lost. Another school of this order was founded in South Wales—a branch from Dinas Emrys.—*Chester Chronicle.*

BAZAAR AT COVENT GARDEN.—The free trade bazaar having closed, the directors invited a large body of their friends to a musical promenade on Wednesday evening last, and provided them profusely with amusement and refreshments. We should not consider it our province to speak of the occurrence (admirably managed as it was), but that it gives us the opportunity of directing attention to the beautiful specimens of cast-iron from Colebrook Dale, which were exhibited and which equalled many French bronzes sold at three times the price. The Art-Union of London, who have materially assisted to advance the production of bronzes in this country, and are now about to aid the porcelain manufacture, would do well to turn their attention to these castings in iron, and to give those who have produced them, a commission for the purposes of the society.

NEW PAVEMENT.—The surveyors of Manchester have recently laid down, in Hanging Ditch, a novel kind of pavement, or rather a combination of macadamised stone, profusely intermixed with asphaltum. A local paper states, that from the time it occupied in its formation—twelve days and nights— it ought to be a really durable job: whether it will prove so, time alone can tell; but the expense has, no doubt, been much greater than the ordinary pavement would have been. The street has already attained great firmness and solidity.

Tenders.

TENDERS for finishing 12 third-rate Houses at Sherbourne-street, Hoxton, under Messrs. W. Waller and Son, Architects.

Turner	£3,365
Trego	3,230
Jay	3,197
Lawrence	3,118
Haines	3,079
Ashby	2,998
Wilson	2,932

Tenders delivered for sundry repairs to the new Gravel-pit chapel, at Hackney, Mr. R. W. Wright, surveyor.

Weston	£256 10
Shewin	224 5
Norris	197 0
Burford	185 0
Lloyd and Parker	170 0
Heath	153 5

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the erection of the Borough Gaol, Birmingham.

For the performance of the necessary works in the construction of a New Dock in the Borough of Kingston-upon-Hull.

For a quantity of *proof chain* 2⅜, 1⅞, 1, ¾, and ½ inch, wanted by the Universal Salvage Company.

For Building the Carcasses of certain first-rate Houses, with Shop Fronts, in the new line of Oxford-street, leading into Holborn.

For executing Works on the Leeds, Dewsbury, and Manchester Railway, being a distance of about 4½ miles. The principal work on this division is the summit Tunnel, near Morley, which is upwards of 3,000 yards in length.

For supplying the trustees for repairing Grosvenor-place, and the squares and streets adjacent, with the best Pit Flints, Kentish Rag-stone, Pit Gravel, Chalk, Aberdeen Granite Kerb, York Paving and Guernsey Granite, &c.

For building Two National School Rooms, at Saffron Walden, Essex.

For the erection of Schools, and a Master's House, and also a new Farm-house and Offices, on the Estate of the Rev. E. K. Benyon, near Bury St. Edmunds, Suffolk.

For constructing about 450 feet of new Wharf, along the River-side, in the Town of Wisbeach, and for erecting a new Crane and Warehouse for the Corporation of Wisbeach.

For the erection of Farming Premises, at Bradfield Combust, near Bury St. Edmunds.

For supplying, laying down, and bedding, in proper Mortar, any quantity that may be required, not being less than 1,000 feet run of Aberdeen Kerb, 12 inches by 8, and not less than 7,000 feet (super.) of York Paving, two and a half inches thick, for the Commissioners of the Kentish Town District.

For supplying the Commissioners of Kentish Town District with Materials for Road-making.

For the Repairs to the South Aisle, Roof, &c., of St. James's Church, Bury St. Edmunds.

For Building a Sewer in the King's Road, St. Pancras, of the dimensions of 4 feet 6 inches by 2 feet 9 inches, for a length of 250 feet.

For the supplying of certain Mines in Cornwall, for twelve months from Midsummer next, with Norway Timber, half Dram and half Longsund, of good quality and average length. The probable quantity required is 710 loads.

For Lime-washing and Plastering (when required) twice in the year, the interior of the Union Workhouse, Long Ashton.

COMPETITIONS.

Plans, sections, and elevations for a Terminus, and other requisite accompanying offices, for the Great Southern and Western Railway, Ireland.

A premium of 30 guineas will be presented to the party offering the best plan of Docks, capable of admitting ships of 1,000 tons burden, to be erected at Burnham, in the Bristol Channel.

Designs for houses to be erected at Dover. The ground is nearly seven acres in extent, and lies on a gentle slope between the south-west boundary of Dover Castle and the town. A premium of fifty guineas is offered for the set that may be most approved of.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

The timber and other trees now standing upon the estate at Woodseaves, Salop. By order of the Lord Chancellor made in the cause "Dickin *v.* Barker."

At Eversden Wood, Cambridge: 80 Oak Timber Trees, clean, sound, and of useful dimensions.

At Bourn, Cambridge: a capital Fall of prime Oak Timber, comprising about 100 Trees of good dimensions.

At Monk Sherborne Brick Kiln, Basingstoke, Hants: upwards of 200,000 new Building Bricks, 40,000 Arch ditto, 25,000 Tiles, &c.

At Brandon, near Coventry: several Thousand prime Oak Trees, and a quantity of Planks and Quarterings.

At Winston, near Debenham, Essex: 400 feet 1½-inch Elm Plank, 400 feet 1½-inch Ash ditto, 800 feet 2 inch, 2½-inch, 3½-inch, and 4-inch ditto, 21 4-inch Beech Planks, 180 feet Sycamore Quarters, &c.

At Eversden Wood, Cambridge: 110 capital clean Oak Timber Trees; all lying close to good roads, and are very long, straight, and clear.

At Bourne, Cambridge: 63 Oak Timber Trees; many of them are of very excellent quality, of great length, and particularly clean and straight.

At Waybridge Wood, near Ellington: a considerable fall of Oak Timber in Honey Hill and Lower Woods: the whole being of large dimensions and excellent quality.

At Halstead, Essex: a quantity of capital Oak Timber, &c., in Great Spansey's Wood, near Halstead.

At Richardson's Wharf, Limehouse: a large quantity of superior dry and sound stock of Dantzic Yellow and Red Pine, Ash, Swedish and Memel Timber; about 10,000 White Spruce and Yellow Battens, &c.

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At Little Bentley Hall, Essex: several Acres of Plantations, consisting of superior Firs, Larch, Spruce, &c., to be taken down by the Purchaser.

TO CORRESPONDENTS.

"F. T. D."—*Accepted with thanks. Will our correspondent prefer that his name, or initials, should appear.*

"Ashstick and hide 'em."—*Funny, but useless.*

"H. Johnstone."

"John Kelly."—*The sketch sent has hardly sufficient character to induce us to engrave it, but we shall be very happy to receive the promised article. The round towers of Ireland have much interest.*

"A. B." *may obtain the information he seeks at the rooms of the institution, 25, Great George-street, Westminster.*

"J. F. B."—*We know no better "glossary of terms used by architects" than that in Gwilt's "Encyclopædia of Architecture."*

"W. P. G."—*What our correspondent refers to was but a* suggestion; *if it should become a* probability, *he shall hear from us.*

"Society of Antiquaries."—*Correspondents on this subject will find, on consideration, that violent attacks are at present uncalled for, and would be unwise.*

"X. Y. Z."—*The object of "J. F.'s" letter was not to question "Mr. Thompson's" accuracy, but to learn if any hagioscopes of the Norman period were known.*

"Roof covering in America."—*In reply to an inquiry for a good and light material for this purpose, "J. R." recommends Morewood's patent galvanized* tin.

"G. Collier."—*One air-tight tin box, of the size and weight stated, would float about 400lbs.*

"Archi." *next week.*

Received — "The Commonweal," No. 1.—"J. E. G." (Hackney).

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, June 2.—*Entomological*, 17, Old Bond-street, 8 P.M.; *United Service Institution*, Whitehall Yard, 9 P.M.

TUESDAY, 3.—*Linnæan*, Soho-square, 8 P.M.; *Horticultural*, 21, Regent-street, 3 P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.

WEDNESDAY, 4.—*Society of Arts*, Adelphi, 8 P.M.

THURSDAY, 5. — *Royal*, Somerset-house, 8½ P.M.; *Antiquaries*, Somerset-house, 8 P.M.; *Zoological*, Hanover-Square, 3 P.M.

FRIDAY, 6. — *Royal Institution*, Albemarle-street, 8½ P.M.; *Botanical*, 20, Bedford-street, Covent Garden, 8 P.M.

SATURDAY, 7. — *Asiatic*, 14, Grafton-street, 2 P.M.

ADVERTISEMENTS.

ROYAL POLYTECHNIC INSTITUTION.—The ATMOSPHERIC RAILWAY exhibited by a Working Model, having a power to carry visitors. A CURIOUS MECHANICAL HAND on a person who has lost his natural hand. Dr. RYAN'S LECTURES on the CHEMISTRY of DOMESTIC LIFE daily, at a quarter past Three, and on Wednesday and Friday evenings at a quarter to Nine. Professor BACHHOFFNER'S varied LECTURES with brilliant Experiments. Lectures on Character, with Musical Illustrations, by Mr. J. Russell, accompanied by Dr. Wallis on the Piano-forte, on the evenings of Monday, Tuesday, and Thursday, at Eight o'clock. New and beautiful objects in the CHROMATROPE, PHYSIOSCOPE, PROTEOSCOPE, &c. NEW DISSOLVING VIEWS. SUBMARINE EXPERIMENTS by the DIVER and DIVING BELL. Working Models described daily.

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THE BOTANIC GARDENS and WILDERNESS of this celebrated Domain will be OPEN for the admission of the Public, during the Summer season, on MONDAYS and THURSDAYS. Tickets of Admission, ONE SHILLING each person, and Family Tickets, to admit eight, FIVE SHILLINGS, may be obtained of Messrs. Scott and Moffatt, Architects, 20, Spring Gardens; of Mr. Frederick Chinnock, Estate Agency Office, 28, Regent-street; at the Offices of "The Builder," No. 2, York-street, Covent-garden, and "The Gardener's Gazette ;" of Messrs. Richards and Rogers, Solicitors, 10, Friar-street, Reading; and at Mr. Welch's, "Berks Chronicle" Office, 12, Market-place, Reading.—Day Tickets to Reading are issued by the Great Western Railway.

PATENT HANDRAILS. — J. MELVILLE, after upwards of Twenty Years' experience in the Manufacture of the above, can now, with confidence, recommend them to Architects and Builders, combining Beauty and Durability; avoiding heading joints, and the grain of the wood continued throughout the wreathed, or otherwise circular parts. They are now patronised by the most eminent Architects, to whom reference can be given.—Specimens and prices sent to Architects or Builders, in Town or Country. Columns Veneered, Pew Capping, &c.—No. 64, John-street, Fitzroy-square, London.

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TO ENGINEERS, ARCHITECTS, AND BUILDERS.

PATENT METALLIC SAND CEMENT. —The Metallic Sand, from its chemical qualities, forms, when mixed with blue lias lime, a metallic cement of great strength and density; the iron, which is one of its principal constituents, combining with the bed in which it is deposited, and communicating to it a greater degree of hardness than can be obtained by admixture with any other known material. Concrete and mortar in which the metallic sand has been used are more durable than any other, continuing to indurate with time, and not being affected by damp, otherwise than by increasing in hardness from the oxydation which is thereby occasioned. Employed as a cement to turn water from brickwork in tunnels, sewers, and other underground works, the Metallic Sand is found cheaper, and from its eminent adhesive qualities to form a more solid and hydraulic body, in combination with the brickwork, than any other cement at present known; and in all cases the Metallic Sand is found the best substitute for pozzolano that has ever been presented to the public. As an external stucco, the Metallic Cement assumes a rich stone-colour without the aid of paint or tint of any kind, does not vegetate, and is entirely free from cracks and blisters, and continues to improve both in appearance and durability by exposure to the weather. The Proprietors refer with confidence to works in which the Metallic Sand has been extensively employed as concrete and mortar, specified in the prospectus, where also will be found references to very extensive erections which have been stuccoed with the Metallic Cement.

Further information will be given, and specimens shewn, on application to Mr. C. K. Dyer, 4, New Broad-street; and at the Metallic Cement Wharf, King's-road, opposite Pratt-street, Camden New Town.

KEENE'S PATENT MARBLE CEMENT.—The Patentees of this composition beg to refer to the British Museum, the Royal Exchange, the new works at Bethlem Hospital, Greenwich Hospital, and the Coliseum in the Regent's-park, as buildings finished or in progress, in which Keene's Cement has been used as an internal stucco. Its superiority to common plastering consists in its extreme hardness, and the rapidity with which it dries, which qualities fit it to receive paint or other finishing sooner than other water Cement.

When employed for skirtings, architrave, and other mouldings, in place of wood, it checks dry-rot, is impervious to vermin, prevents the spread of fire, and is more economical in its application than the material for which it thus becomes the substitute.

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The high polish and marble-like hardness of which this Cement is susceptible render it the most suitable material for the manufacture of Scagliola.

Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

Depôt in Liverpool, 36, Seel-street; James Woods, Agent.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

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JOHNS and CO.'S PATENT STONE-COLOUR STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the suction, thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, produceable by no other Paint whatever. It is cheap in its application,—and may be used by any Painter, in any climate, even in the most exposed Marine situations.

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THE ART-UNION, Monthly Journal for June, contains a Critical Notice of the Exhibitio of the Royal Academy, with Remarks on between four an five hundred of the Works of Art therein contained, an serving as a Guide to the Visitor.

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The Builder.

No. CXXII.

SATURDAY, JUNE 7, 1845.

HEN fatally destructive fires occur, such as those which during the last ten days have violently excited London, much is said about precautions and preventives; fire-gines are put into working order, and fire-apes are shewn to answer perfectly well en applied experimentally, coolly, and quietly a house not in flames. In another week greatest apathy prevails, and continues till destruction of more lives and property in causes some excitement on the subject, temporary, however, as that which pre-ed it.

And all this time, even when fire-escapes are st talked about, and men, till that time im-vident, are rushing to insurance-offices to vent loss of — money, we continue to build ses *as if to burn*,—houses without a single ans of egress besides the door,—houses of h a construction that, if once on fire, the nces are a hundred to one that all the in-or *must* be destroyed.

The *application* of advice and moral precepts ms little regarded: "Thou art the man," st be whispered in our ears many times ore we see the personal value of the lesson. at a similar event to that of which we have lored the consequences in the family of ther may happen to us, seldom enters our d or leads us to adopt preventive measures. he outlay for the latter is certain, though ll; the danger, though great, is supposed to loubtful, and the majority are willing to de-d on the doubt.

ld Sir Henry Wotton says, "Every man's er mansion house and home, being the ter of his hospitality, the seate of selfe-tion, the comfortablest part of his owne the noblest of his sonnes inheritance, a le of private princedome; nay, to the pos-ors thereof, an epitome of the whole world; well deserve by these attributes, according e degree of the master, to be decently and htfully adorned." Even much more so, ever, ought it to be rendered SAFE, to the nt of his power, so that he may retire to without fear of being buried in its ruins rnt in his bed.

or many years writers have urged the im-nce of rendering buildings fire-proof, but to this time nothing has been effected. nt d'Espie's essay, "Manière de rendre s sortes d'Edifices incombustibles; ou, té sur la Construction des Voutes, faites l des briques and du plâtre, dites voutes s; and d'un Toit de brique, sans char-, appellé Comble Briquetè,"* has given a to modern architects in another respect, as not led either to the adoption of the he proposed or of any better. A writer 75, in a pamphlet called "Various Me-to prevent Fires in Houses and Ship-" says,—

s the city of London is so famous for erce, and merchants of experience and ility, they ought to shew an example to places to keep up their fame, honour, redit in every thing that is convenient legant relating to trade and navigation. Amongst such a number of gentlemen, learned and experienced architects, ingenious builders and craftsmen (who have both increased and improved the buildings of this metropolis beyond the common thoughts of men and the romantic ideas of imagination, where no expense is spared by our nobility and gentry to improve the plan), decorate the building and furnish the apartments, so noble, beautiful, and magnificent, far surpassing the very fancy and fairy-tale romances of our venerable fore-fathers.

But so strange and unaccountable are the little frailties of human nature, after all these expenses, decorations, and magnificence expended on the costly edifice, among a society of men, so sensible, learned, and ingenious in their several professions, there never was a single idea, or the plan of an hour's thought adopted, to secure the building or the family, who were continually surrounded and living in the middle of combustible wood, from falling a sacrifice to the most trifling accidents of fire; which building and family lieth every night in the year at the mercy of a drunken fellow, with the snuff of a candle, a handful of shavings lying in a bye corner, a little thoughtless boy and girl, or a sleepy servant-maid drying linen at the kitchen fire, besides many malicious accidents, to be entirely burned down and consumed before the morning. Many people wonder that a strong-built house should be so easily consumed; but this wonder ceases when they consider that every thing about us is liable to catch fire; our houses are floored, our rooms partitioned, and the roof covered with fir, a wood full of turpentine, and enriched with two or three coats of painting in oil; besides all our furniture naturally made of wood, without the least material or contrivance to check its fury or prevent its rapid progress in the apartments, or to give us half an hour's warning to consult our reason or friends how to act with safety, in these pressing moments, against such a furious, merciless enemy. These are plain convincing proofs, that the master of every house and family, great or small, in town or country, should endeavour to make use of every precaution that art and nature can furnish to secure himself, his family, and substance from falling a prey to fire, or the sad misfortunes attending fires, to guard against these terrible accidents with all the care and thought of human prudence, to make us and our families live and sleep with safety in our houses, without the fear and dread of falling a sacrifice to these momentary accidents."

The same writer proposed that iron plates should be nailed on the ceiling, doors, and sides of the room, especially on the partitions where lath and plaster are usually fixed. He further suggested that *tiles* might be used for the partitions and floors, instead of iron plates.

Various solutions have been proposed to render woodwork fireproof, and more recently iron joists, plates, and roofs have been invented and are—not used. Even the most simple preparation for escape by the roof is, in many cases, not made; and where it is practicable, so little thought is given to it, that in the event of accident, the means of getting to it would be found wanting in the majority of instances.

The *Examiner*, in an article on this subject, suggests that a sure and easy escape from every floor in *rows* of houses, may be obtained by means of balconies to bed-rooms fronting the street, as well as to drawing-rooms. "In the event of fire the weak and the aged would only have to step out on their balconies, and to pass over to that of the next house, with as little difficulty as getting over a stile. But then the objection is started, that such a mode of communication might be used for improper purposes. The drawing-room balconies, running contiguous, as they do in many streets, might be so used now; but it is not found that they are so used. The communications over the house-tops allow of abuse, but no inconvenience is experienced. A Pyramus and Thisbe might certainly make balconies dispense with a hole in the wall; but the question is, whether the danger of easier access by gallants here and there, or the danger of death by fire is the greater evil? 'Where there's the will there's the way.' If people have resolved to come together, it will not be the want of a communication by a balcony, or the existence of it, that will determine the result; and we repeat that, to the extent to which such communications now exist—the space of a foot or two between not making a separation except to the eye—they are not found to be attended with any inconvenience to privacy or detriment to morals. On the other hand, there is to be considered their service to humanity, as the easiest and surest fire-escape. With balconies to the second-floor rooms of the generality of London-houses, the means of escape would be sufficient; the third floor, or the garrets, having the escape by the roof. Considering the common danger of fire, the great dread of it, and the deficiency of contrivances for escape, the expedient we suggest is entirely deserving of consideration."

What we are anxious to urge, however, at this moment is, the *prevention* of fire rather than the means of escape from it,—the avoidance of the immense annual loss to the community caused by its ravages, and the amount of suffering and degradation which follows. The subject calls for the most serious consideration of all who dwell in this "huge city of tinder-box habitations," and involves a number of points which we shall hereafter discuss.

As regards public buildings and edifices wherein large numbers of persons are brought together, no words are too strong to be used in condemning the want of provision in this respect. Hospitals, union workhouses, and other similar structures should invariably be made incombustible to the greatest practical extent. The new Buildings Act wisely provides with regard to these, and other public buildings within its jurisdiction, that the floors of the halls, corridors, passages, stairs, and landings, and all other ways of ingress and egress within the building, to and from all rooms or apartments used for public congregation, and all galleries connected with such room or apartment, must be wholly supported, made, and finished fire-proof. This will increase the chance of escape for the inmates; but we hope before long to see such a system of construction adopted, at all events in public buildings, as will render a general conflagration impossible.

We refer our readers to a communication on the same subject in the following page.

AERIAL TUNNEL OVER THE MENAI.—The project noticed at page 237 *ante*, to throw a hugh tube composed of sheet-iron across the Menai Straits for the transit of a railway train, has, we understand, been abandoned, owing doubtless to the probable disastrous effects of a gale of wind pressing upon such an extent of surface as so large a tube would necessarily present. It is in contemplation, we believe, to erect in its stead two bridges of solid construction, both of them uniting on the Britannia Rock, and to throw out piers from each side of the straits.

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blished at Paris in 1754, and immediately afterwards don, as translated by L. Dutens.

THE LATE CONFLAGRATIONS IN EUROPE AND AMERICA.

BY J. L——Y.

"Thoughts must be—thought."

HOWEVER absorbed—nay dissolved men of the present age may be in matters of *immediate* and momentary import; still, the Royal Exchange, the Houses of Parliament and the Tower—Hamburg in fine, and Pittsburg, must startle the most placid and languid mind; events, to which the latest awful loss of life in Dover-street (and one year previous in Oxford-street), form not less pitiful appendages. If such (material) losses of property, were to be considered merely in their *material* bearings — which, however, is always wrong — we might say, *fifty millions* sterling have, in these instances, been burnt, and if, say, a gold mine, or gold mines might have been discovered contemporaneously with these events—well, then the losses would have been *repaid*, restituted. But such is *not* the case. Such conflagrations entail not merely material, but *moral* and *social* evils of the greatest import—and it is the duty of the "science of public architecture" (*Staat's - Architektur*), as well as other branches of public good, to consider these events attentively, and to devise, if possible, means against their recurrence. Amongst the moral and social evils, concomitant of such awful catastrophes, are to be reckoned—the loss of careful and loving parents and guardians, the interruption of education and domestic habits of a number of children—in fine, *all* the numberless evils following a more or less protracted existence of poverty, discomfort, disorder. Alluding hereby chiefly to the case of Hamburg and Pittsburg (at which latter place alone *forty millions* of dollars of property were consumed) — we may be told, that these cases are so *distant*, either in time or space, that they hardly deserve attention. How much, however, would that man have deserved, who would have written thus—at Pittsburg, *before* it was burnt! God forbid, that we should wish to portend any such catastrophe to any place in these realms, or elsewhere. "*As long, however, as the same causes exist, equal effects may be anticipated, or at least apprehended.*"

To speak boldly and unflinchingly—the main cause of all these (*material*) catastrophes, is the material tendency and belief of the age. We grasp at nothing but immediate, momentary enjoyment; and, therefore, it *is* so as we wish it to be—immediate *but* momentary; without any sure and safe basis, save its insecurity. As *archi*-tecture, however, is an important radius of this, or any other social and civilized condition—it is in its restoration, *regeneration*, that a more stable, sounder, securer state of society is also to be sought for. Let those who *study* (!) architecture, look at the work of Antonio Bosio — *Roma sotterranea*. Why, they will see that the *great sewer* called *Cloaca maxima* has been built by those sinewy ancient Romans with a greater degree of strength and solidity, than we moderns give (aye, and ever can give) to our royal palaces. Such really are (to approach near Pittsburg and Hamburg) the *Doganas* and *Alfandegas* of Genoa, Venice, Lisbon, &c. But we moderns take a *slate*, and calculate thereon our seven per cent., or nine and a half per cent., as the thing most essential. And then we call for some cobbler or botcher—because *the* architect builds for ages, and not days—and on he goes, to glue and patch together some structure of gingerbread and pasteboard, as it were. Such are these warehouses, which have been, of late, subject to *periodical* conflagrations at Liverpool, etc. In fact, after the lady of a member of the legislature has been burnt in one of the best hotels of the metropolis—we are sorry to confess, that hardly any one is secure from similar accidents; and we call again upon those who have seen Italy, nay even Germany, to say, whether such could happen in any of the *locandas* or hotels of Rome, Naples, or even Frankfort. After such conflagrations here, the houses present, almost generally, a gutted appearance, and even the staircase (made by *contract* of the most futile deal boards) has completely disappeared. Out of such structures, *some one* may get out his 7½ per cent.; but those be-widowed and be-orphaned persons who have remained behind, have no bank to draw upon for any reasonable sort of palliation or consolation.

It is, consequently, the sacred duty of any architectural journal, which understands its *high* vocation, to strongly (albeit charitably and conciliatorily) protest against such a state of affairs, and to devise means how we *moderns*, without losing any of the advantages of modern civilization, can revert (retrograde?) to that solidity, and beauty, and sterlingness, which bursts on our eyes whenever we behold the structures of antiquity, be they even of the most common or subordinate use.

THE PRACTICAL STUDY OF GOTHIC ARCHITECTURE.

THE popular author of Coningsby, in a novel* lately published, has said, "The monks were great architects:—not the faintest idea is generally prevalent of the appearance of England before and since the dissolution;—in England and Wales alone there were of these institutions, of different sizes—I mean monasteries, and chantries, and chapels, and great hospitals — considerably upwards of three thousand, all of them fair buildings, many of them of exquisite beauty." Our own opinion is, that the number of churches and buildings, judging even by the remains alone, is here *considerably* underrated. Standing on an eminence in any part of England, or with the map of any county before us, we can mark out a very great number of churches, all of them containing matter to interest and instruct, whilst the larger portion exemplify the best characteristics of Gothic architecture. The almost exclusive attention which, from their elaborate decoration and extent, the cathedrals and larger churches have absorbed, has prevented our paying to the humbler structure of the village, that due consideration so essentially requisite to a correct estimate of the value of the style. We hesitate not to say, that our wonder is more excited, and our admiration of the zeal of the old architects more commanded by the village churches of England than by the cathedrals—until within the last few years the only objects of investigation. That cathedrals and colleges, monasteries and hospitals should rise in all the richness which wealth, and the resources of the art could command, was rather a thing to be expected, from the influence which each body of clergy possessed over a large circle of surrounding country. Thus no design was deemed too vast to be carried into execution: stone and timber acquired without expense, contributions from the dying, command of vast revenues, and the exertion at all times of every engine, which a powerful priesthood could so well call into play, added to the constructive skill of the freemasons, led to the completion of projects, the mere mention of which now would be heard with astonishment or ridicule. Confident that others would finish what had been so sumptuously commenced, the medieval architects on the continent conceived projects of such immensity, that the reformation and the change of taste occurred ere the work had arrived at a conclusion. But that every village should possess a church, in whose features we recognize the same ardour in matters relating to religious worship, with corresponding scientific skill and elegance of design, only modified, and that most admirably, by the smaller resources and wants of the community—that in every obscure hamlet was the same spirit which animated the builders of cathedrals such as York and Salisbury,—is matter for admiration and amazement!

In a former number of this journal,† we endeavoured to urge the importance of a more careful examination of ancient models than architects are generally in the habit of devoting. Such an extended examination as we advocate would occupy more than a few months, but would probably afford an exact comprehension of the principles which guided the master architects of the middle ages, finally resulting in the practice of a style, not at enmity with the true principles of pointed architecture, yet, at the same time, unmarked by that tame, fac-simile imitation, which is the staple of modern professors, which is acquiesced in by them, and is too much fostered at our universities. To copy a window from this cathedral, and a buttress from that church is not the straight road to architectural excellence, nor the best means of supporting the dignity of the professor, and advancing the progress of the art:—the proper value of ancient models is not shewn in imitating them after the Chinese manner, but is rather—in combinations and suggestions from many examples,—to produce works truly original, conveying no suggestion of their origin, or the course by which they were arrived at. And here we cannot quote from the "Discourses" of Sir Joshua Reynolds without expressing a wish, that architects would apply the principles, which he endeavoured to inculcate, and which are as much applicable to their art as to the kindred one of painting. After speaking of the advantages to be derived from works of art, he says, "From the remains of the works of the ancients the modern arts were revived, and it is by their means that they must be restored a second time. The fire of the artist's own genius, operating upon those materials which have been thus diligently collected, will enable him to make new combinations, perhaps superior to what had ever before been in the possession of the art; as, in the mixture of the variety of metals, which is said to have been melted and run together at the burning of Corinth, a new, and till then unknown metal was produced, equal in value to any of those that had contributed to its composition.†

The stay-at-home architects, who study from "the Glossary," and design with Britton and Pugin's works upon the table, have entirely mistaken the character of Gothic architecture. They have fostered an opinion, not yet done away with, that the style is necessarily an expensive one, while they have begotten a manner, unlike any preceding, and inconsistent with all correct notions of propriety. The same pinnacles from Beverley minster or Salisbury cathedral—the same door from King's College chapel—all which they had never seen except in engravings—they have repeated again and again in church and meeting house, even in cases where funds would barely suffice for the most ordinary objects. Had these "gentlemen of England" studied the true character of pointed architecture, where it only can be learnt, from the building itself, they would have discovered that every variety of ecclesiastical structure had a peculiar purpose, and was erected in a peculiar manner. They could not have failed to learn, that it was proper to impress a character upon each in accordance with its purpose, its situation, the component materials, the general amount of decoration and the total cost. The parapets and pinnacles, which may be excellent in the cathedral, might be quite out of place in the village church, and the very mouldings may be required of different design. In the latter structure except in the case of a small oratory or chapel we seldom find much ornamental carving, but the building always seems to have been designed for the locality, and not, like many of our modern Gothic churches, as though transported from some other place. It is a key to the history of the neighbourhood, and of the people who there dwelt; and whilst the oratory was enriched in a degree becoming the wealth and lineage of the lord of the manor, the nave was unadorned, and accordant with the condition of the tillers of the soil. To erect a town church in the country, and a village church in a crowded thoroughfare, is often destructive of the *genius loci*, and convictive of an entire ignorance of the unerring rules of art. For and elevation, perspective outline, and the proportion of parts, details of battlement, base mould or string course, all should receive the greatest degree of attention from the architect. The education required involves a large outlay of time than most architects are prepared to devote thereto; and thus, "content to dwell in decencies for ever," many exhaust their single idea in every church they have to execute, whatever be its situation and other circumstances of the case. A painter does

* Sybil, or the Two Nations.

† Vide page 217 *ante*, art. "Ancient Models."

† In another place we find the following:—"I cannot help imagining that I see a promising young painter equally vigilant, whether at home or abroad, in the streets or in the fields. Every object that presents itself is to him a lesson. He regards all nature with a view to his profession, and combines her beauties, or corrects her defects. He examines the countenance of men under the influence of passion, and often catches the most pleasing hints from subjects of turbulence or deformity. Even bad pictures themselves supply him with useful documents; and, as Lionardo da Vinci has observed, he improves upon the fanciful images that are sometimes seen in the fire, or are accidentally sketched upon a discoloured wall.

The artist who has his mind thus filled with ideas, and his hand made expert by practice, works with ease and readiness."—*Reynolds's Discourses on Painting.*

t learn the practice of his art from en-
avings, nor a sculptor from models in minia-
e, nay, in architecture, the actual examina-
n, in Italy and Greece, of the beautiful
uctures in those countries, is deemed all but
ential to the acquirement of a correct taste.
t in the Gothic style, which has taken the
ce of every other for ecclesiastical pur-
ses, we are content to learn at second-hand
m mere graphic illustrations, or from a
's visit to a cathedral; though at our very
ors are the best teachers—models with which
land abounds, and capable of adaptation to
ry object in ecclesiastical architecture.
e importance of a complete examination of
ient models is more especially to be urged
Gothic architecture, in which the variations
so numerous, and comparatively so little
derstood, and in which the true value of
cedent is so much a matter of speculation.
hilst our knowledge of actual examples is
meagre, we are restricted to the constant
etition of some few details, for which we
ow there is authority; but a familiarity
h all existing details might produce a style
which originality would form one character-
c, or which would at least present a greater
iety of forms than are at present met
h.

Every lover of Gothic architecture should be
ood pedestrian: thus his attention will not
confined to the towns which lie on the line
ailway, but, knapsack on back and sketch
k in hand, every mine will be open to his
earches, and every store for him to glean
reat. An enthusiast—and what student is
—will discover a new pleasure, such as
xes never dreamt of, in every object he
roaches. We have, ourselves, had such
erience of the advantages, in mental and
ily vigour, to be derived from pedestrian
ts to some of the counties of England, that
are led to urge every student, who hopes to
d in advance of his time, to engage in the
ly of his art in the like manner; and, as
pleasure and advantage of a pedestrian
is in some degree dependent upon pre-
is arrangements, it may perhaps not be
ight foreign to our object if we give a few
s on such points: we may perhaps occupy
e that could have been otherwise filled,
an old traveller will know that our sugges-
s are not entirely valueless.

ome slight review of the history of Gothic
itecture, and the practical method of de-
ining dates, will be desirable, even in the
ent of some years' standing; and the pub-
tions of the Cambridge Camden Society
e so much the merit of conveying a great
in few words, that they should not be
lected:—one called "A Few Hints on
Practical Study of Ecclesiastical Archi-
ure," will be a desirable companion for
rence. It contains a list of the emblems
ints, and a similar list is to be found along
other information in the *Archæological
nal.* These lists may be referred to in
y objects of interest in stained glass and
umental brasses. From the same sources
be learnt the method of "rubbing"
ses, which does not involve so much time
naterially to retard the more immediate
cts of the journey, and often affords hints
rnament frequently available. A solid
h book of convenient size, with the
teras of the delineating art, is not likely
e forgotten. A walking-stick may contain
five-foot rod, which, if dimensions are
n, can hardly be dispensed with. Other
atials are, good maps, a compass, a note
, a tape, a pocket case of instruments,
tracing paper for copying stained glass.
o, we descend into the matter-of-fact de-
of coat and inexpressibles, we may there,
add to the comfort of our *voyageur.* The
mentioned garment should be made of
rproofed cloth, with seven or eight pockets,
principal ones being large enough to con-
the "one shirt off" and the sketch book
se of rain, double-breasted, to button to
throat if required. The "pantaloons"
ld also be of waterproofed material, and
exactly of the best kerseymere. These
iments will defend from Jupiter Pluvius;
he is not an experienced traveller who
d venture abroad without other protec-
and this we carry in the shape of a great
strapped to the back, in the place of a
sack. The straps do not pass knapsack-
but through strong loops sewn to the
back of the smaller coat: and, with good walking-boots and a change of stockings, our pedestrian is equipped, and, when he has got a mile from London, does not fail to thank us for these hints. The load on his back is no great burthen, and the plan of carrying his *impedimenta* will be found preferable to the knapsack, which is often very harassing to the shoulders. He will also find many essentials necessary which we have not space to enumerate, but which will readily suggest themselves, as, an apparatus for sewing on buttons and mending stockings; and some little pupilage in these difficult arts, under some of his fair acquaintances, would be highly desirable. The question of cap *versus* hat is one which should also be present to his mind.

And now, our traveller, being fully equipped, dons his cap, and, stick in hand and sketch book under arm, with a light heart and little other luggage, leaves London behind him; quitting the study of stucco and chimney-pots, with the prospect of health invigorated and knowledge greatly enlarged. The *argumentum ad hominem*, which deters many from undertaking frequent visits to objects of interest in England, is that of expence. The coffers of architectural students are always shallow ones, and, under the idea that this is universally a land of expensive inns and dissatisfied waiters, the practical study of the art is postponed to some expected distant visit to the continent, where *sous* go as far as pence, and breakfasts are thought to be had for asking. But we know that, with a little tact, by avoiding large hotels, and spending the greater number of nights in village inns rather than those of the towns, the thing may be contrived at as low a rate as we can live for in London. At most villages an excellent bed may be got for a shilling, and sometimes — our readers may smile—for sixpence; and if our pedestrian requires his tea from Twining's, he had better stay at home, unless he can carry a full purse.

The "Church Schemes" of the Camden Society will be found very useful; the method of using them may be learned from the pamphlet before mentioned, and, if our traveller is a writer of short-hand, he may note down every particular of each church in as little time as it will take him to walk over it; and he will be led to the discovery of points which might otherwise have escaped him. How far photography, and other aids to art may be called into his service, we must postpone the consideration of to some future period.

We repeat—in conclusion—Gothic architecture is not to be learnt from books and illustrations, but from examples themselves; and from the rising generation of architects is expected a style of art consistent with the true principles of the architecture of the middle ages, and at the same time with the requirements and characteristics of the English people and the present age. E. H.

Museum of Economic Geology. — It having been found that the present premises of this institution are far too small for the rapidly increasing collection of specimens illustrative of the application of geology to the arts and manufactures, the Government have determined on appropriating a large space between Piccadilly and Jermyn-street, near St. James's Church, for a commodious building sufficient for the accommodation necessary for the Museum, the Mining-Record Office, and the purposes of the geological survey of Great Britain. The *Athenæum* states that the architect to the office of Woods and Works, Mr. Pennethore, has furnished plans, by which a frontage in both the above-named streets, of seventy feet, is ensured, and a depth of one hundred and fifty feet; which will be occupied by galleries for the exhibition of geological and mineralogical specimens, models of machinery, and illustrative productions of the arts and manufactures.

City Appointment of Assistant Surveyor.—The Commissioners of Sewers of the City of London having resolved to appoint an assistant surveyor, will meet, for that purpose, at the Guildhall, on Tuesday, the 17th instant. Gentlemen desirous of becoming candidates for the appointment must be possessed of adequate knowledge as surveyor and engineer, must give up the whole of their time to the duties of the office, and will not be allowed to carry on any private business.

VENTILATION.

We hear many complaints against Dr. Reid's system of ventilation as carried out in the temporary Houses of Parliament, but nothing better is promulged, nor do we hear of any endeavours being made to improve it. The proper ventilation of buildings does not receive that share of attention which its importance demands. Impure air still continues to kill its thousands quietly and in secret, and because it is in secret we look on passively and make no endeavour to stop the progress of the insidious destroyer. In well-built modern houses, where there are few crevices by which air can get access, systematic ventilation is absolutely necessary. Evidence of the strongest kind proves not merely the fatal effects of breathing air grossly vitiated, but that the absence of a full supply of pure air induces consumption, or renders the constitution less able to resist any disease by which it may be attacked.

The desideratum is, to introduce fresh air in sufficient quantities in such a manner as not to produce perceptible currents.

The Health of Towns' Commissioners say, in their second report:—

"Notwithstanding the apparent difficulties with which the ventilation of private dwellings is surrounded, a minute examination of the circumstances of the case has assured us that no field of improvement holds out a more promising result than that which may be anticipated in future from the more successful ventilation even of the humblest dwellings. The progress of science has explained its nature and importance. Sanatory measures for draining and cleansing will effect at least one-half the remedy by removing those impurities that have hitherto so largely polluted the atmosphere in towns, more especially in the habitations of the poor. Less air is requisite for ventilation in proportion to its purity, and consequently, the risk of offence from currents must be diminished where adequate ventilation is provided.

These considerations give us great confidence, in the expectation that ventilation will be much improved in proportion as its nature and importance is better known; more especially when plans for warming and ventilation shall be minutely studied, and incorporated in original designs, instead of being merely applied, as is too often the case at present, to buildings already constructed or designed without reference to this important object. This is the great and paramount object that should be pressed upon the attention of architects and builders. If structural arrangements are provided in public buildings and private dwellings, ventilation will then attain that facility and economy of execution, without which its general introduction cannot be anticipated to the extent that its importance requires. But exclusively of such systematic improvements as may justly be anticipated in new buildings, where this subject is fully considered, we have reason to look forward to additional improvement in this department. The very simple fact, that vitiated air always rises, under ordinary circumstances, shews that if two apertures be provided in every apartment, one below, and another above, and valves be arranged so that they may be adjusted with facility and accuracy to the circumstances of the moment, the natural laws that regulate the movement of vitiated air will induce a perpetual change, and prevent that extreme contamination which is so often observed. Extended systematic ventilation, with all its peculiarities and powers of adaptation, can only be obtained and is only required in public buildings or other large establishments; but it cannot be too strongly pointed out that many just objections to ventilation, as it is at present effected, arise from the fact that the feet principally are subjected to a cold current, in ordinary apartments, while the head may be in a hot stagnant atmosphere loaded with vitiated air, and saturated with moisture, produced by the breath, by combustion from lamps and candles, and from other sources. A superior aperture, and the most moderate attention to the point selected for its introduction, will secure the admission of fresh air without the current being perceptible to the human frame, and prevent it from attaining that condition where, by long continuance in a heated atmosphere, slight movements of air become offensive."

We have nearly as much confidence as the commissioners "in the expectation that ventilation will be much improved" as its importance becomes better known; but we greatly fear that a long time will elapse before the public are fully roused to its importance. This can only be effected by constantly bringing the matter before them, and pointing out the results of inattention to it. We extract the following useful information on the subject from Bernan's valuable "History and Art of Warming and Ventilating Buildings,"* to which we have referred in previous numbers of our journal:—

"Not the least remarkable example of the power of habit, is its reconciling us to practices which, but for its influence, would be considered noxious and disgusting. We instinctively shun approach to the dirty, the squalid, and the diseased, nor use a garment that may have been worn by another; we open sewers for matters that offend the sight and smell, and contaminate the air; we carefully remove impurities from what we eat and drink, filter turbid water, and fastidiously avoid drinking from a cup that may have been pressed to the lips of a friend. On the other hand, we resort to places of assembly, and draw into our mouths air loaded with effluvia from the lungs and skin, and clothing of every individual in the promiscuous crowd: exhalations are offensive to a certain extent from the most healthy individuals, but when rising from a living mass of skin and lung in all stages of evaporation, disease, and putridity, and prevented by the walls and ceiling from escaping, they are, when thus concentrated, in the highest degree deleterious and loathsome.

This poisonous exhalation is one of the effects of the consumption of fourteen ounces of charcoal that Dr. Liebig says is burned daily within the body. The share of impurity contributed by each living furnace has been variously estimated. From experiments with men of different stature, Dr. Menzies found that from fourteen to eighteen respirations were made in a minute; and others have found them vary from thirteen to twenty-two; the average generally assumed is twenty respirations in a minute. The quantity of air drawn into the lungs at each inspiration varied from 40·7 to 46·7 cubic inches; and under all the circumstances, Menzies considered 720 cubic inches about the average quantity of air inhaled by a healthy man in a minute. A woman may inspire, on an average, about 500 cubic inches; a mean inspiration from a healthy pair of the species will not, probably, exceed 612 cubic inches in a minute.

The quantity, however, varies not only in the sexes, but in the same individuals placed in different circumstances with regard to rest and motion, to health and illness. During great exertion it will exceed the average; during rest, and in delicate and ailing persons it will fall under it; so that if 600 cubic inches be reckoned as expired in a minute by each individual in a mixed company, it will be a fair average allowance.

The fresh air, before it is taken into the lungs, is composed of 23·2 per cent. of oxygen, 75·5 of nitrogen, and about 1½ per cent. of carbonic acid, and a variable quantity of vapour of water. After it is has been expired from the lungs, in which it remains from ten to twelve seconds, it contains a larger quantity of vapour, the same quantity of nitrogen, from 11 to 12 per cent. only of oxygen, and between 8 and 9 per cent. of carbonic acid; so that nearly a half of the oxygen or vital element of the air has been changed into carbonic acid. If atmospheric air contains 3·5 per cent. only of this gas, it is unfit to support animal life. Air, therefore, which has been expired from the lungs contains 2·4 times this quantity: so that a person who inhales 600 cubic inches a minute, renders 1,440 cubic inches unfit to be breathed again.

The amount of exhalation from the skin also varies in different individuals, and from the same person at different times—a hand emitted ¼ grain in a minute, at another trial ½ grain, and in a third experiment it exhaled ¾ of a grain of vapour in a minute; which is 12, 30, or 45 grains a minute for the whole body. If one of each sex be taken, the mean will be about 23 grains each in a minute. The skin surface of a man being about fifteen square feet, 1·5 grains of vapour will be exhaled in a minute from each superficial foot of his body, or 3 grains from each cubic foot of his mass. Besides water, carbonic acid, acetic acid, phosphoric acid, muriate of soda, and a peculiar odorous matter are contained in the vapour emitted from the surface.

This copious cuticular discharge is seldom perceptible to the eye, although it is to the the nose. Boerhaave made it apparent in the warm weather by immersing his hand in air cooled by ice, which then seemed to smoke like a boiling kettle; and he amused himself with the notion, that if winter's cold was produced in the midst of a crowded summer assembly, each individual seething in his own steam would appear like a heathen deity wrapped in his peculiar and appropriate cloud.

The emanation from lungs and skin is carried from the body by diluting it with atmospheric air, which at a certain temperature can hold in suspension a certain quantity of vapour, the amount of which is shewn in the following table; the first column gives the temperature of the air, and the second column the number of grains of water a cubic foot of it will contain, in the form of vapour, at that temperature:—

Temperature.	Grs. of water in a cubic foot of air.	Temperature.	Grs. of water in a cubic foot of air.
°		°	
32	2·53	40	3·23
33	2·63	41	3·37
34	2·71	42	3·50
35	2·80	43	3·63
36	2·89	44	3·76
37	2·97	45	3·89
38	3·06	46	4·02
39	3·15	47	4·15
48	4·27	70	9·39
49	4·40	71	8·65
50	4·53	72	8·92
51	4·68	73	9·19
52	4·83	74	9·48
53	5·03	75	9·78
54	5·17	76	10·10
55	5·34	77	10·38
56	5·51	78	10·69
57	5·67	79	11·01
58	5·86	80	11·33
59	6·04	81	11·66
60	6·22	82	12·05
61	6·39	83	12·35
62	6·57	84	12·71
63	6·79	85	13·08
64	7·01	86	13·15
65	7·23	87	13·87
66	7·44	88	14·23
67	7·66	89	14·61
68	7·89	90	15·00
69	8·13		

According to the table, a cubic foot of air at the freezing point can retain 2·53 grains of water only; if, therefore, it contain one grain only, then each cubic foot will absorb or carry off 1·53 grains of vapour from a moist surface, which may be the insensible perspiration from the surface of the body. If this air be heated to 60°, a cubic foot of it will carry off 5·22 grains of moisture from the skin; for it is seen from the table, that air at 60° can suspend 6·22 grains of water. To carry off 23 grains of insensible perspiration per minute, will therefore require about 15 cubic feet of the colder air, and about 4·4 cubic feet of the warmer air. If less than this be supplied, the moisture will accumulate on the skin, and the air of the room become saturated with vapour.

If the average temperature of the room be taken at 64°, with the dew point about 50°, or with 4·53 grains of water in each cubic foot, then about 9·25 cubic feet of air will be required per minute for the insensible perspiration, and, in addition, one cubic foot nearly for the excess of moisture from the lungs not carried off by 1,440 cubic inches allowed for the dilution of the carbonic acid gas; so that about 10·25 cubic feet of pure air a minute must be allowed to ventilate each person.

But if a greater proportion of moisture is added artificially to the air, this quantity must be increased. In every case, ventilation should be regulated with reference to the hygrometric condition of the warmed air.

Dr. Reid states, that he never gave less than 30 cubic feet of air a minute to each member of the House of Commons when the room was crowded, and on one occasion he introduced for weeks successively 60 cubic feet a minute to each member, and that, to give the necessary moisture, 5,000 square feet of moist evaporating surface was exposed to the air; and subsequently, as stated in a previous essay, the air was made to flow through jets of water; and this saturation probably it was that rendered this quantity of ventilation necessary and pleasant.

In whatever way the air of a room is heated it is cooled by coming in contact with the glass of the windows, by the walls, ceiling, and floor absorbing the heat, and by cold air entering at doors and windows, and the crevices round them, and sometimes by the chimney when it is left open.

Each square foot of glass in a window will cool about one cubic foot of air as many degrees per minute as the temperature of the room exceeds the temperature of the external air. If a window has five square feet of glass, and the temperature out of doors be 32° and the room 60°, then five cubic feet of air will be cooled 28° in a minute. Of the quantity of cold air admitted at the crevices round the window-sashes and round the door, no definite estimate can be given; it depends on the position of the window above the floor, on its fittings, on the difference of temperature between the room and the air outside, on the force of the wind, and other causes. If three times the width of the sash added to twice its height be multiplied by ·3, it will give about the number of cubic feet of air cooled from this cause. The crevices round the sashes of a window four feet wide and eight feet high, will cool about 8·5 cubic feet in a minute.

Twice the width added to the height of a door multiplied by ·26, will give the cubic feet of air cooled per minute for that opening when well made: a door three feet wide and seven feet high will cool about 5·2 feet in a minute.

The absorption and radiation of heat from every 200 square feet of wall, ceiling, and floor, may be taken on an average as equal to cooling one cubic foot of air per minute as many degrees as the internal is warmer than the external air.

When wax or tallow lights are burned, about ·25 cubic feet a minute must be allowed for each.

With the air at 64° and dew point at 50° every inhabited apartment must therefore have the following allowance of heated air per minute:—

	Cubic Feet.
For the supply to the lungs.....	·83
To carry off insensible perspiration	10·2
For each common sized candle....	·25
Square foot of glass in window ..	1·0
Each window, for chink winds....	8·5
Each door about ditto	5·2
Each 200 square feet of wall, ceiling, floor, exclusive of windows	1·

Suppose a room 30 feet long, 20 feet wide and 16 feet high, with three windows 8 feet by 4 feet, and two doors 3 feet by 7 feet, and containing twenty persons:—

	Cubic Feet.
20 persons will require for lungs and skin	16
3 windows, 96 square feet of glass	96
—— for crevice winds.....	25·5
2 doors for ditto	10·4
2,800 square feet, wall, ceiling, floor	14
	161·9,

or heat equivalent to raising 161·9 cubic feet of air per minute. To this must be added one quarter cubic foot per minute for each light; should the air contain more than 4·53 grains of vapour, the quantity for ventilation must be increased. If, for example, the air at 64° hold six grains of water in suspension, then 23·4 cubic feet must be allowed to carry off the personal exhalations, instead of 16 feet."

DECORATIVE ART SOCIETY.

On Wednesday (28th of May), a general consideration of geometrical figures, as the foundation of graceful outline, was commenced; and, although this may not be strictly true as a theorem, it afforded an opportunity for the recognition and development of some of the leading principles by which the best works of ornament are regulated. The varying elements of form peculiar to different epochs were noticed and explained. It was considered that the importance of the subject rendered it deserving of continued attention; and it was, therefore, determined that it should be brought before the society monthly, until further notice.

On Wednesday (June 11th), a paper will be read "On Stained Glass." And at a meeting to be held on the 25th, the consideration of geometrical figures will be resumed, by discussing the properties of the oval.

* George Bell, Fleet-street, 1845.

THE PROPOSED CARLTON CLUB-HOUSE COMPETITION.

SIR,—The recent proceedings of the Carlton Club appear to call for some comment on the part of the profession, and I have drawn up a statement from documents in as calm a manner as possible, feeling that a bare announcement of facts is often more eloquent than a long treatise. I think the insertion of it in THE BUILDER may do good, and call attention to the necessity of some protective measures being taken by architects, if they do not wish to be kicked about like footballs at the caprice of every committee, whether composed of tradespeople or of the high and mighty of the land, in whom, alike, when a favourite is to be served, all proper feeling seems to be lost; and therefore architects should set their faces against the present mode of proceeding adopted by committees, whereby competitions are mere farces—flimsy blinds to screen some intended favouritism.

I have stated nothing which cannot be substantiated; and my own observations are, I hope, only such as one jealous of the reputation of his profession would be expected to make.

It has been just decided, by a ballot of the whole club, that Messrs. Basevi and Sydney Smirke are to be the architects to carry out the proposed alterations. A slight sketch of the proceedings of the club in the years 1844 and 1845, relative to the competition, may not be uninteresting to the profession, and would appear to call for some decided steps to be taken, with a view to a thorough understanding of future of the real position which architects should occupy when required to enter into competition.

In consequence of the Carlton Club having resolved to purchase the two adjoining houses in Pall-Mall, with a view to enlarge the building, it was decided that a limited number (14) of eminent architects should be invited to send in plans for the elevation and internal arrangements of the necessary alterations and additions; the plan which should be most approved to receive a premium of 200*l*. "*in case it should not be adopted by the club*;" and that which should be considered the second best a premium of 100*l*. "*in case the first should be adopted.*"

Eight only of the architects who were invited to compete sent in plans, varying in estimated expense from 22,000*l*. to 40,000*l*. The first premium was adjudged, by ballot, to Mr. Salvin, for a plan in the Elizabethan style, of which the estimated cost was 31,800*l*.; and the second premium was adjudged, in the same way, to Mr. Hopper, who, for his elevation, had copied that of Inigo Jones's Banqueting House at Whitehall, and whose estimate was 22,000*l*.

In their report upon the various plans that had been sent in, the special committee (consisting of the Marquis of Salisbury, Mr. Henry Hope, and Mr. Gally Knight) had observed, with regard to Mr. Salvin's, that "while of its beauty there could be but one opinion, they doubted whether such a design was well adapted for a London atmosphere, or for the position it was to occupy;" and further, that they considered it inadmissible, from the circumstance that the entrance at the north-west corner was reasonably objected to by the next-door neighbour."

Respecting Mr. Hopper's plan, they had reported that "the north front had considerable merit; that it offered a succession of good morning and writing rooms to the north, east, and south; with a large coffee-room extending from Pall-Mall to Carlton-gardens, and having a cupola and central skylight which would render the room very light, capable of a variety of useful arrangements, and give it a handsome appearance," &c.

The instructions were issued to architects on the 19th of March, 1844, and the plans were sent in by the 1st of May; and certainly not to that time no such intimation had been given as that which follows, which appears on the 18th of June, when it was for the first time declared to the architects to whom had been awarded the two premiums, "that the club is not to be considered bound to adopt either of the successful plans, and that the drawings, &c., to which the premiums might be awarded should become unconditionally the property of the club." And in the report, dated 10th May, 1845, it is stated that "the committee desire to observe that the club, having acquired the property of these two plans, are entitled, if they should think fit, to make any use of them, without employing either Mr. Salvin or Mr. Hopper as their architect, *which is perfectly understood by these gentlemen.*" The words in italics constitute an extraordinary assertion, and one not borne out in the instructions or correspondence up to the time that the plans were sent in; and surely the interpretation, according to the rules of common sense and common justice, of the conditions annexed to the two premiums could only admit of one meaning, viz., that Mr. Salvin was to receive 200*l*. for his plan (the first), if not adopted; but that if the first was adopted, Mr. Hopper was to receive 100*l*. for his plan (the second); but here, whatever they may have intended further to stipulate, the committee stop short; but the argument goes on, and therefore it is impossible, if words are to have any meaning at all, to escape from the conclusion that, as Mr. Salvin's plan was not adopted, Mr. Hopper ought (instead of being paid the 100*l*.) to have been employed. Instead of so doing the club have now decided the choice of the architect by a ballot, each member being at liberty to place in the balloting-box the name of the architect he would prefer.

The following is the result of the ballot:—Messrs. Roberts, Nelson, Beazeley, and Blore had one vote each; Mr. P. Hardwick, two votes; Mr. Railton, four votes; Mr. Burns, five votes; Mr. Cockerell, six votes; Mr. Taylor, nine votes; Mr. Hopper, fifty-seven votes; Mr. Salvin, eighty-nine votes; Mr. Barry, 210 votes; Messrs. Basevi and Sydney Smirke, 220 votes;—about half only of the members of the club voting on the occasion. It must be observed that Mr. Barry had declined to enter in the competition for plans in 1844, and that Messrs. Basevi and S. Smirke were among the unsuccessful candidates on that occasion.

The point to which the attention of the profession should be called is, to ascertain whether certain rules of conduct should be laid down by which competitions (if such things must be) should be guided,—a code of honour formed which should be binding on professional men as gentlemen, so that fair and honourable contests should take the place of gladiatorial combats; that those who have toiled to win the prize should not have the wreath snatched from them in the moment of victory, and find, after all their exertions, nothing left for their consolation but the poet's line,—

"The reward is in the race we run, not in the prize."

The history of the Carlton Club competition is only one more addition to the list of cases of the kind which have already been noticed in THE BUILDER, in which interest is made to ride in the ascendant, since it is notorious that a most active canvass was set on foot for the architect of the Reform Club and those of the Conservative Club, between whom in fact it was understood the race was to be run, and which will account for some of our most eminent men having so few votes.

Something must be done to put the competition for a high and honourable prize upon a different footing to a contest for the post of beadle or sexton, with the adherents of the parties calling out, "Vote for Wiggs," "Vote for Snooks." If, however, architects are content to be placed on this footing they must not feel surprised at any conduct which may be pursued, and they must be prepared to expect that committees will advertise for plans, and will receive the collected talent of competitors, not one of whom is to have a chance of ultimate success against some favoured party. The remedy is in the power of the profession, if proper steps are taken to secure that treatment which is due to it from the high ground which it ought to hold in public estimation.

SPERO MELIORA.

JEFFREY'S MARINE GLUE.—A report of a French commission, charged to make experiments on the marine-glue, at the port of Toulon, has just been published, and asserts the superiority of this material for caulking vessels, its power of preserving wood from the punctures of marine insects, and their opinions that trials on a large scale ought to be made forthwith.

PRICE OF BUILDING MATERIALS IN BRECON.

SIR,—I beg leave to forward you the prices of building materials, &c., in this neighbourhood:—

		£.	s.	d.	
TIMBER:—					
	Memel	0	2	6	per cube foot.
	Yellow Pine	0	1	10	ditto
	Red, ditto	0	2	3	ditto
	African Oak	0	3	0	ditto
	English, ditto, 3s. to	0	3	6	large scant.
	Ditto, 2s. to	0	3	0	small ditto.
	Larch Poles	0	1	0	per cube foot.
	Laths, 3s. to	0	3	6	per hundred.
SLATES:—					
	Queen's (30 by 16)	4	0	0	per ton of 400.
	Princess (24 by 14)	10	10	0	per thousand.
	Duchess (24 by 12)	9	5	0	ditto
	Marchioness (22 by 11)	6	10	0	ditto
	Countess (20 by 10)	6	0	0	ditto
BRICKS:—					
	Bridgewater	3	0	0	ditto
	Pending (Brecon)	2	0	0	ditto
	Fire	6	0	0	ditto
BUILDING STONE, 5s. to		0	6	0	per load, about 3 tons.
Ashlar—Llanguinder stone		0	0	9	per foot cube.
(Good stone for building purposes.)					
The same in steps, cills, plinths, &c. 1s.					
Crickhowell		0	1	2	per foot cube.
Bath stone		0	2	6	ditto
(The new county hall is cased with it.)					
Stone tiles		0	4	0	per hundred.
Lime		0	1	5	per barrel of two bushels; weight 2¼ cwt.
Cement		0	17	0	per cask; wt. from 3¼ to 3½ cwt. (from Pontypool).
MARBLE:—					
	Welsh Porphyry	0	7	0	per cube foot.
	Black 12s. to	0	14	0	ditto
	Italian	1	5	0	ditto
IRONWORK:—					
	Castings, small	0	0	1¼	per lb.
	Ditto, large 10s. to	0	12	0	per cwt. fitted up.
	Wrought	0	0	3	per lb.
GLASS:—					
	Common	0	1	0	per square foot.
	Crown	0	1	4	ditto
	Plate	0	3	6	ditto
LEAD:—					
	Sheet Lead, 1*l*. 4s. to	1	7	6	per cwt.
	Cast Lead	1	6	0	ditto
	Copper				
	Zinc, 10d. per lb., or	0	0	6	per foot.
	Paint	0	0	7	per lb. on the average.

Artisans, 3s. to 3s. 6d. per day of 10 working hours.
Labourers, 1s. 10d. to 2s. 10 ditto
Horse and cart, 4s. to 5s. 8 ditto

MASONRY.—Walling is executed with mortar at 1s. 3d. to 1s. 8d. per perch (a perch is 7 yds. by 2 ft. thick and 1 ft. high). Dry-walling, 9d. to 10d. per perch. If scaffolding is required, from 2s. to 2s. 6d. per perch.

The above are the prices usually paid in this town. I am, Sir, &c.

Brecon, May 23, 1845. B. BAYLIS.

*** We are much obliged to Mr. Baylis, and hope we may be furnished with similar information from other parts of the country.

GUNPOWDER AS AN AGENT.—The Whiting Shoal, in Limehouse Reach, which extends nearly half a mile in the centre of the river, and has long impeded the navigation, was lessened last week by means of gunpowder. A hole was bored some distance in the shoal, in which was deposited a tin case containing 45 lbs. of gunpowder, and it was fired by a galvanic battery from one of the Government lighters, under the command of the harbour-master. The effect is described as being very singular. A large body of water was thrown up in a dome-like form, and the shock was plainly felt on both sides of the river. After the operation it was found that some forty feet of the shoal was displaced. The usual dredging machines had previously failed. In the same week the Ewart Rock, so long a dangerous impediment to vessels navigating the Solway Frith, was blown to pieces with gunpowder by direction of the trustees of Maryport Harbour. The accomplishment of this object forms one of the many suggestions by Captain Denham, for facilitating the approach to and otherwise improving the harbour of Maryport, and which are being carried out under the superintendence of Mr. Abraham Middleton, civil-engineer.

MAUSOLEUM OF THE ORLEANS FAMILY.



MAUSOLEUM OF THE ORLEANS FAMILY.

The accompanying engraving represents the sepulchral monument, now nearly completed, at Dreux, in Normandy, for the Orleans family. It was constructed from the designs of Messrs. Fontaine and Lefranc, architects, and presents a curious, though not ineffective mixture of styles. We should be glad to obtain some accurate particulars of its construction and dimensions, and to learn the character of the details.

Our engraving was made from a Daguerrotype plate, obligingly placed at our disposal by Professor Donaldson, at the moment he received it from France.

The presence amongst us of a member of the illustrious family for whom the monument was erected (the Duke de Nemours), gives the engraving additional interest at this moment.

THE GOVERNMENT SCHOOL OF DESIGN.

Some short time ago we referred to the course of study pursued in this institution, and alluded to the opinion which exists that greater opportunity for the study of the figure should be given than is now permitted, and urged that to deny to artisans the full means of study for fear of their becoming artists was unwise and nonsensical.

Relative to this point there is, unfortunately, considerable dissension in the school; Mr. Wilson, the director of the institution, being arrayed against Mr. Herbert, the master; the figure school has been shut up and some of the students suspended. It is quite time that the question was settled one way or the other.

The following report of the progress and state of the school has been recently submitted to parliament:—

"The School of Design at Somerset-house was established at the commencement of the year 1837, by and under the superintendence of the Board of Trade, for the improvement of ornamental art, with regard especially to the staple manufactures of this country. The number of applicants for admission every month exceeds, by about fifty, that which the limited space in Somerset-house will accommodate. In connection with the head school at Somerset-house, schools have been formed in many of the principal manufacturing districts, namely, in Spitalfields, Coventry, Birmingham, Manchester, Sheffield, Nottingham, York, Newcastle, and Glasgow; and applications are at present under consideration for the establishment of others in the boroughs of Southwark and Lambeth, in Norwich, in the Staffordshire Potteries, and in Dublin. The students commence with exercises in elementary outline, pencil drawing from lithographic prints of geometrical and ornamental forms, and proceed to shading with chalks, first, from shaded prints, then from casts of ornament. The human figure, in connection with ornament, is studied anatomically, by successive exercises in drawings from prints, models, and casts, of the most appropriate antique statues and reliefs; and the principles of drapery are taught by means of a draped lay figure. A numerous class of the students are occupied in painting from various examples of art, from casts, and from natural objects, which form materials of ornament in water colours, in tempera, and in oil; and modelling in clay and wax forms an important part of the business of the school. As a general principle, each student is taught, as far as possible, with reference to the promotion of the particular object for which he joined the school; and the practical application of the instruction which is given is shewn by reference to numerous and valuable examples of ornamental and decorative art exhibited on the walls of the rooms. The more advanced students are exercised in original designs and composition; that is, in forming new combinations of the materials of ornament, and are taught to apply to various practical purposes the knowledge and skill they acquire. It is the duty of the director and masters to see that only the best examples are used, and to enable the students to form correct ideas of the principles, different styles, and importance of ornamental art, and of its practical application to particular departments of manufacture and decoration. Besides the use of an extensive collection of casts to illustrate the history of art, and examples of every variety of ornamental manufacture and decorative work, the students have the advantage of reference to numerous costly books of plates, and the privilege of borrowing books from a lending library, containing such works as are especially fitted to promote artistical improvement and refinement of taste. The head school at Somerset-house includes, in a separate part of the building, a morning school for females, in which upwards of fifty young women receive instruction in the practice of drawing and designing for lace patterns, embroidery, porcelain, wood engraving, flower painting, and various kinds of ornamental work, in the execution of which females may be advantageously employed. The school for females is open daily from eleven to two, excepting

Saturday; and the applicants for admission constantly exceed, by twenty or thirty, the number to which the means of accommodation is limited. The school for males is open to the inspection of the public every Monday, between the hours of one and three. For the present year the sums offered for prizes exceed 80*l*. Male school, Somerset-house: morning, 3s.; evening school, 2s.; female school, 2s. The following abstract exhibits the numbers of students in attendance during the month of February last:—

Head school....	Somerset-house ..	396
Branch schools..	Spitalfields	190
,,	Coventry	106
,,	Birmingham	257
,,	Manchester.....	150
,,	Sheffield	47
,,	Nottingham.....	36
,,	York	76
,,	Newcastle	140
,,	Glasgow	360."

Unfortunately this report does not touch the real question at issue—the efficiency, or otherwise, of the present system. Some further information must be elicited on this head, and if it be found that the system has failed to produce a good result an alteration should of course be made.

FONT IN ST. MICHAEL'S CHURCH, SOUTHAMPTON.

The font in St. Michael's Church, Southampton, represented by the accompanying engravings, strongly resembles that ancient and curious specimen of workmanship in Winchester Cathedral, known as the *crux antiquariorum*, or "the puzzle of the antiquaries." It is of black marble, and alluded to by Sir H. C. Englefield in his "Walk through Southampton," who offers the following comment upon it: "It is curious to observe the effect of time on the black marble of which this font is composed; a vein less hard than the rest runs through one front, and it is quite honey-combed by age, although it probably has always stood under cover."

The font is a square block, having in the centre an hemispherical bason, around the edge of which is a groove (probably sunk to receive a cover or lid); the top is ornamented by a running foliage, rudely carved, the angles being further adorned in the manner shewn by the drawing.

Every side is divided into three sunk circular compartments, charged with figures in low relief, mostly bearing a resemblance to the one in the centre compartment of the side represented; the figure to the left of the drawing appears to be a dove; that in the centre is supposed to portray a dragon; and in the third compartment the form of an angel is represented, clothed in a long robe, having round the head the *nimbus*, or glory, and with wings extended, that nearly fill the remaining portion of the circle, reaching from the shoulders to the feet, which are naked.

These figures, it is inferred, are emblematical of the saint or archangel, Michael, who is spoken of by St. John as fighting against the dragon and his host, and who is represented as the guardian of the Jewish and Christian churches, and by some imagined to be the Son of God himself.

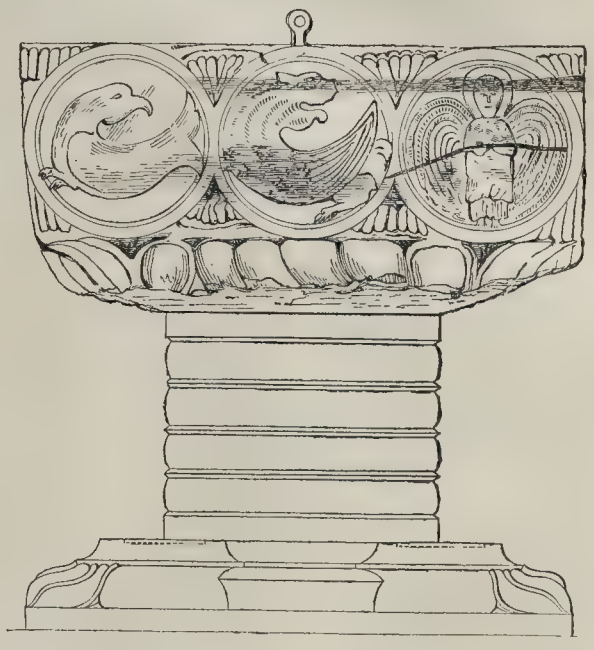
The font was originally supported by five columns, the four at the corners being less in diameter than the centre one, which now only remains. Three broad leaves, one at the angle and one on either side, formed the capital of each of the smaller columns; that part of the base on which the smaller columns stood is oak to receive them. Two iron eyes are fixed to the top of the font, for the purpose of fastening the cover or lid.

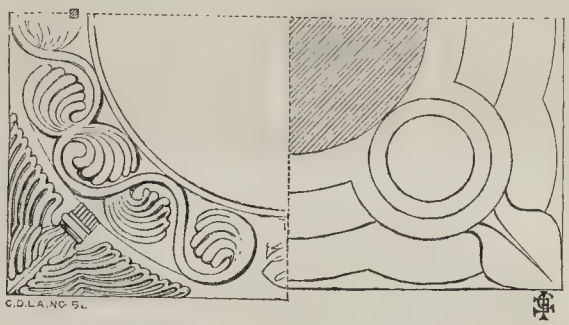
Although great doubts are entertained respecting the age of the font in Winchester Cathedral, Mr. Britton ascribes it to the time of Walkelyn, bishop of Winchester, who died 1097; and, from the similarity between that and the font now described, they may be considered to be coeval.

Southampton. JOHN ELKINGTON GILL.

*** The font in East Meon Church, Hampshire, is another example of the same class of fonts; it resembles that at Winchester so closely, that it is supposed to have been made by the same hand.

FONT IN ST. MICHAEL'S CHURCH, SOUTHAMPTON.





Plan of Top of Font. *Plan of the Base.*



ARCHITECTURAL MEMS. FROM THE COUNTRY.

The Cotton-Mill Company at Kingston, Hull, have advertised for a site, preparatory to the erection of their proposed extensive factories, &c. The company starts with a capital of 200,000*l*.——A few days since the electric fluid struck the new church at Walton, about three miles from Stafford. The steeple was much injured, a part of the church was unroofed, and two bricks were carried by the lightning through a cottage window, a short distance from the church.——Part of Dublin-street, Edinburgh, under which they are at present excavating the tunnel from Scotland-street to Princes-street, fell in on Thursday morning from the want of sufficient under-props to support the superincumbent earth.——A committee has been appointed at St. John's, Isle of Man, to carry into effect the building of a new church in that district, and the restoration of the ancient chapel. A plan has not yet been adopted; various architects have been invited to supply designs, the committee being desirous of erecting a good architectural edifice.——On Monday week (St. Augustine's day) the consecration of Hedon church, in the diocese of Ripon, took place. The restorations in the chancel consist of new and elaborate oaken stalls; a floor of encaustic tiles, of beautiful pattern; an early English reredos, with illuminated tablets; and a figure of the Saviour, in stained glass.——The new line of railway communication between the Ogwen river and the Menai bridge is in active progress. Workshops are being erected, and operatives are pouring in preparatory to carrying out the contract taken by Messrs. Jackson, at 246,000*l*.——An attempt is being made to raise sufficient funds for the purpose of erecting a new church in Sculcoates, Hull, to be dedicated to St. Paul. A sermon was preached last Sunday by the Bishop of Ripon, in aid of the fund, when 60*l*. was collected. A further sum of 1,500*l*. is required.——A new reredos to the altar of St. George's Church, Stamford, is about to be erected. The design is by Mr. Edward Browing, and the stone will be taken from the new quarry

of Mr. C. Bland, of Little Casterton.——The Manchester committee has purchased from Lady Hoghton thirty-one acres of land, in the township of Bradford, for a third public park. The price was 6,200*l.* or about 10*d.* per square yard.——On Saturday last the first stone of the new railway dock, at Hull, was laid by Mr. Huffan, the secretary of the company, in the presence of Mr. Lane, the resident engineer, Mr. Murray, of the firm of Bowers and Murray, the contractors for the work, and several hundreds of spectators. Mr. Huffam, in lieu of putting some money under the stone, placed a check for the benefit of the workmen upon it. It is thought that the dock will be completed in about twelve months. We understand that the laying the first stone of the Victoria dock, in the same town, will take place in about three months from the present time, and that it is intended to be a public ceremony.——The churchwardens of Worksop have determined to make very considerable alterations and improvements in their venerable parish church.——A public meeting of the inhabitants of Wakefield has recently been held, to consider the propriety of applying to Parliament next session, for an act to improve the Borough. A committee was appointed to draw up clauses for the proposed new act, which are to be submitted to a general meeting of the rate-payers for their approval.——The new church at Leven, in Yorkshire, was consecrated, on Wednesday-week, by the Bishop of Ripon. The church is in the early English style, and contains 450 sittings; it is of stone brought from the Headingly quarries, near Leeds. The seats are all open, and are stained dark oak. The roof is open, and is also stained in the same manner. The structure presents a massive appearance, and was executed under the direction of Mr. H. D. Chantrell, of Leeds, architect. It is built on an entirely new site, given by Richard Bethell, Esq., lord of the manor, and is in the centre of the village, a full mile from the site of the old church. The cost of its erection is about 2,400*l.* which has been defrayed principally by the rector. Mr. J. Wilson, builder, of Holbeck, Leeds, was the contractor.——A proposal to erect and endow a "York Yeoman School," has been lately put forth under the sanction of the Archbishop of York. The sum required for the purchase of ground, and for a building capable of accommodating about fifty boarders, is estimated at 3,000*l.* The proposed school is intended for the sons of persons in the middle classes, and more especially for the sons of farmers. As soon as a sufficient sum has been collected, a meeting of the subscribers will be called together to appoint trustees for the ground and building, and to adjust other preliminaries. The donations already amount to 1,700*l.*

ARTESIAN WELLS.

On Friday, the 30th ult., Professor Farraday lectured at the Royal Institution on this subject, stating that the term artesian was applied to overflowing wells, in consequence of the first well of this character being sunk at Artois, in France, but that now the term was applied to very deep wells whether they overflowed or not.

Object.—His object was to shew the practicability of supplying London with water in greater abundance, of a better quality, and at a less cost than it is at present supplied with. This being the case, his remarks had reference to the geological peculiarities of the London basin.

Safety.—He stated that, provided such wells be properly sunk, no danger need be apprehended. The anticipated evil of leaving the superincumbent strata unsupported, by pumping up the sand, and thereby endangering the stability of the surface ground, was worthy of very little consideration in our present state of knowledge on the subject. No such evil could accrue if the boring were carried through the sand, and some depth into the chalk. The difficulties hitherto met with in the construction of deep wells in London were all to be traced to the error of discontinuing the process of boring on arriving at the sand.

Economy.—Mr. Farraday stated that the expense of the works in connection with the wells recently sunk in the front and rear of the National Gallery, that is, the cost of the engine and of laying pipes to the different sites, deducting every thing connected with the fountains, amounted to 9,000*l.* The yearly cost of supplying 100 gallons per minute by the engine and through the pipes was now contracted for at the sum of 500*l.* For the same water Government had been paying 1,000*l.* yearly. Then, by some short calculation, it was proved that the new system was one of economy, effecting a saving of some hundreds annually, and worthy of general adoption. The contractors and engineers are Messrs. Easton and Amos. He further stated, that in any neighbourhood, if 700 or 800 householders would unite, they might have a well of their own, and thereby a larger supply of better water than they now have for little more than half of what they now pay. The distance from the surface of the ground to the water is 150 feet.

Consequences.—Mr. Farraday anticipated the probable consequences of sinking many such wells in London; and combated the idea that by the daily extracting a large quantity of water the supply would in time be exhausted. Before such an evil could present itself a number of the smaller rivers in the neighbourhood of London must be exhausted, such as the Wandle and the Colne, which are nothing but the overflowings of the water in the sand strata, and consequently placed above the source of the proposed artesian wells.

A correspondent remarks, "With all due deference to the judgment of Dr. Farraday (and perhaps I may be under some misapprehension) some statements on the economy of wells were made, that I can hardly agree with. I understood Dr. F. to say, that the expense of the works, as before stated, amounted to 9,000*l.*; now to take this at an interest of 3½ per cent. as he did, is manifestly much too low. I should perhaps hesitate in determining what would be a fair per centage for money laid out in this kind of work, but I should say it certainly should not be less than 7 per cent., taking repairs, and wear and tear into consideration, and that in the course of years substantial repairs will be required. Seven per cent. will amount to something like 639*l.* per annum, which, added to the 500*l.*, will make rather more than the 1,000*l.* before mentioned

I may be in error, or the superior quality of the water may, perhaps, be some compensasation for the extra expense.

The subject of artesian wells is now becoming so important, that every information is valuable, and may therefore excuse these remarks.

The *new* machine, brought forward by Professor F., for raising water, is certainly beautiful in principle, but, unfortunately for those who lay claim to the invention, is of old date. None the worse for that, however; and the principle may be applied with very great benefit on some of the low lands of England. The description of this machine may be found in a tract by Venturi, containing his experiments on the motion of fluids, translated from the French by W. Nicholson, the second edition of which was published in 1799, headed thus:—"It is possible, by means of a fall of water, to drain a piece of ground without the help of machines, even though the ground should lie on a lower level than the established current below the fall." The principle, I believe, was carried out by Venturi in one of the Italian states.

M. G."

Another Artesian Well.—A plan is being entertained by the benchers of Lincoln's Inn to re-erect the fountain which formerly stood in the centre of the square which now forms the new plantation. It is proposed to sink an Artesian well, and to supply the whole of the chambers in the inn with water, which can be done at a much more reasonable rate than the present supply.

Window cleaning.—The following method of cleaning windows has been forwarded to us, and, if correct, possesses many advantages over the old system of using whiting, &c.:—The window is first dusted with a bunch of feathers or a dusting brush, and when all the dust is thoroughly removed, a bowl of boiling-hot water is placed at the base of the window, the steam immediately covers the glass, which is removed by a wash-leather, and finished off with another quite clean and dry. This method saves time, prevents that cloudy appearance left by whiting, and produces a more brilliant and durable polish than any other.

THE PREVENTION OF SMOKE.

There are few nuisances more generally offensive, or producing a greater amount of discomfort, than the dense smoke allowed to issue from steam-engine and other furnaces. To those who live near such, it is, moreover, the cause of much expense; in fact, all the inhabitants of a town, where there are many furnaces, suffer very materially in their pocket, if not in their health. Every endeavour to remedy it deserves serious attention.

We have recently seen in operation one of the patent boiler-furnaces, put up by Chanter and Co. In order to prevent smoke all that is required is, to produce perfect combustion, by which, of course, a saving is effected; and it seemed to us that this was effected in a considerable degree by the furnace in question. The arrangement has two objects; first, to prevent the formation of clinkers, by the action of moveable bars, and secondly, to supply heated fresh air to the unconsumed gases about to pass up the chimney, and, by throwing them back on to the flame to ignite them. The means used are simple. The bars of the grate in contact, dentated on their upper surface, are moved, by hand or by other power, forwards and backwards in their horizontal position; the alternate bars in the same direction and oppositely to their immediate neighbours. This breaks up the caking coal, and keeps the fire brisk and clear. The bars thin down to the lower edge, which is circular in form, and through their mass are round holes to diminish the weight of the bars, and to render them more durable by constant cooling. Each indent of the toothed surface is bevelled down to where the bars separate by decreasing thickness: and thus the access of air through the whole fire is very diffused. As to the second object—where combustion is not perfect, the unconsumed gases rise above the flame, and pass on with the draught. These, in Messrs. Chanter's arrangement, are met above the bridge of the furnace by air heated from a chamber below, and let down upon them from a hollow arch. Thus they are forced down upon the flame, mingled with air necessary for their combustion, at a suitable temperature, and so consumed.

THE ERECTION OF STEAM ENGINES.

Sir,—Having seen an account in the newspapers of an explosion of a steam-boiler at a flour-mill adjoining the Surrey Canal, near the bridge in the Old Kent Road, this afternoon, my curiosity led me to the spot. The building which contained the steam-engine I should think, from its form, was originally a wind-mill, built of brick of circular plan. From the information I obtained of one man who lived near the spot he said, from the noise it made by the explosion, he thought it was an earthquake, but he was soon informed by a neighbour that the mill-engine had exploded. The destruction of the round building which contained the engine is complete, and an adjoining building very much shaken, but little damage is done to the buildings that are adjacent; the only person injured was the proprietor of the mill and he is going on favourably. The boiler was sent into the air a great height, and descended on the other side of the canal, a distance of nearly 200 feet, sinking in the ground a considerable depth. On going to the other side of the canal to view the boiler which was one of the tubular make, I then saw the machine, which had apparently pitched head first into the ground with the whole of one side, under the tube being rent along the rivets and likewise away from the end plates and the whole pressed up into the air upwards of 6 feet from the bottom plates.

My first impression was, that too much stress had been upon the boiler; but, on examining the plates, which I dare say when new were ½-inch, I came to the conclusion that the engine had been improperly managed, as the boiler gave sufficient evidence of having been worked with little or no water at various times; the plates under the tubes varying from $\frac{3}{16}$ths to $\frac{7}{8}$ths of an inch: the bottom plates appeared burnt and much thinner than the other plates: the valve of the safety-pipe worked with ease. The cause of the accident, I have no doubt was, that at the time of the explosion the boiler being without water, the plates being

ed-hot had generated gas, combustion then took place, and the result ended in the destruction of the mill,—a severe injury to the proprietor who worked the mill (probably quite ignorant of working a steam-engine, judging from the nature of the accident); and, further, a severe loss, by the destruction of his property and loss of business.

There were three respectable individuals on the ground at the same time as myself, and one, in particular, appeared to know somewhat about steam-engines; a highly respectable gentleman came to the spot about the same time, and all appeared to be of one opinion as to the cause of the accident, and that was, as I have before stated; but one of the three, whom I will describe as Mr. A., said to the gentleman, Who is to pay for the damage done to the different buildings? Oh! said the gentleman, the miller must. Mr. A. said, He is a poor man; he was a poor man before this accident, and I am sure this will make him in much worse condition: the bodily injury he has received, and the working of his mind, are, I think, sufficient punishment for him. Now, Sir, from this accident, and this conversation, I turn my attention to the question of protection.

It seems that the fire-insurance establishments in London will not take any insurance where a building contains a steam-engine, for less than 4s. 6d. per cent., and persons occupying premises adjoining steam-engines have to pay large premiums.

Of late my professional occupation has been such as to lead me into localities where different manufacturing businesses are carried on, and I was surprised at the number of steam-engines employed in London, varying from one-horse to twelve-horse power. Now you will ask me, by whom are these steam-engines worked? Why they are worked by any person, no matter what trade he is, so that they can get one for the least amount of wages, and not by engineers or men of science! Then why should we be surprised at accidents of this description occurring? and who are to pay for the damage done by these explosions? Most of the small engines are put up in the cheapest way possible, and the proprietor is often without capital. From the insurance office they do not obtain any cash, as the accident is by explosion and not by fire; and then to sue these men is making bad worse. Then, do not these steam-engines and steam-boilers, in general, require Government authority? We cannot build a house or other building without the inspection of a district surveyor, to see the law carefully carried out, for the safety and general welfare of the community at large;—a railroad cannot be worked until inspected and certified by a government officer that the same is properly done, and in a fit state for the use of the public safely;—but steam-engines, and steam-boilers, that affect the lives of the people in general, and the safety of buildings, are under no control, nor even the men that work them. Why should there not be a district surveying engineer, to inspect the making and erecting of these engines, and also steam-boilers, for whatever purpose they may be used; and a monthly inspection of them to see their working order, and that proper men are working them? and these men should be licensed and numbered in the same way as public stage drivers; and the erecting of steam engines, and steam-boilers, and all alterations should be in the same way as houses, by the Buildings Act, under control. Such a course, I think, would put a stop to many accidents; it would improve the working order of small engines, bring into employ a proper description of men, and make life and property more secure than it is at present.

The dimensions of the boiler.

13 ft. 7 in. long.
5 ,, 2 ,, diameter of the boiler.
2 ,, 0 ,, do. of the tube, at one end.
1 ,, 6 ,, do. do. at the other.

Man-hole, 16 inches by 11 inches.
The hole in which the valve-pipe was fixed, 1⅛ in. diameter.

Hoxton, May 23rd. ARCHI.

(CHEAP GAS.—The two existing gas companies in Liverpool have pledged themselves to reduce the price of gas, on the 1st of January next, to 4s. 6d. per 1,000 cubic feet.

ON THE MARBLES OF IRELAND.

MR. WILKINSON has laid before the Dublin Geological Society some valuable information on the marbles of Ireland, with the view of inducing architects to employ them in their designs rather than resorting at all times to those of Italy. We are glad to assist in circulating it.

Although the use of marble or ornamental stone in internal decoration is as yet very limited, there can be but little doubt that with the advancing improvement of the country, marble will hereafter be more extensively brought into use, and made to contribute both to the ornament and solidity of our edifices much beyond the present practice; and there is no doubt that with greater use much improvement would be made in the mode of working the material. To those who may be of opinion that the labour of converting the material to use may be an impediment to its more general adoption, it may be proper to make a comparison between the labour encountered in completing the almost innumerable sculptures which remain to us of ancient Egypt, worked out of the hardest basalts, granites, porphyritic rocks, and the difficulties encountered by artists in the use of marble rocks, the difficulties bearing about the same relative proportion as the use of marble would to that of plaster. The use of marble at the present day, and for the purposes to which it is most commonly applied, is very different from the practice of a former age. Every one must be familiar with the ordinary mode in which marble is applied in the construction of common chimney-pieces consisting of nothing more than the division of the block into a number of slabs, which, by the aid of plaster of Paris and iron holdfasts, are secured together in imitation of a solid mass. However sufficient this may be for ordinary purposes, it is certainly very inferior to the construction from the solid enduring stone. In all the ancient domestic buildings of the country we find the solid chimney pieces constructed of limestone or dark marbles of the locality, and where undisturbed these are generally still in a sound and perfect state. Old street-buildings in the west of Ireland, and at Kilmallock in particular, present examples of this construction, and possess a very pleasing outline. Instances will very often occur in country mansions or public buildings in the vicinity of which local marbles are attainable, in which such constructions might be imitated with great economy and effect, and where for many architectural purposes it might with much advantage be very extensively applied.

The physical or external character of the marbles constitutes the chief consideration with reference to their use for decoration or ornamental architecture, their colour and internal structure being the most important. Their chemical character has reference more to the facility with which they may be converted into use, and their capability of receiving and retaining a certain polish. In their simplest and purest state, marbles chiefly consist of carbonate of lime, which is of a white colour; the whitest kind, however, is frequently associated with quartz or silex, which more or less deteriorates it. This is more or less united both chemically and mechanically in various ways with nearly all the marbles. The variations in colour arise chiefly from accidental causes, in the greater or less admixture of carbon, or the stains of various metallic oxides, or the sectional outlines of embedded fossils. Magnesia enters largely into the serpentine variety of marble. The more chrystalline and least earthy marbles are the least durable. The compact or finely granular crystalline marbles being superior to those which are largely crystalline or of a slaty texture. Almost all the varieties burn into quick lime; several of them, however, exfoliate in the conversion before they become caustic, and fall into sand when exposed to the ordinary mode of separating the carbonic acid; such qualities are, therefore, very inferior for ordinary cement, as they make a costly and meagre mortar; it is, however, to their use as materials for decoration that the present observations are chiefly intended to relate.

The colours of the marbles of Ireland are almost as numerous as those obtained from Italy. The dark colours vary from jet black to dark dove colour, purple, blue, and grey. The light colours vary from the pure snow-white to the celined, cream-coloured, pink, and light grey. The variegated, consist of the serpentine, black and white-veined, mottled, and those marked with fossil organic remains. The serpentine is here included from its common use for the purposes to which marble is applied, and from its being so commonly called the "green marble," although it is not, strictly speaking, a marble. The black marbles, which are those of most value in Ireland, are extensively met with, and belong to the formation familiarly known as the lower limestone. The merchantable beds of the best quality are met with in the counties of Galway, Limerick, Carlow, and Kilkenny; in the counties of Mayo and Waterford black marble is also met with. At the former places they have been extensively worked.

The best quarries are considered to be those close to the town of Galway, near the bank of Lough Corrib. It occurs there in three beds, varying from about 9 to 12 inches in thickness. One of these is called the London bed, most of the *black marble* raised from it being exported to London; blocks are raised from it of an average size of about 5 to 10 feet in length, and 4 to 5 feet in width; blocks of the size of 20 feet long may be raised. Some in length of 16 feet have been exported, and converted at the Esher-street marble-works in London into a magnificent staircase for the Duke of Hamilton, in Scotland; the wide steps, large landings, and solid carved balustrades being formed of this marble worked to a beautiful jet-black polish; and, doubtless, when brilliantly lighted, and surrounded by various other brilliant accessories appertaining to a palatial residence, will produce an effect of princely grandeur, which to a contemplative mind would originate reflections on its present use, and the countless centuries it has laid dormant in its native beds, where it has been protected by the overlaying limestone from the violent disturbance which its broken and rugged surface exhibits; nor in a less degree would it originate reflection on the rude labours of those who, ignorant of its destiny, have raised it from its native bed, and the numerous hands and skilful artists it has given employment to in its passage to its present destination. The marble beds are covered in the new quarries by about twenty feet of limestone, the raising of which adds much to the expense of obtaining it, although a considerable sale occurs of the limestone for common building purposes. Except near the marble beds the quarrying of it is effected by gunpowder. A considerable quantity of this marble is sawn by water power into slabs, and exported from Galway in that state to England and America. These marble beds most likely embrace a considerable area, and also continue under the water of Lough Corrib, with which they are now nearly on a level. At Oughterard, the western extremity of the limestone formation, and in several other parts of it, similar marble beds are met with and worked; those at Oughterard, in the opinion of the marble-workers in London, contain more or less silica, which renders them less valuable. At Limerick considerable quantities of black marble are raised, and both used in the locality and exported. At Carlow and Kilkenny very fine black marble is raised; at Kilkenny the best beds, which were very thin, have, I am informed, been nearly exhausted. Most of the marble obtained from Kilkenny abounds with shells, and which become more marked and conspicuous as the marble becomes dry and exposed. Chimney-pieces made from the Kilkenny marble are to be met with in most parts of Ireland, and are familiarly known, an extensive use of this marble having at one time prevailed: that which is a jet black, and free from shells, is now more generally esteemed. The polish of black marble is considerably affected by dampness, and is much preserved and improved by being kept dry.

Wherever the black marble beds are met with they are assorted with the limestone beds, and the difference in quality appears almost accidental; some of the over or underlying beds often present a strong contrast in the quality of the stone. In other places there is a gradation in character from the adjoining ordinary limestone to the fine marble. In the impure limestone formation of the calp series, beds of black marble are frequent. They are

generally more or less marked with fossils, and inferior to those beds belonging to the lower or light-coloured limestone formations, and seldom receive a good polish. Wherever the limestone formation prevails in which the marble beds occur, the economy of raising it is dependant on the depth of overlaying rock or soil which requires to be removed, and of the demand which exists in the neighbouroood for the common rock, either for masonry or burning into lime. In some localities the limestone rock itself more than repays the cost of removing it; and in those localities where this formation prevails these considerations and the quality of the marble beds determine the economy of raising it. Except at Galway and Limerick, where much of it is exported, it is almost solely used in the surrounding localities for ordinary purposes, and most extensively for large grave stones, for which purpose it is sawn into slabs of three or four inches thick, and for this the demand is very considerable. The best qualities, however, are seldom so used.

Dark gray and dark mottled gray marbles are met with chiefly in the King's County and several parts of the county of Cork. Near Tullamore, marble is obtained in large blocks capable of receiving a fine polish, and considerable use is made of it for chimney-pieces and work of that kind. The limestone around Cork produces easy working marble of a light gray or dove colour, and more or less mottled, and receives a good polish. In the primary districts of the county Donegal, a light gray and bluish-gray coloured marble, of close grain, is met with to a great extent; most of it, however, hard to work from the quantity of silex it contains. The same kind, and of a bluish tint, is also met with very frequently in Connemara. Marble of this description is common to most primary districts; it is compact in texture, but does not often produce a satisfactory polish. Most of the primary limestones are met with in exposed ridges of surface rock, alternating with or embedded between rocks of the slate formation, and the strata generally possess a vertical or strongly inclined direction. In the northern portion of the county of Donegal it is, however, very frequently met with in successive horizontal beds and easily quarried. In the counties of Donegal and Galway primary limestone of a coarsely crystalline texture is abundant, polishes very well, and varies in colour considerably. Most of the limestones of the country which are of a fine grain are highly crystalline, are susceptible of a polish, and produce a light gray and bluish-gray colour. Of the light coloured limestones the pure white is most esteemed; it is met with in Connemara, and in several localities is exceedingly compact and hard; it is found in narrow, vertical or highly inclined seams between the slate rocks, and contains veins parallel with the vertical face of the seams, which prevent any cubical masses beyond a small size from being obtained—its great hardness in conversion, and the difficulty of quarrying it renders its use very limited.

White marble occurs in the western portion of the county Donegal, and differs much from that of Connemara; it is coarsely granular, of comparatively easy conversion, can be obtained in cubical blocks and in great quantities; its very coarsely granular texture, however, is prejudicial to it for many purposes. Some of this marble has been employed in sculpture, and has appeared in the exhibition of the Hibernian Academy. In comparison with the white marbles of Italy, and that from Carrara, which is the kind chiefly imported into Ireland, the white marbles of Ireland are certainly inferior for sculpture and the ordinary uses to which white marble is applied; where, however, it can be boldly used in these localities where the expense of carriage would be much avoided, there is no doubt that it may be frequently employed with much advantage for many purposes.

At Chevy, near Dungannon, very delicate *cream-coloured marble* is obtained; very compact in texture, receives a high degree of polish, and blocks of great length can be procured. The coarsely crystalline and fossiliferous limestone at Ardbraccon produces light-coloured marble of easy conversion. Of the variegated marbles of Ireland, the *sienna* of the best quality is, perhaps, the most beautiful; it is met with in the King's County in several places. The best I am familiar with is veined or mottled sienna, obtained near the Seven Churches. Some of it has been wrought into chimney-pieces and other ornamental purposes at the works at Killaloe; it is susceptible of a high polish, and exhibits many bright and distinct colours. Marble of the same character also prevails, differing in colour, having a dove-coloured ground veined or mottled with the sienna colour. In the county Armagh a sienna, or rather *brownish-red marble*, is met with, containing great numbers of fossil shells, with which it is strongly marked; several varieties of colour from a very light reddish brown to a rather dark red are also met with, and more or less marked with shells. At Pallaskenry, in the county Limerick, a dark red and mottled marble is abundant, and has been much used. A red-coloured marble, of a compact but slaty texture, occurs in the county of Cork, extending from the city in a narrow seam, as far as Ballincollig barracks, a distance of several miles; it is hard to work, and dull in colour, but was at one time extensively used. The *serpentine or green marble* of Connemara is, some of it, very beautiful; generally, however, it is of a dull green colour—the injudicious mode of raising it by blasting with gunpowder, has much injured most of what has been raised, and considerably prejudiced the sale of it. Blocks of considerable size, from which large slabs can be obtained, can be raised, and many are found lying on the surface of the ground near where the rock is met. The difficulty of conveying it over bad roads, and the too high price asked for it by the proprietors, in comparison with what green continental marble can be obtained for, are impediments against its more extended use. Black and white marble, and that of a mottled character, occurs in several localities; it is quarried near Cork, in the counties of Waterford, Longford, and Kerry, and some of the varieties are beautiful. That obtained near Mitchelstown is well marked, and receives a high polish. The limestone obtained near the Seven Churches in the King's County, when polished, produces a good marble of an even gray colour. It is strongly mottled with very numerous fossil organic remains, which, in the opinion of many persons, gives it a very pleasing appearance. It is easily worked and raised from the quarries in their beds. It may be remarked that this marble in a polished state, has been used in the construction of one of the principal ruins at the Seven Churches. Some of the stones retain their polish to this time; others exhibit decay, and thereby the variable quality of the different beds.

THE BROAD AND NARROW GAUGES.

A CONTEST between the advocates of these two methods adopted in the construction of railways, is exciting considerable interest at the present time in several Parliamentary committees. The broad gauge is almost exclusively confined to the western districts, and the question is, whether it shall be extended into the northern railways now under consideration. It appears that there are 333 miles of railroad on the broad gauge in regular working, and 600 more proposed to be constructed; while of the 4-feet 8½-inch there are 1,530 miles in existence, and 1,264 more in contemplation. At the time of constructing the Great Western line it is probable that the general connection of railways with each other was hardly contemplated, and the universal adoption of a uniform gauge not considered of that importance it has since proved to be. To remove this difficulty Mr. Brunel has invented a machine for shifting luggage from one gauge to the other, and on Saturday last its practicability was tested at the Paddington terminus of the Great Western Railway. The place of exhibition was a brick building, carrying a set of levers which lift a pair of rails on which a traversing frame works. From each corner of this frame there descends a hook. These hooks are attached below to the waggon body, which has to be lifted from one gauge to the other. The waggon bodies on the narrow gauge are carried upon the usual waggon frames employed by narrow-gauge companies, and when shifted to the broad gauge are placed in iron waggons constructed for the Great Western Company at their works at Swindon.

The mode of working this traversing frame from one gauge to the other may be thus described.—A head of water 55 feet from the line of rails acts in a cylinder, and a set of valves throw a pressure of water either above or below the piston. When the pressure is above the piston it elevates the traversing frame, and when below it causes it to descend. A counter-balance is also employed, and acts in connection with the water power. The cylinder is 19½ inches, and the water pipe 5½ inches in diameter. When the traversing frame is at rest it is perfectly horizontal, but, during the action of lifting, it assumes a slight inclination, under the controul of the man who works the levers. By this means the load which has to be moved traverses from one line to the other by its own gravity.

Thirty-two tons of coke were shifted from one gauge to the other in seven minutes, and on another trial 10 tons were shifted in a minute and a half. General Pasley has, we understand, inspected the machine and highly approves of it. The cause of contention may, therefore, be considered as removed, and the question now before the public is simply that of expense in the construction and working of the respective gauges. The difference in the cost of the broad over the narrow gauge is 6½ per cent in earth work, and 7 per cent in the purchase of land, with a larger expenditure in the construction of carriages, &c., and with increased weight; to counterbalance which Mr. Brunel contends that it provides a more rapid, safe, regular, and luxurious mode of transit, and is in every respect superior.

INSTITUTION OF CIVIL ENGINEERS.

JUNE 3.—Sir John Rennie, President, in the chair.

The first paper read was "On the Corrosion of Metals," by Mr. R. Adie, Liverpool. The object of the communication was to give an experimental proof of the fact of water, when saturated with common salt, preserving to a great extent the surfaces of oxidizable metals from corrosion, by the joint action of air and water; and also to shew that water, or water containing a saline solution, does not act as a corroding agent without the aid of the oxygen of the atmosphere. These positions were demonstrated by the details of several series of very interesting experiments, which were purely of a chemical tendency, leaving to the engineers the application to practice of the results obtained. The details were also given of some experiments made to ascertain the quantity of oxygen dissolved by water under different circumstances: whence it was shewn that brine, and some other saline solutions, contain much less dissolved oxygen than sea or ordinary water; the discovery of this fact suggested the experiments on the application of brine as a preserver of iron. The object of the last set of experiments was to determine, by trial, the rates of corrosion of metals in fresh-water, sea-water, and saturated brine. The results demonstrated that sea-water corrodes the quickest, fresh-water less rapidly, and brine very much slower than either. The circumstance was incidentally mentioned of the use of common salt for preserving ships' timbers, for which purposes the spaces between the ribs of some of the North American ships are frequently packed with rock salt, and the effect has proved very advantageous to the duration of the timber without affection of the metal fastenings, as would have been supposed.

A paper by Mr. W. Gale (Glasgow), pointed out the advantages of the moveable jib crane, for the purposes of building. It was stated to have been originally invented by James Watt, for the Bell Rock Lighthouse, but in a communication from Mr. R. Stevenson (Edinburgh) which was also read, with extracts from the history of that lighthouse, the invention was claimed by Mr. Stevenson. It appeared that the crane was used very extensively, but that some defects existed in its construction, for which the author suggested remedies which he had applied successfully, and for which he gave the necessary details of calculation and drawings, without which they would be with difficulty comprehended.

The monthly ballot took place when Messrs. Frank Forster, T. L. Gooch, and W. Lewin were elected as members; and Messrs. W. P. Marshall, W. Lawford, G. Lawford, and W. B. Buddicom, as associates.

Correspondence.

LANDING STAGES, LIVERPOOL.

SIR,—Some time in March last I forwarded design for the approval of the chairman and ommittee of the Liverpool Docks, in answer o the advertisements for the best plan for a anding stage at George's Pier head. This is ow upwards of two months since, and as yet o one seems to have heard a single word nore about the matter. Whether any deciion is arrived at or not, I think that, where the ime is so protracted as it is in this instance, he secretary of the committee should have orwarded some reason for the delay, either to THE BUILDER or other periodical current mongst us.

Perhaps the premiums are not to be given at ll, and we shall yet see some favourite carrying out piecemeal the gathered ideas from the 00 designs, which number it was rumoured ere sent in! I sincerely hope, for the credit f such a respectable body as the committee f the Liverpool Docks, nothing of the kind ill take place.

Through your numerous correspondents ou may be able to furnish us with some infornation of the actual state of the case.

I am, Sir, &c., A. I. C. E.

*** The following advertisement has since ppeared, and seems far from satisfactory:—

"The committee, of the Liverpool Docks having, in conformity with their advertisement of he 6th of February last, awarded premiums to wo of the designs for landing stages, which, hough they cannot either of them be acted pon, appear to possess the fewest objections n principle, and to approach the nearest in eneral idea to what will have to be adopted, o hereby give notice to the several unsucessful competitors that their respective designs ill be returned upon application being made r them; or the committee are willing to alow the use of the spare rooms in this building, ithout charge, for a limited period, for the urpose of exhibiting the designs to the pubc. Competitors desirous of having their deigns exhibited, are therefore requested to appoint from among themselves some party or arties to take charge of and to be responsible r them, and signify their wish to the undersigned, within fourteen days from this date, in rder that the necessary steps may be taken. ll expenses connected with the exhibition to e borne by the competitors."

CEMENTS.—CEMENT ON IRON.

SIR, — A correspondent in Number 115 ishes me to explain the difference in the proerties of Maude's Portland Cement, Pulham's ortland-stone Cement, and Austin's Stoneolour Cement, they all being described as a ose resemblance to Portland stone. I do ot undertake to explain the properties more an I have done in my former article; but I ay say, in answer, that two out of the three e not a close resemblance to Portland stone, d, indeed, I was not aware that there was a ment in use called Austin's Stone-colour ement. I herewith send you a piece of ulham's Portland-stone Cement, not made r a specimen, but cut off, after being in eather six years, where an alteration was ade, and that you may decide which is an *imitation of Portland stone*, as you will probly have an opportunity of seeing some Maude's Portland Cement, as in Threadeedle-street, and Austin's vases, &c., in the ew-road.

I should be glad to see the question anvered, asked by a plasterer in No. 112,—the ason the basins in Trafalgar-square were paired with Roman cement, the bottoms ing laid with Maude's Portland Cement; for, he says, it would be well to know.

A subscriber, who wants to know the best ment for running mouldings on iron girders, ould be told cement or plaster is not run on on girders; they must have battens or ledges stened to them, and then lathed in the ormary way, and then plastered.

Hoddesdon. JAMES PULHAM.

*** We may not venture to institute comrisons without a longer acquaintance with e cement referred to. Its appearance is good As relates to running mouldings on irondrders, another correspondent says this can safely done if care is used, with Johns' micco Cement.

Miscellanea.

ETON COLLEGE CHAPEL.—Plans are being prepared by a limited number of architects, in competition, for the perfect restoration of this chapel. The competitors are said to be Messrs. Buckler, Butterfield, Elmslie, Deeson, Derick, and Ferrey. Mr. Shaw and another architect are to decide on their merits. Mr. Shaw being the attached architect of the college, the whole proceedings seem somewhat singular.

VACANCY IN THE ENGINEERING DEPARTMENT AT HULL.—The appointment of resident engineer to the Dock Company at Kingston-upon-Hull, will shortly become vacant by the resignation of Mr. M. Lane. Candidates are to forward their testimonials to the secretary of the company on or before the 14th instant. The salary is upwards of 300*l.* per annum.

BRONZE WORKS OF ART.—Some misunderstanding having lately taken place on the part of the Custom-House authorities, as to the meaning of the resolution of the House of Commons admitting "bronze works of art" duty free, it has been decided that all works of art, whether composed of bronze or other metal, are to be delivered free of duty.

LIGHT FOR ALL NATIONS.—The stupenduous undertaking of erecting a lighthouse on the Godwin Sands is at length completed. Mr. Bush, the engineer, has determined upon throwing it open to public inspection during the present month, in aid of the funds of the Royal Free Hospital in Gray's Inn-road. The terms of admission are 2s. 6d. each person.

RAILWAY SPEED.—The distance between London and Birmingham was lately performed in one hour and forty-five minutes. One hundred and ten miles in one hundred and five minutes!

THE NATIONAL GALLERY.—Mr. Eastlake, R.A. has addressed a letter to Sir Robert Peel, pointing out the unfitness of the present building for its purpose. We shall revert to it next week.

Tenders.

TENDERS for the erection of a New Rectory at Pyrford, near Ripley, in the county of Surrey, under the superintendence of Mr. H. Baker, architect, of Upper Gower-street.

Pearse and Guerrier	£1,087
Boxall	1,018
Lothere	1,010
Ire	999
Winsland	987
Allen	935
Mason	883

Tenders delivered May 30th, 1845, for building seven Private Houses, also Dwelling House, with Shops, &c., for E. Lacey, Esq., Mr. T. Coe, surveyor.

Jay	£4,418
Gerry	4,286
Ashby	4,271
Elston	4,195
Lawrence	4,165
Lefevre	4,085
Willson	3,994

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the performance of the necessary works in the construction of a New Dock in the Borough of Kingston-upon-Hull.

For Building the Carcasses of certain first-rate Houses, with Shop Fronts, in the new line of Oxford-street, leading into Holborn.

For executing Works on the Leeds, Dewsbury, and Manchester Railway, being a distance of about 4¼ miles. The principal work on this division is the summit Tunnel, near Morley, which is upwards of 3,000 yards in length.

For the erection of Schools, and a Master's House, and also a new Farm-house and Offices, on the Estate of the Rev. E. K. Benyon, near Bury St. Edmunds, Suffolk.

For constructing about 450 feet of new Wharf, along the River-side, in the Town of Wisbeach, and for erecting a new Crane and Warehouse for the Corporation of Wisbeach.

For the execution of a New Harbour at Greenock.

For the supplying of certain Mines in Cornwall, for twelve months from Midsummer next, with Norway Timber, half Dram and half Longsund, of good quality and average length. The probable quantity required is 710 loads.

For Building a Sewer in the King's Road, St. Pancras, of the dimensions of 4 feet 6 inches by 2 feet 9 inches, for a length of 250 feet.

For building the intended Somerset County Lunatic Asylum.

For the Works necessary in extending the Tower Hamlet Sewers, in one District to the length of 2,570 feet, in a second District to the length of 1,915 feet, and in a third District to the length of 660 feet.

For erecting the New Church of St. Andrew, at Wakefield, Yorkshire.

For painting, and keeping in repair the Lanterns and Fittings of the several Gas Lamps in the Parish of St. Mary, Islington, from Midsummer 1845 to Midsummer 1846.

For the construction of Two Divisions of the Chester and Holyhead Railway, being Nos. 8 and 12. No. 8 contains a length of 7 miles and 54 chains. No. 12 contains a length of 5 miles and 26 chains.

For erecting a New Parsonage House at Iken, near Oxford, Suffolk.

For painting the exterior Wood and Metal Work of the British Infirmary.

For supplying the Lords, Bailiff, and Jurats of Romney Marsh with 2,000 six-feet Deal Ends, 3 by 12, either white or yellow American, at per 100, (of 120 Ends).

For the erection of a Building in London for a highly patronised purpose, at the estimated cost of about 30,000*l.*

COMPETITIONS.

Plans, sections, and elevations for a Terminus, and other requisite accompanying offices, for the Great Southern and Western Railway, Ireland.

Designs for houses to be erected at Dover. The ground is nearly seven acres in extent, and lies on a gentle slope between the south-west boundary of Dover Castle and the town. A premium of fifty guineas is offered for the set that may be most approved of.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

The timber and other trees now standing upon the estate at Woodseaves, Salop. By order of the Lord Chancellor made in the cause "Dickin *v.* Barker."

At Eversden Wood, Cambridge: 80 Oak Timber Trees, clean, sound, and of useful dimensions.

At Bourn, Cambridge: a capital Fall of prime Oak Timber, comprising about 100 Trees of good dimensions.

At Brandon, near Coventry: several Thousand prime Oak Trees, and a quantity of Planks and Quarterings.

At Bourne, Cambridge: 63 Oak Timber Trees; many of them are of very excellent quality, of great length, and particularly clean and straight.

and excellent quality.

At Halstead, Essex: a quantity of capital Oak Timber, &c., in Great Spansey's Wood, near Halstead.

At Richardson's Wharf, Limehouse: a large quantity of superior dry and sound stock of Dantzic Yellow and Red Pine, Ash, Swedish and Memel Timber; about 10,000 White Spruce and Yellow Battens, &c.

At Coneygre Wood, Rickling, Essex: 105 Oak Timber Trees of excellent quality.

At 17, Millbank-street, Westminster: a remarkably fine parcel of Marble, consisting of Statuary, Vein, Dove, Bardilla, Griotte, Black, and Black and Gold; also four 16-feet Column Blocks of Sicilian Marble.

At Wimbish Hall, near Saffron Waldon: 400 Oak, Ash, and Elm Timber Trees, many of large dimensions, and the whole useful for building or other purposes.

At the Angel Inn, Warminster: a quantity of very capital Oak, Ash, Elm, Beech, Larch, and other Timber Trees, comprising about 400 Trees and 150 Saplings.

At Ryston Hall, near Downham Market: a superior fall of Oak, Ash, Elm, and Fir Timber Trees, comprising 50 Large Oaks, from 30 to 40 feet in length; 20 smaller ones; 46 Ash and Elm Trees; 86 Old Spruce Firs; 5 Hornbeam, &c.

BY TENDER.

A Virgin Forest of Valuable Timber in Walachia. The principal part of the Trees is Oak. The said Forest may produce about 500,000 cubic feet of Timber.

At Little Bentley Hall, Essex: several Acres of Plantations, consisting of superior Firs, Larch, Spruce, &c., to be taken down by the Purchaser.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, June 9.—*Geographical*, 3, Waterloo-place, 8½ P.M.; *British Architects*, 16, Grosvenor-street, 8 P.M.

TUESDAY, 10.—*Medical and Chirurgical*, 53, Berners-street, 8½ P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.; *Zoological*, Hanover-Square, 8½ P.M.

WEDNESDAY, 11.—*Society of Arts*, Adelphi, 8 P.M.; *Geological*, Somerset-house, 8½ P.M.; *Pharmaceutical*, 17, Bloomsbury-square, 9 P.M.

THURSDAY, 12. — *Royal*, Somerset-house, 8½ P.M.; *Antiquaries*, Somerset-house, 8 P.M.; *Royal Society of Literature*, 4, St. Martin's-place, 4 P.M.; *Medico-Botanical*, 32, Sackville-street, 8 P.M.

FRIDAY, 13.—*Astronomical*, Somerset-house, 8 P.M.; *Philological*, 49, Pall-Mall, 8, P.M.

SATURDAY, 14.—*Royal Botanical*, Regent's-park, 4 P.M.

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TO CORRESPONDENTS.

"S. C."—*Engravings in outline would not satisfy all our subscribers, though they might be preferred by the section represented by our obliging correspondent. We endeavour to meet the requirements of several distinct classes.*

"Discontent."—*Our correspondent, and many besides, should read the charming little story, called* "Old Jolliffe" *(published by Wright, Pall-Mall.)* "*There is much grief in the world, much trouble, but it should be our endeavour to teach all who are suffering that it is good to be so afflicted; for such a thought will create a contented spirit which will carry them through all their trials and pain!*"

"F. E. G."—*The stone laid with ceremony as the foundation stone is not always the* first. *We shall be glad to hear from him on other matters.*

"James Jones."—*The description shall appear.*

"W. Ray."—*The statement shall receive attention.*

"Works in France." — *A correspondent is anxious to have some information as to the works by London builders now going on in France.*

"History of a Competition."—*The statement of* "A Looker On" *being entirely personal, we must decline inserting it.*

"A Journeyman Plasterer" *is also declined, with thanks.*

"W. B." *says:—As many toll-houses are about to be erected in various parts of South Wales, I shall feel obliged if some of your numerous talented architectural correspondents will favour us with the most approved design for those constructions; one which will combine usefulness and economy with picturesque effect. The material generally used is masonry.*

"A Subscriber."—*If an opening be made in a wall dividing properties, the owner of the land on the other side may block it up.*

"I. T."—*Johns' patent stone-colour stucco cement is probably the material inquired for. It may be obtained at Mr. Man's, 5, Maiden-lane, Cheapside.*

"A Young Builder."—*If the buildings were* bonâ fide *commenced before last January, sanctioned by the district surveyor, and are to be finished as first proposed, an additional thickness of walls cannot be insisted on.*

"A Builder" (*as to power of official referees*) and "P. W." *next week.*

Received: *Kelland's excellent edition of "Young's Lectures," part 5 (Taylor and Walton),—"The Westminster Review," for June,—Coghlan's "Hand Book for European Tourists" (Hughes, St. Martin's le Grand),—"Pictorial Gallery of Art," part 5 (C. Knight),—"Old England," part 18.*

ADVERTISEMENTS.

WHITE KNIGHTS' PARK.

THE BOTANIC GARDENS and WILDERNESS of this celebrated Domain will be OPEN for the admission of the Public, during the Summer season, on MONDAYS and THURSDAYS. Tickets of Admission, ONE SHILLING each person, and Family Tickets, to admit eight, FIVE SHILLINGS, may be obtained of Messrs. Scott and Moffatt, Architects, 20, Spring Gardens; of Mr. Frederick Chinnock, Estate Agency Office, 28, Regent-street; at the Offices of "The Builder," No. 2, York-street, Covent-garden, and "The Gardener's Gazette;" of Messrs. Richards and Rogers, Solicitors, 10, Friar-street, Reading; and at Mr. Welch's, "Berks Chronicle" Office, 13, Market-place, Reading.—Day Tickets to Reading are issued by the Great Western Railway.

ROYAL POLYTECHNIC INSTITUTION.—The ATMOSPHERIC RAILWAY exhibited by a Working Model, having a power to carry visitors. A CURIOUS MECHANICAL HAND on a person who has lost his natural hand. Dr. RYAN'S LECTURES on the CHEMISTRY of DOMESTIC LIFE daily, at a quarter past Three, and on Wednesday and Friday evenings at a quarter to Nine. Professor BACHHOFFNER'S varied LECTURES with brilliant Experiments. Lectures on Character, with Musical Illustrations, by Mr. J. Russell, accompanied by Dr. Wallis on the Piano-forte, on the evenings of Monday, Tuesday, and Thursday, at Eight o'clock. New and beautiful objects in the CHROMATROPE, PHYSIOSCOPE, PROTEOSCOPE, &c. NEW DISSOLVING VIEWS. SUBMARINE EXPERIMENTS by the DIVER and DIVING BELL. Working Models described daily.

Admission, 1s.; Schools, half-price.

HOWARD'S TRANSPARENT TRACING PAPER.—The many very high encomiums which have been passed on this article by those who have made trial of it, induces Mr. Howard to give it greater publicity. Sample books, containing seven different qualities, with prices, &c., can be sent by post to any part of the kingdom.—Orders directed to Mr. HOWARD, 23, Great Russell-street, Bloomsbury, will receive immediate attention.

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NOTICE TO INVENTORS.

OFFICE FOR PATENTS OF INVENTIONS and REGISTRATIONS of DESIGNS, 14, Lincoln's-inn-fields.—The printed INSTRUCTIONS gratis, and every information upon the subject of PROTECTION for INVENTIONS, either by Letters Patent or the Design Acts, may be had by applying personally, or by letter, prepaid, to Mr. Alexander Prince, at the office, 14, Lincoln's-inn-fields.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

HEAL & SON'S LIST OF BEDDING.—Containing a full description of weights, sizes, and prices, by which purchasers are enabled to judge the articles that are best suited to make a good set of Bedding, sent free by post, on application to their establishment, the largest in London, exclusively for the manufacture and sale of Bedding (no Bedsteads or other furniture being kept). HEAL and SON, Feather Dressers and Bedding Manufacturers, 196, opposite the Chapel, Tottenham-court-road.

HOT WATER APPARATUS. — The attention of architects, builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of heating churches and chapels, halls, stair-cases, conservatories, forcing and green-houses, manufactories, and warehouses, kilns, rooms for drying timber, &c., and every variety of purpose for which artificial heat is required. Within the last twenty years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises. BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

DUTY off WINDOW GLASS. — On April the 5th, Squares stouter and of better make than formerly for Glazing purposes at 6d. per foot.

NURSERYMEN, MARKET GARDENERS, AND OTHERS requiring Small Glass, will find a greater variety of sizes (a large Stock of which is constantly on hand) than is kept by any other house in London, from 4d. per foot. Flattened Sheet, Stained, Fluted, the BIRMINGHAM Sheet Plate (superior in all respects to every other make), and Ornamental Glass of every description. Complete Lists of Glass, Lead, Colours, &c., at ready-money prices, may be had (gratis) on application to R. Cogan, at the Western Glass, Lead, and Colour Warehouse, 5, Princes-street, Leicester-square, London.

SURVEYORS, CONTRACTORS FOR PUBLIC WORKS, and the TRADE generally, sending specifications of quantities required, will receive by return of post an invoice at the very lowest cash prices.

A parcel of very Superior Spruce Oker, suitable for PLASTERERS AND PAINTERS, to be sold at 6s. per cwt.

CAEN STONE.

LUARD and BEEDHAM have a quantity of the above stone, of the best quality, direct from their Quarries at Allemange, which may be inspected at the Norway Sufferance Wharf, Greenwich.—Further particulars at Mr. G. GATES', 18, SOUTHWARK-SQUARE, SOUTHWARK.

CUNDY'S MARBLE AND STONE WORKS, PIMLICO.

SAMUEL CUNDY begs to inform Architects, Builders, &c., that he is supplying VEIN MARBLE BOX CHIMNEY-PIECES, Opening 3 feet square, and 7 inch piers, for FORTY-FIVE SHILLINGS!

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The above are manufactured in the best manner and of the best material. For CASH ONLY.—Address, SAMUEL CUNDY, Marble and Stone Works, Belgrave Wharf, Pimlico.

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Paper Varnish, 12s. and 16s. ditto.	Spanish Brown, 6s. per cwt.
Gold Size, 8s. ditto.	Stockholm Tar, 19s. per barrel.
Best ground White Lead, 26s. per cwt.	Gas Tar, 9s. ditto.
Second ditto, 23s. ditto.	Lamp Black, 20s. per cwt.
Third ditto, 20s. ditto.	Glue, 42s. and 48s. ditto.
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And every description of dry and ground Colours, Varnishes, &c. CROWN GLASS, price as at the Manufactory; BRUSHES, at Maker prices.

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*** Country Orders must be accompanied with a remittance, or reference for Payment in London.

HOLBORN AND FINSBURY SEWERS, MIDDLESEX.

THE COMMISSIONERS of SEWERS for the LIMITS give NOTICE, that their Office, Hatton Garden, is open daily between the hours of Ten and Four, where information can be obtained (gratis) by persons about to Purchase or Rent Houses or Property, or take Land for Building purposes, of the situation and level of the public Sewers, capable of affording sufficient Drainage, and which they recommend all such Persons to apply for at the above Office.

By the Court,
STABLE and LUSH, Clerks.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. (chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, or public way, or in any part intended to become a street, lane, or public way, or to carry off or drain off water from any house, building, yard, or ground, into any sewer under their management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewer or sewers shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, upon application being made at this office previous to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, wherever the lower floors or pavements of buildings shall have been laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings must in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners will be cut off, and the parties making the same will subject themselves to a fine.

By order of the Court,
LEWIS C. HERTSLET, Clerk.

The Builder.
No. CXXIII.
SATURDAY, JUNE 14, 1845.

OUR readers will remember that in October last a cotton mill at Oldham, in Lancashire, fell, destroyed twenty persons, and injured many others.* Sir Henry De la che and Mr. Thomas Cubitt were appointed mmissioners, by her Majesty's command, to lect evidence respecting its fall, and "to inigate into the causes connected with the ucture of that building, or of certain parts reof, which led" to the loss of life on that asion. An inquiry into the circumstances ich occasioned the failure of a part of the son at Northleach, in Gloucester, was also erred to them. After examining the preses, and hearing such witnesses as were ely to afford the required information, they, he end of February last, reported their prodings and the results of their investigations. This report is now before us: it contains ne very valuable information, especially as he strength of cast-iron beams, and some gestions by Mr. Cubitt which should be ed on forthwith. In addition to parties nected with the buildings in question, they mined Mr. Fairbairn, Mr. Eaton Hodgkin, and others, who have given attention to the ms of beams and the nature of iron, and have nted the minutes of evidence: the commisners have further appended the results of a nber of experiments made at Thames Bank, hew the comparative strength of iron beams lifferent forms, already referred to in our es.†

It would appear that the Messrs. Radcliffe, carry on an extensive business, had conred it expedient to add to their mill or tory, and for this purpose had undertaken erection of two new buildings upon the ciple termed fire-proof; that is, so comng iron, commonly cast-iron, with bricks tone, as to exclude, or nearly exclude, wood heir erection, thereby rendering the build- as such, incapable of being consumed by

One of these buildings was erected over space or area occupied by the boilers of steam-engine, adjoining the old portion of mill; the other, of larger dimensions, was, is, to a certain extent separated from it. t the latter end of October last the buildover the boilers was completed, one 27½ high, including the roof, 77 feet long, and eet wide. The other building, of larger ensions, being unfinished, as it now is, gh in a more advanced state than at that .

Prior to the former addition to the mill, oilers, six in number, were covered by a proof floor, formed of brick arches resting ast-iron beams, the whole supported by the s and cast-iron columns; and above this proof floor there was a clear story, roofed wood. This portion of the building had erected eight years since by Mr. John es, iron-founder, of Oldham.

hen it was thought desirable to form an tion to the factory in this direction, en- ng that part of the old mill, the roof e noticed was removed, and the new work carried up based upon the old (15 feet). The same plan with respect to the gement of beams and arches was fold in the new floors, five in number, as in old floors, the beams being, however, of weight in the new work than in the old. the building was a compound of work ted eight years since with that comed in May last, the foundations and et of the height above the ground being e former date."

"It was stated that the beams were all proved, that is, subjected to pressure to ascertain their strength, the pressure being usually beyond the weight which it is calculated that they would have to support, in accordance with the stipulation made with the founders, Messrs. Sevelles and Woolstanholme, by the Messrs. Radcliffe. The proof required was a load upon the centre of each beam, 14 feet long, equal to eight tons. The proof actually given is stated to have been equal to 9½ tons. John Swailes, joiner, in the employ of the Messrs. Radcliffe, and who made the patterns for the beams, deposes to have seen about twenty beams proved, a weight of 9½ tons being, he was informed at the time, applied to the centre of each. The same witness also states that he saw many of the beams cast, and that several were removed red-hot from the sand.

When not resting on the walls, where they were laid upon large stones, the beams were supported by cast-iron columns, cylindrical and hollow, 6 inches in diameter externally, and varying in weight from about 6 cwt. each in the lower floor, to about 5 cwt. each in the upper floors, those in the former having a core or hollow 4 inches in diameter, thus giving a thickness of 1 inch of metal; those in the latter, a core of 4½ inches, making three-quarters of an inch in metal. The upper columns, fitted by a projecting portion of their lower ends, into a corresponding socket in the highest part of those beneath them, and the beams were fastened to the columns by clips of wrought iron, secured red-hot over ears or projections at the extremities of the beams. The columns in the lowest floor rested upon iron plates, and these upon brickwork. The ties or rods connecting the beams together were about 4½ feet apart on the average, of wrought Staffordshire iron, seven-eighths of an inch square, and passed through the upper part of the beams, within about 1½ inch from the top.

The walls of the building were of the same thickness from the bottom to the top, 2¼ feet thick for the side walls, and 2 feet thick at the end walls, and were constructed with bricks, sound and good. Two tiers of bond timber, 4½ inches by 3 inches, passed through the centre of the windows on each floor, and they were laid upon the same course, 4½ inches from both the outside and inside of the walls.

The arches of the different floors were of bricks, built with mortar made with Derbyshire lime; they rose in a span from 10¾ feet to 11½ feet, and formed a regular segment of a circle. The upper course of bricks was wedged in tight with pieces of Welsh slate, and the whole was paved with flagging, about 1½ inch thick."

Such was the general construction and arrangement of the building, when one of the arches in the upper floor was observed to have settled about 4 inches, and workmen were employed to take it out, and replace it. While this was in operation one of the beams broke close to a column (from the lateral thrust of the adjoining arch as it is considered), and the whole building was almost instantaneously destroyed.

Witnesses were of opinion that this breakage of the beam, though sufficient to cause much damage, did not properly account for the total destruction of the building which ensued: they considered there was not sufficient strength in the beams generally.

"They also advert to the injudicious position of the tie rods which, though sufficient in number and strength, were situated too high up for resisting the strain of the arch. To resist that strain, they point out that the maximum effect would be produced by their attachment to the bottom flange of the beam, but that being inconvenient, they recommend that the ties should not be placed higher than the soffet of the arch, where they would perforate the neutral axis of the beam, that is, where, from vertical pressure, the tendency of the lower part of the beam to be disrupted and opened out is balanced by the opposite tendency on the upper part of the beam to be crushed inwards, thus affording sufficient security to the arch without injury to the strength of the beam.

Though they observed imperfections in the cast-iron columns, arising from the variable thickness of the metal, they were satisfied with them in other respects, at the same time stating their opinion that one inch more in diameter, with the same weight of metal, would have afforded greater strength and security."

The iron, on examination of fragments of the beams, was found to be of fair average quality, but the central parts were more highly crystallized than the internal parts, which led to the inference that the former had cooled more quickly than the latter; cracks were also observed, due to the same cause.

"In the evidence of John Swailes it is stated, that several of the beams employed in the portion of the factory which fell were taken out red hot from the sand in which they were cast, a sufficient reason for the appearances we have noticed, more especially, when it is considered that the parts of the beams were of variable thickness, not only the upper and lower flanges differing in this respect, but also the vertical portion connecting them. Under an equal temperature such parts would tend to become solid at variable times, the thinnest parts first, and even under the favourable circumstances of protracted cooling there would still be a disposition in the particles to adjust themselves unequally, producing unequal strains, and an absence of uniform structure in the mass. A fact well known to iron-founders, who from it, endeavour to arrange their castings, so as to obtain as much as possible a uniformity of thickness in the different parts.

The practice of removing beams of cast-iron, to be employed in sustaining weights, red hot from the sand, is very properly reprobated in the evidence of Messrs. Fairbairn and Whitworth. The former observes,—

'From my own experience, I am satisfied that fire-proof beams should never remain less than ten hours in the sand after they are cast; and for heavy castings thirty or forty hours, or more, are sometimes necessary to assist nature in a perfect, and, consequently, a strong and compact process of crystallization.'

We consider that even good cast-iron may be rendered comparatively brittle by sudden cooling, judging from what is known on the subject of the cooling of many substances, the more sudden application of cold to a substance in igneous fusion, producing the brittle quality, exemplified in the various glasses, more moderate cooling furnishing compactness, while more protracted refrigeration causes, in many bodies, crystallization, which may become of such an order from the occurrence of large crystalline planes, as to render fracture more easy in the line of such planes, being those of least resistance than in the intermediate state productive of compactness.

Unfortunately, it is considered a saving, particularly in small founderies, to remove castings red hot from the sand. Mr. Whitworth points out that not only is room acquired where it is so needed, in such founderies by this practice, but that a saving also is effected in the sand employed, which becomes burnt and destroyed near the castings while the latter are annealed in the cooling.

From at least several of the beams employed in the building which fell being, as stated by John Swailes, taken out red hot from the sand when cast, from the cracks and other corroborative proofs of rapid cooling observed by ourselves, and from having seen a beam cracked through the vertical portion connecting the upper and lower flanges, in the lower part of the larger fire-proof building now finishing, and in connection with the works of the Messrs. Radcliffe, this crack, or fissure, precisely of the kind that would be formed from an unequal tension of the thicker and thinner parts of the beam, more especially, if taken from the sand red hot and thus suddenly cooled; we are disposed to believe that such rents or cracks may have occurred in many other beams."

Considering the evidence correct, the commissioners believe that the lateral pressure of each of the arches successively fractured the adjacent beams.

"This happening on the upper floor, there is little difficulty in conceiving that the mass of bricks and iron thus suddenly thrown upon the floor beneath would crush it, and this

* See BUILDER, Vol. II. p. 563.
† See p. 49 *ante*.

again falling on the third, and so on, the accumulation of falling matter would be such from floor to floor, that after the failure of the upper floor, that in which the arch was under repair, the whole would appear to fall almost instantaneously, or in one great crash."

They therefore regard the failure of the arch in the upper floor, for which no apparent reason is assigned, as the primary cause of the accident.

The commissioners made inquiries into "the state of chemical knowledge connected with cast-iron generally," and are disposed to consider it imperfect.

"While referring to these and other researches on a subject becoming daily of more importance to the public, we abstain from all remark as to the forms which may at present appear best adapted for cast-iron beams, further than to observe that when calculations as to the strength of such beams are founded on the supposition that the cast-iron employed is of uniform texture, it would appear difficult to obtain this homogeneity except in castings of nearly uniform thickness in the various parts; that when cast-iron beams are suddenly removed red-hot from the sand in which they are cast, we should expect them to be comparatively brittle, however good the iron may otherwise be; and that some efficient proof of cast-iron beams is most desirable before they are employed in buildings, since, assuming effective forms and the use of good iron, every care having been taken to cool them properly, flaws may exist, not visible externally, rendering them unfit to support the weights they are intended to sustain."

"While on the subject of cast-iron for beams, we would state our strong conviction, founded on a general view of the subject, of the importance of substituting wrought-iron for cast-iron, whenever it can be accomplished, and we anticipate that wrought-iron will be rolled into a sufficient size for all the uses to which large cast-iron beams are now applied, judging from the present size of rolled pieces of iron. When this shall have been accomplished, a great advance will have been made in the use of iron, seeing that beams, or other large pieces of that metal may, with confidence, be relied upon. We consider that when wrought-iron can be thus rolled and employed, its use will become most extensive, and that the consumption of iron for building purposes would be greatly increased, to the benefit of an important branch of our national industry."

They urge with great propriety that experiments respecting the best and strongest forms of wrought and cast-iron beams and columns should be conducted by officers of the Royal Engineers, at Woolwich, or elsewhere, anticipating that such experiments would be of great public importance, by leading to highly beneficial and practical results, the more beneficial in proportion as a knowledge of them could be disseminated by publications of a moderate price.

At the close of the joint report Mr. Cubitt has introduced some remarks and suggestions which are so important, that we are induced to transfer them entire to our pages.

"And I would further humbly represent to your Majesty, that since the first introduction of iron into buildings, its use has progressively increased; and considering that it is desirable to encourage the erection of buildings that are composed of incombustible materials, affected as little as possible by the changes of weather from dryness to humidity, and free from the effects of dry rot, or the ravages of vermin, and cast-iron at present being one of the principal materials by which these advantages are conveniently secured, there is, it must not be disguised, great danger to be apprehended in its use in consequence of our limited and imperfect knowledge of its qualities and properties.

Buildings constructed with floors of wood, though at the mercy of an incendiary, and subject to many inconveniences, have at least this one advantage, namely, that an injudicious application of it in their construction is to be less dreaded than when cast-iron is the substance employed.

Wood being much more elastic receives, without injury, shocks which would be fatal to cast-iron; while its great flexibility adapts it to give warning of its own insufficiency, or of an undue pressure acting upon it, perhaps in time to avert danger; whereas cast-iron, from its nature, is incapable of affording the like demonstration of its weakness; and the fall of a building so constructed, from the weight and solidity of the material, is likely to be attended with far more disastrous consequences.

Yet, notwithstanding the many casualties to which cast-iron is liable, its introduction into buildings has been a great gain; and I believe that fewer accidents have happened, with all its disadvantages, than might have been reasonably expected. And buildings very essential to the safety of the inhabitants of thickly-peopled towns, affording security against the devastations of fire, either by diminishing the risk of its first outbreak, or cutting off the communication with the adjacent burning houses, in order to stop the progress of the flames, could not be constructed conveniently, adapted to the purposes of trade or for public rooms, without the use of iron.

The erection, then, of such buildings being of the utmost importance to all classes of the community, and our knowledge of the best forms and arrangements of cast-iron beams not being based upon principles the correctness of which cannot be questioned, I do feel that any attempt by legislative enactment to control the erection of this kind of buildings might prove vexatious in its operation, from the difficulty there would be (in the absence of acknowledged correct data on which to found comprehensive rules for the regulation of such buildings, and amidst the conflicting opinions of persons who have thought much on the subject), in selecting proper persons to whom authority might be given, who would have sufficient practical knowledge to ensure their decisions being always satisfactory, or who would consider the subject sufficiently alike to secure a uniform practice in the different districts, without which uniformity persons might be called upon to vary their manner of building, if it happened to be in another district, according to the notions of the surveyor of each. If they were too severe, it would retard the erection of buildings intended to be fire-proof while on the other hand a false confidence might be given, that would prevent the careful consideration of the parties principally engaged, owing to their being relieved from responsibility.

It therefore becomes desirable that every possible facility and encouragement should be given to persons to improve and make buildings more safe and durable; and I should regret if any thing were done that might interfere with the use of iron so as to retard its more general introduction, as it appears to me to be a material the use of which it is of the utmost importance in every way to encourage.

Much, however, if not all the risk involved in using iron for beams would be avoided, by the substitution of wrought for cast-iron; but up to the present time, the anxiety for this change is not widely enough diffused to lead to any immediate practical result in the manufacturing of wrought-iron beams of such dimensions as are applicable to buildings of the largest size. And it may be remarked that the larger the building is, there is generally greater danger of failure, with more deplorable results; consequently the more urgent need there is for increased precaution in providing a corresponding amount of strength, the greater are the difficulties at present experienced, at least as regards wrought-iron.

The expenses necessary to the production of large masses of iron, rolled in the form of beams, being more than a private individual might feel himself justified in incurring for his own use, and the demand from an inadequate conception of their value not being sufficiently pressing or extensive to secure the manufacturer from loss, it is to be feared that it will take some time yet before we shall be in possession of the many advantages which it may be expected will result from their manufacture, unless some stimulus be given in order to hasten the attainment of this very desirable object.

I therefore humbly suggest for the consideration of your Majesty the expediency of devoting 1,000*l.* or 1,500*l.* to this purpose, and would propose that premiums of such sums as it may appear advisable, be offered for the best and strongest rolled iron beams, calculated for the use of floors, to sustain a load not under 25 tons, with bearings not less than 24 feet apart.

And in order to ensure a steady progress in the improvement of the manufacture of iron generally, perhaps an exhibition once a year of the best samples with new forms, will forward the attainment of this end. Such samples might be tested in a proving house, which it may be thought expedient to establish for the accommodation of the public generally, where parties may be allowed to have beams or chains proved at a moderate expense, by which the value of the commodity and its fitness for the proposed work may be ascertained.

The cost of apparatus for proving beams only, being heavy, and requiring much practice in order to make such fully available and to arrive at correct results, it follows that those persons only who are extensively engaged in building, provide themselves with means for testing the strength of iron beams, whilst those whose use of them is occasional have no convenient opportunity of proving them; and it would seem that such persons have great need of this sort of assistance, than those who from their extensive practice, become more conversant with the general strength of iron.

I would therefore beg leave to recommend for the consideration of your Majesty's Government, the expediency of providing a proving house, if not in every large town, at least in London, where any persons might see their beams, and rely upon their being correctly tested.

I believe that if facilities were furnished for getting wrought-iron of large dimensions very few large timbers would be used in building; and as iron can be produced in unlimited quantities, and the whole of the cost of its production spent in employing the labour of the country, the benefit it would produce could hardly be calculated; for, in addition to that required for our own use, an immense demand would grow up for exportation, as it would provide the means of making safe and durable fire-proof buildings — what every person desires, but which at present is very difficult to attain.

Thus the community at large would be benefited by an extended manufacture of wrought iron, and particularly all the public works under the immediate control of your Majesty's Government. All buildings, whether used as storehouses, barracks, or hospitals, might be rendered more safe and more permanent. Large beams of wrought-iron might be very advantageously employed in ship-building generally, and more especially for supporting the decks over the boilers of steam-vessels. And, to conclude, another step would be taken in order to secure to this nation that pre-eminence it has hitherto maintained in the manufacture of iron.

All which I humbly certify to your Majesty.

THOS. CUBITT.

London, 28th February, 1845."

We have confined ourselves in the present notice to those parts of the report which relate more particularly to the mill at Oldham, and shall return to the subject with reference to the House of Correction at Northleach, and the information to be obtained from the evidence generally.

THE WILTSHIRE TOPOGRAPHICAL SOCIETY.

THE anniversary meeting was held on Saturday last, to receive the report, audit the accounts, and elect a new council.

The second volume of this society's publications will be ready in the course of June, being "A Memoir of John Aubrey, F.R.S. embracing his auto-biographical sketches, a brief review of his personal and literary merits, and an account of his life and works with extracts from his correspondence, and anecdotes of some of his contemporaries, and of the times in which he lived."

For this work, which promises to be one of very great interest, the society are indebted to Mr. Britton, who has devoted to it much time and labour.

GREENHOUSES, VINERIES, AND AVIARIES.

AWARD UNDER THE BUILDINGS ACT.

The official referees have recently made an ward which will affect very materially the onstruction of greenhouses and such like uildings; believing it to be a matter of some nportance, and that the decision should be nown, generally, we print it entire.

"Whereas the official referees of metropolitan uildings, duly appointed in pursuance of the id Act, have received and duly considered ie requisition dated the 3rd day of April, 1845, om Thomas Leverton Donaldson, the surveyor f the (South Kensington) district, whereby it ppears that J. Weeks and Day were erecting ie (described) greenhouse, and further that the id J. Weeks and Day declined to give notice ereof to the said Thomas Leverton Donald- n, as district surveyor, on the ground that ie exception of the Act freed the same from l control, and whereby the said Thomas everton Donaldson requests the opinion of the fficial referees.

First, "as to whether such a greenhouse conservatory as the greenhouse in question e exempt; and,

Secondly, to what extent the exception of e Act in schedule C, part 7, reaches; and,

Thirdly, whether the district surveyor have ny and what control over greenhouses, neries, aviaries, or such like buildings; and,

Fourthly, whether it be under section 8 or y other part of the Act; and,

Fifthly, whether such buildings may be of ood; and,

Sixthly, whether any difference as to the aterials of which they are constructed will ise in the cases of their being attached to nother building or completely detached from y other erection."

And whereas the said official referees have so received and duly considered the letter om the said J. Weeks and Day, dated the 5th day of April, 1845; stating,

That "they are advised that greenhouses d particularly one of the description of the se in question fall within the exception to hedule C, part 7, of the Buildings Act, and at the 8th section refers only to buildings of e same kind as those included in some one the defined classes, and cannot be con- ued to apply to buildings expressly, and by me excluded from such classes."

And whereas on the 7th day of May, 1845, e said official referees did duly hear the said omas Leverton Donaldson and J. Weeks rching the matters of the said requisition, d thereupon the said J. Weeks did demur the jurisdiction of the said official referees the ground that greenhouses, aviaries, and ch like buildings were exempted from the eration of the provisions of the Metropolitan ildings Act.

Now we, the said official referees, do here- find, determine, and award as to the first estion—

That inasmuch as all buildings (except ildings comprised in schedule B), are by tion 5, of the said Act, brought within its eration; the greenhouse or building in estion must be deemed to be within the pro- ions of the said Act.

And further as to the second question—

That the exception in schedule C, part 7, st be deemed to apply only to the mode of ermining the rate of such greenhouse or lding, and the thickness of the walls, and other matters dependent upon the rate of lding.

And further as to the third question—

That greenhouses, vineries, aviaries, or h like buildings, are within the jurisdiction he district surveyor.

And further as to the fourth question—

That such buildings are under the direction the district surveyor, under section 8 of the l Act.

And further as to the fifth question—

That unless they be "insulated buildings," hin the meaning of the said Act, such ildings must not be built wholly of wood.

And further as to the sixth question—

That such buildings, whether attached or ached from other buildings, must in either be conformable to the provisions of the l Act.

And with regard to the costs and expenses attending this reference, we do hereby further award that inasmuch as the case was one of reasonable doubt, the same be paid by the said J. Weeks and Day, and Thomas Leverton Donaldson, or by either of them, that is to say the sum of 4*l.* 2s., as and for the fees and expenses of the office of metropolitan buildings, to the registrar of metropolitan buildings, at the said office, No. 3, Trafalgar-square, London, on or before the 2d day of June, 1845; and that the party by whom the said fees and expenses shall be paid be entitled to be reimbursed one moiety thereof by the other party.

In witness whereof we, the said official referees, have to this our award, on five pages of foolscap paper, set our hands this 24th day of May, 1845. (Signed),

Jas. W. Higgins, William Hosking. } Official Referees.

POWER OF THE OFFICIAL REFEREES.

Sir,—Have the kindness to inform me, and builders concerned in the following question,—What remedy have the official referees, under the Metropolitan Buildings Act, to compel obedience to their dictum, in cases where building owners contend for their right to proceed with buildings commenced before the 1st January last, in opposition to their award made against such buildings, upon the assumption that such buildings were not sufficiently commenced to take them out of the operation of the said Act?—If their course be by application to magistrates, do you not conceive that, as the Act defines no extent of commencement, the builders may confidently rely on the general honour and integrity of that body (the magistrates), to protect the building community from the limited views desired to be set up by the official referees in their letter to Mr. Allen of the 4th of January last? I refer you to your page 154, containing the following observation of Mr. Jeremy, in a case reported to have been heard before him at Greenwich: "I must take the clauses in their literal interpretation;" by which straightforward reading, may it not be inferred, the magistrates will not lend themselves to any party (however influential), to the contravention of the express language of the Act, and the consequent injury to builders so circumstanced? Your consideration of, and reply to, this inquiry, will, through the medium of your journal, oblige a constant reader and subscriber.

A Builder.

*** The award of the official referees is as binding and conclusive against every person as if made under an order of reference of the Court of Queen's Bench, and may be enforced by that Court in all respects as if it were so made.

HEALTH OF TOWNS.

The Fabian policy of Government with respect to the sanatory condition of towns and the consequent moral improvement of the industrious classes, challenges a remark at this advanced period of the session, the more so as nothing yet has been even proposed. Should this lethargy on the part of our rulers continue a few weeks longer, filth and disease will have acquired an extension of their term of duration beyond what was expected. Her Majesty in her speech from the throne last February, *emphatically* said that it would be highly gratifying to her if Parliament could devise the means of promoting the health and comfort of the poorer classes of her subjects.

This gratification the Government appear disposed to withhold, at least for the present. They have already issued their fiat that light and air are still to be paid for, and have contented themselves with simply announcing that a general measure is in embryo, but when to be brought forth, or if at all, there is no pledge. We are much disposed to fear that autumn will find the health of towns in precisely the same condition as the spring did. Bills affecting the rich have been known to pass through their various stages with an almost electric speed; is there any enactment to prevent the same potent spell being applied to bills affecting the poor? If not, then, there may yet be hope during the present session?

THE BRITISH ARCHÆOLOGICAL SOCIETY.

If the amount of ill-feeling which has been generated by the unfortunate dissension in this association could have been calculated by those (be they on which side they may) who first fermented it, we are disposed to think they would have used their best endeavours to prevent disunion rather than to fan a trumpery spark into the violent flame now burning. More annoyance has been caused to individuals than by any similar disagreement that has occurred for many years; and the whole course of the proceedings speaks very ill for the temper of the times.

The virulence with which that portion of the original committee who appealed to a general meeting of the subscribers, has been assailed by the friends of the other portion, is quite unexampled, and the mode of attack adopted is fraught with dangerous consequences to society at large, and should be repudiated by every upright man. *Character* is the mark they have aimed at, and whispered calumnies, anonymous letters to connections and superiors, published charges of almost swindling, which are found on examination to belong simply to the general question "are we right or wrong?" and do not attach to character in the slightest degree,—are the arrows which have been made use of. We do not hesitate to repeat, that it behoves every man who wishes to exercise an independent opinion in the world, to set himself resolutely against such a mode of proceeding.

Mr. Pettigrew, on whom much of the violence of the attack has fallen, has just now published a letter to the very Rev. the Dean of Hereford "in reply to the publication of his correspondence relative to the affairs of the British Archæological Association." In this he refers in strong language to the attempts which have been made to fix on him *individually* as the person refusing to refund money subscribed, and not as the treasurer of an institution accountable to the members for the proper employment of the funds. He says he "would gladly have avoided every harsh word; but the possessor of an honourable mind will not fail to acquit me for the strong expressions of indignation with which I repel such mean, dastardly, and villanous insinuations and assertions." Personally we have not the pleasure of much acquaintance with Mr. Pettigrew, certainly much less than we have with many of the opposing party, and have been impelled to make the foregoing remarks, without any reference to the general question, solely by a sense of public duty, and a desire to assist in preserving the right of differing in opinion from others without being exposed to calumnious attacks on character.

MOVEMENT IN THE SOCIETY OF ANTIQUARIES.

At a meeting of the Society on Thursday, the 4th instant, W. R. Hamilton, Esq., Vice-President, in the chair, it was announced from the council, before taking the ballot on Dr Bromet's motion,* that they had passed a resolution to the effect that the council should meet once in every month during the sitting of the society, and oftener if necessary. Some of the members were anxious to adopt this as an amendment on the motion before the meeting, feeling that merely an order of council could of course be rescinded by the council at any time, but it was urged by Lord Mahon and others, that the meeting had no power to pass an amendment that night, but simply to say aye or no to the motion, of which notice had been given; and it was ultimately so ruled by the chairman.

On taking the ballot, twenty-six voted for the motion, and thirty-one against it, preferring in courtesy to take what was offered by the council rather than to exact more. The new resolution, if properly carried out, cannot fail to prove advantageous to the society, and will be speedily followed, we have little doubt, by some important changes. Mr. Disney, Mr. Pettigrew, Mr. Hawkins, Mr. Wyndham, and Mr. Wansey, took part in the debate.

* "The council shall meet for the dispatch of business in the usual place at three o'clock on the first Tuesday of every month (except during the months of September and October), and such meetings shall not be adjourned unless by the votes of a majority of two-thirds of the council present."

THE LATE CONFLAGRATIONS IN EUROPE AND AMERICA.

BY J. L——Y.

"Considerations must be—considered."

HARDLY has the ink dried off our essay in the last number of this periodical — than another catastrophe (in Fenchurch-street) startles our mind, and awakens painful sympathies in every breast. Besides the individual sentiments which may agitate us on such occasions—it is the honour of the country, it is the honour of our *royal* art, which are nigh being at stake, and a future *Tacitus* of our times may strongly animadvert on a social condition, where such things could happen; on the state of architecture, in fine, which constructed buildings, where every conflagration might subject its dwellers to involuntary martyrdom! These are stern words—but we *know* such thoughts exist in the *highest* quarters, and it is the sacred duty (!) of an honest journalist to give them unflinching utterance.

It is the besetting sin of the age to consider every radius of our social condition disjointedly, solitarily, isolatedly. Such, however, is not the case. Our pasteboard and gingerbread and cobweb buildings are not *momenta* standing alone; such all is intimately and innermostly connected with every thing else around us—every thing the result of sheer (atheistic) egotism and purblind graspingness. And then things become all a chance, a raffle, a lottery. Messrs. A. B. C. have made 7½ per cent. by the building of the Yarmouth Suspension Bridge—but the daughter, or niece, or son *of* Mr. A. B. or C. have perished on this very same structure, and no bank-check in the world will draw them alive from out of their melancholy, watery grave. If men would think thus—extend the sympathies of consanguinity to every human being (Christianity bids it), then we would at times cut off a *one-half* per cent. or so from our gains; and then, we sincerely believe, many things, all things, would be better.

But we may as well interpolate *our* own thoughts with those, which have been of late uttered at public meetings and elsewhere with regard to the late fires. "Fire-escapes"—have been again suggested, a multitude of fire-escapes, and a number of *proper* persons (this means, of course, conscientious, religious) to superintend and use them. Without wishing to detract from the adequate utility of this expedient—we must say that it is only a *palliation* and not a radical, curative remedy. This is the way in which we *moderns* proceed constantly. Our artisans possess no adequate walks and play-grounds and public festivals and baths to make them healthy, hale, cheerful; but we throng hospital on hospital, infirmaries of all shades and colours, truss societies, *et hoc genus omne*. The thing is heart-rending in the extreme, but an honest journal for the progress of any (mechanical) art, *must* broach such subjects, bearing on the welfare of the *workers*. Conceeding, therefore, an adequate value to the introduction of a forest of fire-escapes—we say, we have conjointedly to look to "the *regeneration* of architecture," the *royal* art of old. But if we were to say no further, we would merely repeat one of those numberless (*un-practical*) commonplaces, with which papers are stained and blotched now-a-days. It is the *punctum saliens*—it is the *fulcrum* of Archimedes (on which *he* challenged to move the world), which is to be found, in architectural or any other regeneration of our social condition. And thus we say, that many, many people could not *exist* at present without their seven and a half per cent. and so on. Of these, we may say with Dante: "*guarda e passa*." But there are others, many others, who are not in such (artificially) needy circumstances—besides, persons, wide-hearted, benevolent, bold, ambitious, even amongst those who speculate in and live on architectural pursuits; and it is to those to whom we exclaim humbly, yet energetically: "speculate not on the chance and jeopardy of human life—be ashamed owning those mud and swallow-nest structures, unfit (aye, in many other respects) for the dwelling and living (!) in of human beings; set an example; restore architecture to its pristine, worthy state—not only to that of the (pagan!) Romans, but of our Christian forefathers of former centuries!" But as *any* (legitimate) means are legitimate for good purposes—we go still further, and will increase our philanthropic arguments by even speculative ones. Thus, builders of theatres, halls, hotels, inns, manufactories, in fact any building, where numbers congregate, might considerably increase their notoriety, popularity (and consequently gain), if they were to state that their property is *fireproof*, the staircases of stone, etc. To allude especially to hotels, the providing of stone staircases instead of those of (well-*resinous*) deal, could be done in London during the summer recess, etc.

We have introduced in our former paper the name of State's Architecture (*Staat's Architektur*), and we shall find that England is far behind countries in this branch of other public welfare. Not speaking of the Secretary of State for *Public Works* in France—even Austria, one-sided Austria, possesses very deep official contrivances in this respect. There is the supreme Aulic commission of public buildings (*Kais. Hof-Bau-Rath*) at Vienna, with directors of building in each provincial capital: another department is superintending even the construction of canals, dikes, etc., viz. the direction of aquatic works (*Wasserbau Direktion*). In Prussia, the late ideal *Schinkel* was at the head of the department of public buildings.

But as England possesses, after all, already a *Department* (!) *of Public Instruction*, (every thing but the *name* of a distinct secretaryship of state), another department of public works is a thing not so impossible as many may imagine. But we are apprehensive, lest the *extended* (or rather mistaken) ideas of personal liberty might mar its exertions and scope. We call the hitherto current ideas of personal liberty mistaken ones, and if we come to know, that our humbler classes possess even the liberty of dying by starvation, we think we have proved our assertion by a very few words. Thus we say, in the present instance —if any person or family chose to live in a house made of *fulminate of silver*, they are welcome to do so; well understood, on some sequestered spot of Salisbury plains, or Marston Moor! But they must *not* take any lodgers or servants with them, who being either injured or distressed by fire, may become chargeable to the parish — viz. the *nation*. Personal liberty does not go so far as to get 7½ per cent., with the liberty of drawing on the public exchequer for those very accidents, which are included as it were in the obtaining of this *dividend*. Every house tenanted is worth insuring now, and can get insured. But this relates only to the *landlord*. No one seems to care, however, whether the artisan and working man, yielding the 7½ per cent., by the renting of some wretched hovel run up of wicker-work and deal, is insured or not. But if the head of the family has been burnt, or if they by the loss of furniture, tools, and other utensils, get distressed, and eventually sent to the poor-house, hospital, or prison (!)—who is, after all, the cause of all these calamities (still more so in their national aggregate) but him, who orders such structures to be erected, the artist (?) who is so unfortunate as to be compelled to execute such (!) orders.

We believe, therefore, we have broached reasons, religious, *humanitarian*, artistic, and politic, for dissuading people to run on in the present way of futile, low, unsafe and ugly architecture—to make them feel, in fine, that it is unworthy of a *free people* to dwell in such structures; and that a bettering, an "improvement of our *social condition*," inculcated even from the height of the throne, must begin somewhere—be it even in architecture.

NEW WORK ON EGYPT.—Dickinson and Son, of New Bond-street, are about to publish a collection of views of the most celebrated temples, &c. in Egypt, from drawings made on the spot in 1844, by H. Pilleau, Esq., 16th Lancers. It will comprise the following subjects:—The Island of Philæ, with a general view of its ruins; temple and propylœa on the Island of Philæ; temple of Koum Ombou; temple of Edfou; interior of the great hall of Carnac—(Thebes); ditto from a different point of view; obelisk and propylœa at Luxor—(Thebes); ruins at Luxor; the two Colossi at Thebes; temple at Medinet Abour—(Thebes); interior of the temple of Denderah; and approach to the Great Pyramids of Geza.

EXHIBITION OF WORKS OF BRITISH INDUSTRY.

THE importance of a periodical exhibition of our manufactures has been often urged and always admitted; and we are glad to learn that the Society of Arts and Manufactures are applying themselves to effect it. The following resolutions, passed at a recent meeting of the managing committee, will briefly explain the objects sought to be attained:—"1. That the experience of foreign countries has proved that great national advantages have been derived from the stimulus given to industrial skill by bringing the manufactures of different establishments into competition with each other, and by presenting honorary rewards to those who have excelled in each department; cheapness of production, and excellence of material, both in execution and durability, being assumed as the *criteria* of superiority." That by carrying out a similar principle in this country, founded on the experience of the past, but with more extensive views, still greater benefits may be anticipated.—2. That having regard to the objects promoted by the Society of Arts, Manufactures, and Commerce, it would appear to be their peculiar province to attempt to carry out such an object in Great Baitain on a scale commensurate with the magnitude of the interests involved.—3. That immediate preparations be commenced for such a periodical exhibition of works of industry, at which the producers shall be invited to display their various productions." The details of carrying out this plan, on a comprehensive scale, were left to be considered at future meetings of the committee.

In the report read before his Royal Highness Prince Albert on the 2nd instant, when the society's rewards were distributed, this proposition was brought prominently forward. The following animated picture (extracted from one of the daily journals) representative of an exhibition of the products of national industry, will bring home to the minds of those who have never witnessed such a display, a scene of extraordinary interest—"A display of the perfection to which we have brought the mechanical arts would include every manufacture of the empire. Each producer would have his stand crowded with the choicest specimens of his skill; china from Worcester and Derby; the finest lace from Nottingham; the most splendid brocades and silks from Spitalfields, the newest patterns from Manchester, from the raw cotton to the finest manufactured produce; glass, varying in shapes, from the spun fibres, for robes and vestments, to the most superbly cut chandeliers; the produce of Birmingham, from the common cut nail, to the magnificent ormolu decorations for palaces; carpeting of brilliant patterns; a display of chronometers, watches, and clockwork; jewellery, of the rarest and most delicate devices; paper of the highest quality the mill can produce; printing in illumination and gold; cloths, of all quality and all colours; the straws of Dunstable, the ribbons of Coventry, and the crockery of Matlock; the latest locomotive—that triumph of mehanical speed; the Cornwall condensing engine—that masterpiece of economic power; models of iron steam-ships for the Atlantic; of men-of-war, for the dominion of the ocean; of merchantmen, from the ports of London, Hull, and Liverpool; the finest qualities of arms, in guns, pistols, and watered sword blades; and the choicest specimens of carving and cabinet work. Such an exhibition would include all the varieties of articles produced by the skill of the vast body of English artisans —the most ingenious, the most patient, and the most persevering in the world—in a word, everything that could render the exhibition worthy of the industrial manufacture of a mighty empire."

A considerable sum has been already subscribed by the committee towards this important object. We cannot omit this opportunity of alluding in terms of praise to the present active and excellent secretary, Mr. Francis Whishaw, who, by his energy and skill, has been mainly instrumental in restoring the vigour of youth to the ancient society of arts.

TAKING UP PUBLIC PAVEMENT.

A few days ago Mr. J. Newson, builder, Grosvenor-mews, was summoned before Mr. Hardwick, Marlborough-street, by Mr. Richman, surveyor of St. George, Hanover-square, for having broken up the pavement in Curzon-street, without license from the paving board, whereby he had incurred penalties to an enormous amount.

Mr. Richman said the defendant had obtained a license to make eight holes, for the purpose of erecting a hoard before the house of Colonel Merrick, in Curzon-street, where some alterations were being made. In addition to this, the defendant had constructed some cellarage, and had taken up the pavement to the extent of about 500 feet, without having first obtained a permission from the paving board. By this proceeding the defendant had subjected himself, under the 53rd clause of Michael Angelo Taylor's Act, to a penalty of 5*l.*, or not exceeding 10*l.* per foot. The board of commissioners had, however, determined not to press for a heavy penalty, and, though the sum of 60*l.* was named, they would think the justice of the case met by a fine of 5*l.* or 10*l.*

The defendant said he had violated the Act quite unintentionally. He had been urged to use expedition in constructing the cellarage, and he had quite forgotten to obtain the requisite licence. He had since obtained it, and paid all that was required.

The architect, who was present, said he was accountable for the breaking up of the pavement, as it was owing to the pressing directions he gave to the defendant to hasten the alterations that the pavement had been broken up. He thought, however, that the surveyor had mistaken the penalty imposed by law for this offence. He believed the clause empowering a fine of 5*l.* or not exceeding 10*l.* per foot, only applied to cases of wilful damage. To other cases the law affixed a penalty of 5*l.* or not exceeding 10*l.* If the defendant's case came under the 53rd clause, he would have incurred fines to the amount of between 5,000*l.* and 10,000*l.*

The surveyor said the law evidently intended to apply the 53rd clause to such cases as the present one. Builders would cheerfully pay 5*l.* or 10*l.* penalty for breaking up the pavement when they could by that means construct an area or a cellar.

Mr. Hardwick was of opinion that the case had been fully sustained, but as the paving board had suggested a penalty of 5*l.* he would make that the amount of the fine.

The money was immediately paid.

RIGHT TO ERECT LADDERS AND HOARDS.

An action was tried in the Court of Exchequer, on the 29th ult., brought by Mr. Gravey, a bricklayer, against the surveyor of pavements for St. Anne's, Westminster, to recover compensation for the alleged illegal removal of a ladder and other articles; to which the defendant pleaded, as a justification, that the ladder, &c., were encumbering the footway of Newport-court, in his jurisdiction; to which the plaintiff replied, that he had the license of the defendant for his acts. At the trial before the Chief Baron a verdict passed for the defendant, his lordship being of opinion that the case required a license; that the license given did not justify the conduct of the plaintiff; and that the notice of action was not good, and need not have been pleaded. Afterwards the present rule was obtained to review that opinion; and now

Mr. Jervis shewed cause.—The main question was, whether a license is necessary, under the local Act 57 Geo. 3, c. 27, to authorize the plaintiff in erecting a ladder against a house, and whether the license here given—namely, "to erect a ladder on the footway of No. 14, Porter-street," is complied with by the erection of a ladder in the adjoining street, in which No. 14, Porter-street, had another front.

Mr. Humfrey and Mr. Corrie, on the other hand, contended that a license was only required under the Act in question for the erection of an enclosure, for the purpose of depositing materials therein with the view to the reparation of a house. As to the objection to the notice, whether it be good or not, it could not arise, for the want of it ought to have been pleaded, and it had not been so done here.

The Court, after much discussion, made the rule absolute for judgment *non obstante veredicto*; it being the better opinion that no license was required for the acts of the plaintiff, and, further, that the want of a sufficient notice was the subject of a plea. At the same time it must be known that had the matter required a license, the terms of the license ought to be strictly followed. A license, for instance, under this Act, to "erect a hoard opposite No. 14, Porter-street," could not be construed into a liberty to put up a hoard in another street which that house might happen to front as well as Porter-street. Under the circumstances of the case, however, it was clear that no license at all was required, and the facts in the plea not affording any justification to the defendant, the verdict given for him thereon must be set aside, and judgment entered for the plaintiff notwithstanding it.

Judgment for the plaintiff accordingly.

ALLWORTH CHURCH, NEAR READING.

This interesting and almost unique specimen of our early decorated style, which has long been an object of interest to the antiquary and lover of church architecture, is now undergoing some necessary repairs; and an appeal has been made in the hope that all who delight in the reparation of our ancient edifices will be induced to lend a helping hand to restore it to somewhat of its original beauty. The structure is of flint, and a very superior piece of architecture. The south aisle, on the east and west ends, and on the south side, contains very elegant windows of three lights, adorned with geometrical tracery. The sepulchral effigies, nine in number, which occupy eight tombs in the interior are placed beneath large ornamented ogee arches, richly decorated with trefoils, crockets, roses, and quatrefoils, and form a very rare specimen of the ornamental architecture of the early part of the fourteenth century. The whole has suffered very much from the violence of the troublous times of the Revolution, and has fallen into great decay. The parish (consisting entirely of an agricultural population) have not had the means of repairing the damage inflicted on it, but they are now expending a rate upon the edifice which will render the structure safe from any further dilapidation, and have raised a considerable sum by subscription among the landowners and others interested in the parish, which will enable them to begin the work of restoration. The walls, the windows, the arches, the canopies of the tombs, all require cleaning and considerable repairs. The timbers of the roof must be relieved of their coat of plaster and restored, the whole of the interior re-paved, and the pews re-arranged, so as to shew the architecture to advantage, and to afford increased accommodation to the poorer portion of the inhabitants; and an East window to correspond with the others should be inserted in the chancel in the place of the present modern light.

Birmingham Society of Arts and School of Design.—The annual meeting of this society was held on Friday last, and was very numerously and respectably attended. Lord Calthorpe presided. The report stated, that the committee "are able, with great satisfaction, to advert to the circumstances of the past year, as affording a proof that the expectations of advantage to a large portion of the persons engaged in trade and manufactures, by the adoption of the present system under which the society is working, have been fully realised. Your committee can refer to the number of students attending the school, and the result of that attendance exhibited in the works of art selected by your committee as deserving premiums, as showing that in art alone, as connected with manufactures, considerable progress has been made, while the invariable attention, industry, and good conduct of the students are fully bearing out the anticipations of those who augured moral results might be reasonably looked for, from the enlargement of the plans and operations of the society."

FREEMASONS OF THE CHURCH.

June 10.—The Rev. G. Pocock, L.L.B., in the chair.—The minutes of the last meeting were read and confirmed. The Rev. J. H. Brooks, M.A., Senior Fellow and Bursar of Brazennose College, Oxford, was elected an honorary fellow and one of the chaplains.

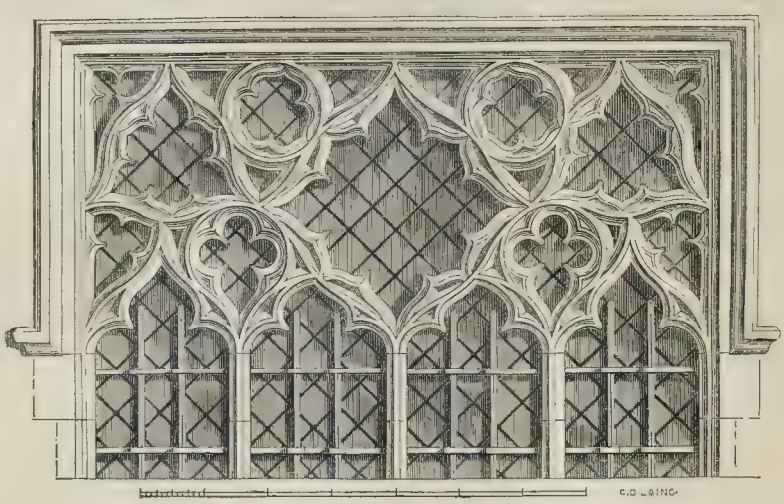
Mr. W. Papineau, directed the attention of the meeting to what he considered the bad taste exhibited by the directors of the railways in using the pointed style of architecture for engine-houses. Mr. Rogers exhibited an oak stall seat, carved by himself, for the Rev. Henry Boucher, of Thornhill House, Stalbridge, Dorset. Mr. T. Leeson exhibited an encaustic tile from Tintern Abbey. Mr. George Isaacs exhibited a circular reliquary of silver, gold, enamel, and precious stones, bearing the date 1247; also an enamelled jewel of the early part of the sixteenth century, enriched with rubies, pearls, and diamonds, and bearing in the centre a conventional "pelican in her piety;" and Mr. W. H. Rogers a silver-gilt chasuble button of the fifteenth century, perforated with a group of the crucifixion: also, an ornamental monogram of Jesus, by David Hopper, 1530.

A lecture was then delivered by Mr. George Russell French, "On the Sacred Architecture Recorded in the Bible," much of the substance of which has appeared in the Builder, under his initials. The lecturer noticed the erection of altars by Noah, Abraham, Isaac, and Jacob, the setting up of the single stones of memorial, most of which had names, as the Bethel of Jacob (whence the affinity was traced to the Bethal stones of Druidical times), the Ebenezer of Samuel, the great stone of Abel, the stone Ezel, Absalom's hand, and many of these stones remained for centuries after their dedication. Some of the stones were set up as witnesses of covenants, as Jacob's Galeed, and that of Joshua at Shechem. "The twelve pillars erected by Moses, Joshua, and Elijah, were probably in the form of circles, like the temples of Stonehenge and Abury, and, like them, surrounded by the vallum or trench, as was the case with Elijah's structure on Mount Carmel. The lecturer pointed out that Solomon's Temple agreed in its plan and details with those of Egyptian temples, rather than with the architecture of Greece, and the close connection of Solomon with the Egyptians, by marriage and commerce, sufficiently accounted for the style of his temple agreeing with their mode of building. The temple which excited so much admiration in our Saviour's days was neither that built by Solomon, nor that restored as described by Ezra, but it was that recently and entirely rebuilt by Herod the Great, and the account of the vast size of "the goodly stones" of which it was composed is borne out by the magnitude of some still to be seen at Baalbec. It was, therefore, Herod's Temple whose foundations were ploughed up by Terentius Rufus, fulfilling the prophecies of Micah uttered seven centuries beforehand.

NEW ROAD TO HIGHGATE AND HAMPSTEAD.

A plan has been recently submitted to the office of "woods," for improving the means of access to Highgate and Hampstead. It is proposed to form a new road from the top of Swains-lane above the cemetery at Highgate, to the new street now forming from Farringdon-street, taking the direction of Maiden-lane, without its windings, and raising or lowering the road as occasion may require to make a regular inclined plane, in a straight line, by which the hill may be ascended by horse or foot, without the rise being perceptible. The memorial sets forth that this line would have the peculiar advantage of rising gradually from Battle-bridge nearly the whole way on a natural embankment. "To make it complete two artificial embankments will be required; one across the fields from the top of Swains-lane, nearly in direction of the present foot path to the highest part of Maiden-lane, the other from thence to the new lodge, lately built at the Maiden-lane end of the Tufnell Park-road; and to cross the Junction-road that leads from the Holloway-road to Kentish-town by an arch over it."

WINDOW FROM CHARING CHURCH, KENT.



CHARING CHURCH, KENT.

The picturesque village of Charing, in Kent, is situated about five miles from Ashford. Besides some interesting portions of ancient domestic architecture, there are considerable remains of a monastery or some such building adjoining the church. The latter structure is a large handsome building, but affords very little worthy the architect's remark besides the window represented above; this is in the south aisle, and appears with its square head, rather out of place. It is very large, being 6 feet 2 inches from the sill to the springing. Notwithstanding the decorated character of some of the tracery, I consider the date of the window must be placed in the late period of Gothic architecture. The window is very roughly worked, the design is ingenious, and the effect of it is very good. The church contains some of its old carved benches, with ornamented ends, but these, as well as the font, are not rich enough in character to be worth engraving.

The most singular portion of the interior is the roof, which is Elizabethan; the collar beams are richly carved, and a corbel ornament, like double consoles, is placed at the angle formed by the beams and the rafters. The whole is painted black and white, looking very odd and quaint. C. J. Richardson.

THE NATIONAL GALLERY.

ARRANGEMENT OF PICTURE GALLERIES GENERALLY.

Few buildings have received a greater share of abuse, just and unjust, than this last luckless effort of poor Wilkins, by which his life was embittered and his death accelerated. Mr. Eastlake, as we stated last week, has now taken the field against it, and, in a letter to Sir Robert Peel, points out its defects as a repository of pictures, and urges that a more suitable building ought to be obtained. The evils he points out are comprised under the following heads:—

"The inconvenient arrangement, or disposition, of some of the rooms.

Insufficient space for the due exhibition of even the present collection of paintings.

Insufficient room for the accommodation of those desirous of studying in the Gallery.

Want of offices.

The imperfect system of ventilating and warming the rooms."

With regard to the disposition of the rooms, it will be seen, by a reference to the plan (Fig. 1), which, through Mr. Eastlake's kindness we are able to introduce, that the two small rooms A and B are ill-calculated for a public exhibition, chiefly from having each but one door, serving for ingress and egress. "The visiters thus passing and repassing are met by the additional streams ascending the staircase, or returning from the principal apartments: the threshold of the gallery is, consequently, often obstructed.

In summer, the effects cannot but be injurious to the pictures, which are exposed in a confined space, at once to a moist atmosphere, and to clouds of dust. Under such circumstances they appear to require cleaning daily (as often as the rooms are swept): this, it is almost needless to say, would be unsafe; and even the frames could not be so frequently dusted without injury to their appearance. The more effectual remedy required is proper ventilation."

As to remedy:—"Shortly after the present gallery was opened, it was proposed to throw the two rooms, A and B with the intervening passage, into one; the stairs would then have partly divided the space, as in the centre room at the British Institution, Pall Mall; but this arrangement, though it would be more convenient in some respects, would much reduce the space for pictures, since two walls would be thus taken away.

If, therefore, this alteration was ever advisable, it cannot be considered so now; want of space being an actual and increasing difficulty. For the same reason, doors could not be opened at C, D, without reducing the surface now hung with pictures by four times the extent of one of the spaces.

The communication between the larger rooms appears to be unobjectionable, as the doors, though single on each side, are of ample width. Nothing seems to be gained in a public gallery by two doors in the same side of a room, unless one of them is made to serve for ingress and the other for egress, and this would be an injudicious restraint in a picture gallery, where the visiter should be allowed to wander freely and retrace his steps as he pleases. It is also to be remembered that, in general, every door is twice the amount of its dimensions, deducted from the surface of wall available for the arrangement of pictures."

The gallery is much too confined for its purpose:—"In consequence even of the addition of two pictures of moderate dimensions (by Guido and Rubens) during the last year, other works, which were before hung near the eye, have been unavoidably placed at too great an elevation to be duly seen, or to be of use to the students who copy in the gallery on the private days.

I need hardly observe that it is not desirable to cover every blank space, at any height, merely for the sake of clothing the walls, and without reference to the size and quality of the picture. Every specimen of art in a national collection should, perhaps, be assumed to be fit to challenge inspection, and to be worthy of being well displayed. It is hoped that there is little danger of pictures being purchased for the nation which will not bear this test; although the case may be sometimes different with regard to donations.

The arrangement of pictures, with a view to their analogies of style, comparative merit, and dimensions (though unfettered by the considerations which must sometimes interfere with the placing of works of art in modern exhibitions), is an undertaking of no small difficulty. Some opinions on this subject, and on the modes of lighting picture galleries, are here submitted.

Lofty rooms should, I conceive, be appropriated chiefly to large pictures, or to pictures with large figures. The upper part of the walls can be thus only properly filled. The space which may remain underneath, in such rooms, is not the fittest for cabinet pictures; although there may be sometimes examples, especially by Italian masters, which might be advantageously so placed. But small, elaborate, Dutch and Flemish pictures should, perhaps, in no case be far removed from the light of which the windows, wherever they may be, are always to be considered the *source*.

The fittest place for the windows, whether in the roof or in the wall, is a question on which much difference of opinion exists. Some are inclined to think that a skylight (always supposed to be furnished with ground glass, or with moveable blinds) is desirable for all pictures. This seems to have been Rubens's opinion; for Algarotti states that the museum which the great painter built for himself at Antwerp was circular, with a single light in the centre of the roof. But if a skylight be the fittest, it should still, for the reasons before given, not be too far removed from cabinet pictures, which require a strong light to exhibit their delicate gradations of chiaro-scuro, and the beauties of their execution. Indeed, in a climate like this, and with the effects, moreover, of smoke to contend with, there should always be a superabundance of light; and whatever has been deemed necessary in this respect in the best lighted continental galleries should be rather exaggerated in London. The form of the arched ceiling, next the skylight, is important with reference to this object. The flatter the curve (as tend-

ENGRAVINGS TO ILLUSTRATE MR. EASTLAKE'S LETTER TO SIR ROBERT PEEL.

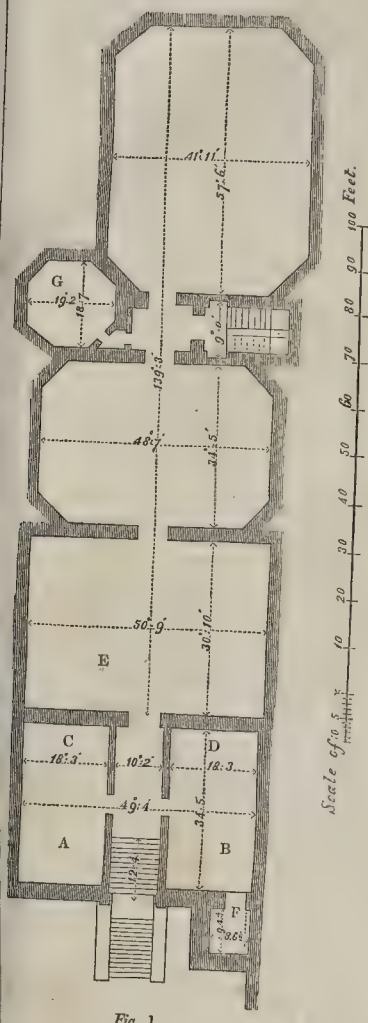


Fig. 1.

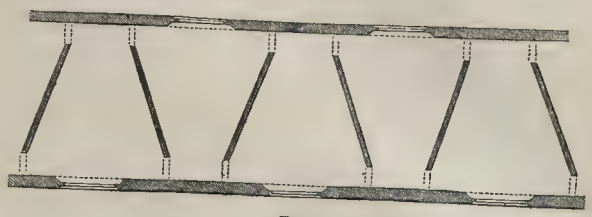


Fig. 2.

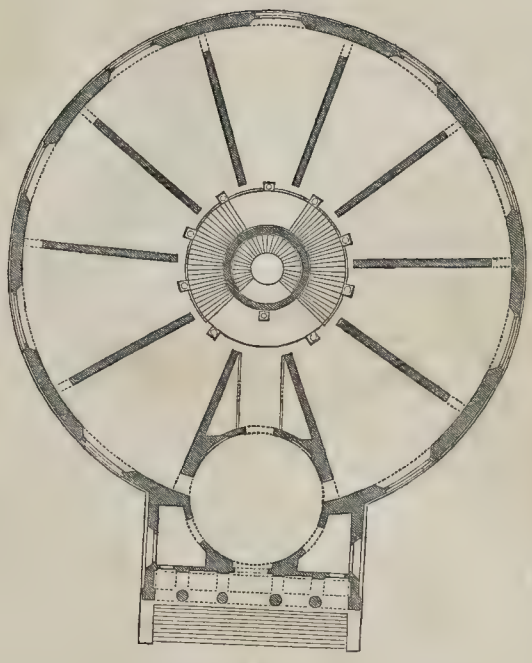


Fig. 3.

o efface the upper angles of the room), reater will be the quantity of light ed from it. In the new gallery at h this advantage, it appears, is more counterbalanced, in the large rooms, by eat height of the curve itself, which has ect of removing the source of the light from the pictures.

inference which the foregoing statee seems to warrant is, that rooms of equal are not advisable for large and small s; that, supposing a skylight to be the on all occasions, elaborate cabinet s, in order to be near the eye, and, at ne time, near the light (for both condie essential), must be placed in less lofty

This, it is admitted, might involve tural difficulties. The problem of pro- high and low skylights on the same f desirable to have them on the same ould not be solved by adopting the form ncient basilica, or that of a church, in ne nave is much higher than the aisles; greater elevation of the central room tercept a considerable portion of light e wall at least of the side galleries. inution of light from the interruption topping walls and chimneys may be seen in the National Gallery, on comparing the different sides of the principal room; that where the celebrated painting by Sebastian del Piombo hangs is always the darkest, owing to the masses of brickwork above the opposite side. It would appear needless to say that a skylight for pictures should be free and uninterrupted, but the frequent violations of this condition prove that it may be forgotten.

Supposing the rooms to be on the same floor, but of unequal height, the best mode of ensuring the uninterrupted light in the smaller galleries would be to place the latter not parallel, but at right angles, or abutting endwise against the higher building, at the same time contriving that connecting corridors (in which drawings might be placed), should have the effect of removing such smaller galleries still further from the higher neighbouring walls. If, again, the rooms should not be required to be on the same floor, there would be no difficulty whatever in ensuring a perfectly uninterrupted skylight in every case.

The well-known advantage of a skylight is, that the spectator, when near enough to inspect a picture, is not dazzled by the source of the light; the picture is illumined, but the light itself is unseen. There is a mode in which this end can be attained in a great degree, even with a lateral light. It was proposed some years since by Professor Magnus, of Berlin, but I am not aware that it has been anywhere adopted. A paper which he published on the subject at Vienna (in November 1839), contains the plan which is here copied, Figure 2.

He supposes a room so constructed to be at least five-eighths of its breadth in height; its length to depend on the number of paintings to be placed in it; windows, reaching nearly to the ceiling and about five feet from the floor, are opened on both sides. The width of the windows, he proposes, should be a fourth of the breadth of the room, and also of the piers between them; screens are then introduced, placed at an angle of 62° with the wall, as shewn in the plan. The pictures to be placed on the screens require to be removed five or six feet from the wall; the useless space serving for doors of communication.

In such an arrangement it will be seen that the spectator must almost turn his back to the window in viewing the pictures on the screens.

This principle is, unquestionably, best adapted for a circular building, since the oblique screens would then present no archi-

tectural irregularity, but would be in their symmetrical direction as radiating from a centre. The circular design of Professor Magnus is contrived according to the annexed plan, Figure 3.

Here again he supposes the windows to reach nearly to the ceiling. The extent of the screens from the external wall towards the centre would be regulated by the light, leaving a circular space in the centre for staircases. Opposite each window a statue is supposed to be placed; other details are sufficiently explained by the plan. The same contrivance would be available for more than one story, and might be combined with the employment of a skylight in the uppermost room."

This plan Mr. Eastlake considers to be the least objectionable mode in which a side light can be employed, although fitter for modern exhibitions than for a national gallery. "Nevertheless, it is fair to state that the side light, even with the picture-walls or screens at right angles to the main walls, and without reference to a circular plan, has its advocates. The directors of the Galleries of Dresden and Berlin (Baron de Friesen and Dr. Waagen) both recommend it. It has even been adopted at Berlin and (for modern pictures) at Dresden. The arguments in favour of this opinion seem to be inconclusive. Dr. Waagen, in a letter addressed to me in November, 1840, observes, "that kind of light which the painter considered the best for the execution of his work must also be the best to see it in." To this it may be replied "that, if a picture be painted with a side light from the left (and this is nearly always the case), we have only to show it with a side light from the right, to reverse all the advantages arising from this consideration. It may be added, that in the practice of historical, portrait, or still-life painters, the necessity of lighting the model or object to be copied, advantageously, is still more important than that of lighting the picture. A somewhat elevated light displays natural objects well, but a skylight is by no means favourable."

"On the whole I see no reason to alter the opinion which I expressed on a former occasion,* viz., that the window or source of light by which a picture is seen, and the picture itself, ought not both to come within the range of vision at the same time. This general condition may comprehend the side light under the restrictions before alluded to; but it may be safely asserted, that a light from above, if sufficiently abundant, is always the fittest for large pictures.

With respect to the colour of the walls on which pictures are to be hung, it may be observed that a picture will be seen to advantage on a ground brighter than its darks and darker than its lights, and of so subdued a tint as may contrast well with its brighter colours. The choice of that tint should, I conceive, be regulated by the condition of its harmonizing with the colour of gold, with which it is more immediately in contact; but this is not all; supposing the most advantageous hue to be employed for the wall, it is not to be concluded that boards painted of that hue will have a satisfactory effect. The refined and harmonious tones of pictures, and the soft splendour of gilding around them, require to be supported by materials of corresponding richness, or at least by a certain finish, in the appearance of what surrounds them. The whole question is of less consequence where paintings are numerous enough nearly to hide the walls; but while the latter make a considerable part of the impression on the eye, that impression is not to be neglected."

We have given this portion of the letter at length, because the best arrangement of picture galleries is one of considerable interest and is still matter of dispute.

The want of room for the accommodation of artists and others copying in the National Gallery is then pointed out, and the conclusion is arrived at that a larger building is already absolutely necessary. "It is not for me to offer any suggestion as to the fittest place for such a building, but there are certain conditions which, with reference to the preservation of pictures and other requisites, should be borne in mind in selecting a locality.

The main question seems to be, whether it is desirable that a National Gallery of pictures should be in the heart of the metropolis, or in the suburbs. In the first case it is more accessible to the public at large—undoubtedly a strong point in favour of such a view. Assuming such a situation to be the fittest, it would, I consider, be expedient to provide against the injurious effect before adverted to, of a sooty atmosphere. This inconvenience, looking to the experiments of Dr. Reid, could certainly be prevented; and it appears that the means employed to prevent it would not at all interfere with the light, as the circulation of air would be independent of the windows. It is admitted that the evil in question—the accumulation of soot, would not be materially lessened (depending, as it does, on the direction of the wind) by selecting a site on the outskirts of London; and therefore the precautions recommended would still be necessary, wherever the building might be, since it could in no case be very remote. But light and ventilation, if not freedom from dust, would undoubtedly be more secured by avoiding the thickly-inhabited parts of the metropolis.

In the event of a central situation being preferred, it might be a question whether the present gallery could be enlarged, as there is considerable space on the north side. I need not inquire how far it might be possible in that case for the skill of the architect to adapt the building to a larger plan; but to combine such an object with a sufficiently symmetrical design would perhaps be scarcely compatible with the existence of the present exterior. Abundant space is, at all events, necessary; for it is most desirable that the plan, however apparently comprehensive, should be capable of extension. This is one of the fortunate circumstances attending the site of the British Museum.

This last requisite would doubtless be more easily attained by removing to the suburbs. Hyde Park has been mentioned in Parliament as a fit situation. Supposing this site to be adopted, its advantages might be combined, as far as possible, with the condition of vicinity to public thoroughfares, by selecting the immediate neighbourhood of either of the roads that bound the Park."

Mr. Eastlake terminates his excellent letter with the expression of a hope that the National Gallery, while rich in the works of the great masters, may, by degrees, merit its designation in another sense, and that a portion of the new edifice may be dedicated to the reception of *the best works of the British School*. Mr. Eastlake has already done much to advance British art; unless we are greatly mistaken, he will soon be in a position to do more, and we have no doubt will avail himself of it to the fullest extent.

* Report on the mode of lighting the Randolph Gallery at Oxford.

ELY CATHEDRAL.

A CORRESPONDENT of the *Athenæum* said last week:—"As you sometimes take notice of the repairs and improvements which our national architecture is undergoing, I thought some account of the present state of Ely Cathedral might not be unacceptable to you. When I visited Ely a year or two since, I could not help lamenting the serious dilapidations which the cathedral was daily undergoing, and the worse than useless repairs which in several places evinced a feeble attempt to arrest them. Every part of this edifice, which in splendour and extent hardly yields to any in the kingdom, has from time to time, fallen under the degraded taste of ignorant economy, and instead of repairs accomplished in the spirit of architecture, we had brickwork in the place of stonework, pointed tracery under Roman arches, and Italian doorways inserted side by side with windows filled with zig-zag mouldings, and in the vicinity of the triumphs of Alan de Walsingham. The work of restoration has at length I hope fallen into competent hands, and the present dean, whom your scientific readers will at once recognize under the more familiar name of Professor Peacock, has commenced the labour of restoring this noble edifice with a zeal to which its various interests entitle it.

When I entered the cathedral last week, I was surprised by the sound of masons, carpenters, cranes, and pulleys. In the choir a chaffern-fire was burning, tall scaffold-frames were standing near, and three or four workmen were rubbing and polishing pillars of Purbeck marble, while others were stopping the holes and gaps which had been perhaps wantonly backed upon them. Outside the windows which light four sides of the celebrated lantern, several masons were busily engaged, and the south-western transept, where all the grandeur and solidity and variety of the Anglo-Norman architecture seems concentrated, was literally crammed with masons at their labours.

These are signs of better things. The endowments of Ely have been on a princely scale; but the conservators of its church seem to have been more than usually negligent. The puritan ordonnance commanding the destruction of images did much to despoil Ely, especially the admirable tabernacle work of its tombs and chapels, but on the whole it has perhaps suffered more from the neglect, or even the activity of its friends, than the barbarous policy of its enemies. From the western porch to the east windows it is covered with one universal coat of stone-coloured wash, if we except the six pillars of the ante-choir. These are of light-coloured Madrapore marble, and support some of the richest arch-work conceivable, all blunted and discoloured with ochrey wash. The whole of the choir has submitted to the same degradation, so that it was hardly suspected till lately that the pillars supporting the lower arches, and the slender shafts of the triforium with the foliated brackets and columns which support the groining of the roof and the string-courses dividing each story, were all of beautiful Purbeck marble. Several of the shafts have been cleaned and polished, and those dividing the lancet lights of the east window are to follow. As in most of the other works of this period the Purbeck marble has only been partially used, the rest of the work consisting of quatre and trefoil ornaments, the moulding of arches, and the principal part of the clerestory being of Ketton stone and clunch. We cannot suppose that economy dictated this partial use of marble, when we see such unsparing richness in other parts of this cathedral, but are forced to appeal to some other motive, which may perhaps be suggested in the extreme darkness of the Purbeck marble, which, while it pointed out its partial use in connection with a lighter material, seems to have prevented its adoption for entire buildings by giving them too dark and mournful an appearance. Associated with white, or nearly white stone, it gives distinctness to that fine gothic work which is sometimes apt to be overlooked in its minuter parts; and when the degrading lime-wash under which the sharpness and character of the choir at Ely is lost shall be removed, it may be readily conceived how admirable the colour as well as the clearness and design of this part of the cathedral will appear. The mouldings foilage, and ribs have been so drenched by the brush and lime-pail that they appear as if they had emanated from a worn-up mould, whereas originally they must have presented the sharpest lines and finest contrasts.

Formerly the eight lancet lights that occupy the east end of the choir were filled with painted glass, which the parliamentary commands of the Commonwealth caused to be destroyed. Bishop Sparke, who died in 1836 left in his will a sum of money to be expended on their restoration, and they are to be forthwith commenced, as well as the four windows which occupy the alternate sides of the octagon. The effect of these, if properly executed, may be conceived by those who are acquainted with the purity and beauty of the architecture by which they will be accompanied. T. G.

ZINC THREAD.—The *Moniteur Industriel* announces that an important discovery in the manufacture of zinc thread has been effected by M. Boucher, who, after many essays, has at length been able to produce zinc threads of a diameter, of great suppleness, and presenting all the qualities of an excellent metal thread. In all cases where a great tension is not required, this thread can be substituted with advantage for that of iron, brass, or copper. The price of zinc has doubled during the last few years, but, notwithstanding, M. Boucher vends his thread at a lower price than the galvanic iron thread, and considerably less than brass thread.

CONTEMPLATED IMPROVEMENTS IN WHITECHAPEL AND SPITALFIELDS.

The fourth Report of the Metropolitan Improvement Commissioners has been published during the past week. It bears date the 23rd of April, 1845, and refers exclusively to the present defective communications in the locality of Whitechapel and Spitalfields.

The report states that "all the houses required for the proposed improvement in Spitalfields have been purchased and pulled down; that advantage has been taken of the present state of the ground to build, throughout the whole extent from Spitalfields Church to the Thames, a sewer of large and ample dimensions, for the drainage of that district; and that it only remains for the commissioners in whom the execution of the improvement is vested to take the customary measures for the letting of the ground, in order to make it available for all the purposes at present contemplated by the legislature.

It is alleged, however, by the local committee,* that the objects for which this improvement was originally devised and recommended to Parliament are at present but imperfectly fulfilled. They advert to the existing communications between the immediate vicinity of Spitalfields Church and Shoreditch; they allege that if the line of street already formed is to be the main channel of communication between the Docks and the north and north-western portions of London, such outlets as these would be wholly inadequate to the exigencies of its increasing traffic; and they urge that, for purposes so important as the trading and other interests of the district, its northern terminus should be at once extended to the nearest leading metropolitan thoroughfare, and thence to the great leading commercial communications of Old-street and the City-road.

From the evidence appended to the report of the Select Committee of 1840, the ultimate expediency of this extension would appear to have been suggested itself; and a plan for lines of street from Spitalfields Church to the terminus of the Eastern Counties Railway in Shoreditch, and thence to the junction of the City-road and Old-street, to have been prepared for, and discussed by that committee. The estimated net cost of the first-mentioned of these improvements was 40,209*l.*, and of the second 112,000*l.*, upon the lines of which a plan is annexed to this report.

Your Majesty's Commissioners have had before them and examined Mr. Pennethorne, to whom these estimates were prepared and submitted for the consideration of that committee. Mr. Pennethorne, as the surveyor of Her Majesty's Commissioners of your Majesty's Woods, Forests, and Land Revenues, entrusted with the superintendence of the various metropolitan improvements under their direction; and having since acquired extensive experience in the valuation of property in the district, he adheres to the opinion then expressed, that the ultimate cost to the public would not exceed the sums respectively mentioned.

Upon an attentive consideration of the report and the proceedings of the several select committees on metropolitan improvements hereinbefore referred to, and after very careful inquiries instituted on the part of this commission, your Majesty's Commissioners are of opinion that the communications in the eastern portions of the town are still exceedingly defective; that, in continuation of the improvements now in progress, the lines at present before them suggested the best and the least expensive that can be adopted; and that, ultimately, for the completion of that improvement it may be found expedient to carry both of them into execution.

From the statements submitted to this commission by the parties whose memorials are appended to this report, your Majesty's Commissioners are also fully disposed to believe that the same lines would effect a great amelioration in the general condition of the district through which they would be carried.

Having looking to the pressing circumstances which immediately suggested for their consideration, in connection with the line of street extending from Whitechapel to the front of Spitalfields Church,—to the very narrow and defective thoroughfares which at present form its northern terminus; to the near approach of the period at which it will be opened for the reception of traffic; and to the obvious disadvantages under which, both on that account and until its final character and destination be decided, the letting and appropriation of the ground throughout the whole line of this improvement must be conducted,—your Majesty's Commissioners are of opinion that the first portion of the plan suggested to the Select Committee of 1840, is that which calls for the more immediate attention of Parliament.

They recommend, therefore, that out of any moneys to be hereafter raised as a fund for metropolitan improvements, provision should be made for the completion of a line of street from Spitalfields Church to the station of the Eastern Counties Railway in Shoreditch, according to the plan and estimate referred to in this report."

*Committee of the district of the Tower Hamlets, for the progress of Metropolitan Improvements in neighbourhood,

OUR KNOWLEDGE OF CURVES.

Sir,—It appears that "elementary outline," and "geometrical forms" are a part of the instruction, or should be so, of the "School of Design." This, coupled with the "general consideration of geometrical figures," and the "discussing the properties of the *oval*" by the "Decorative Art Society," noticed in "The Builder" of last week, induce me to direct attention to "the Septenary system of generating lines by simple continuous motion."

The very word "*oval*" shews clearly the want of information, and your beautiful engraving of the "Mausoleum of the Orleans Family," although made from a Daguerreotype plate, which no doubt was correct, shews us clearly that either your draughtsman, or engraver, or both, have the general incorrect idea of the representation of circles in different positions.

Much may be said, and ought to be said, *on lines*, as elementary instruction, both for design and construction. On the right line—the circle—the ellipse—the parabola and the hyperbola—the archoids—the cypoids and the cycloids. On the different characters of varying lines, without contrary flexure, as well as on those variously and beautifully inflected and waved lines, which together, are the very A B C of design, and the mine for true lines of beauty; and on the simple means by which so many of these can be so easily traced.

The necessity for knowing *practically* something more of curves is becoming more obvious, and it will be found strictly true, that geometry is the true foundation of all that is graceful in outline, and the origin of true curves and correct taste in ancient art.

The elementary principles of the septenary system for producing curved lines upon a plan are few; viz., a *point*, a *right line*, and a *circular line*, the simple elements of geometry.

When any object in nature is seen most perfectly developed, what is more common than to say, in admiration, how mathematically correct!

It must not be supposed that it is considered every artist ought to be a mathematician, as that word is more particularly understood. The equation of a curve will not give an artistical feeling to the consideration of a line; but, on the contrary, greatly increase the labour of investigation in that respect, when compared to the simple mode of knowing a curve (as you know your friend) by appearance, and by the method by which it can be traced.

The Geological Society, it appears, sprang from a small beginning,—a meeting at Dr. Babington's: and from a meeting to discuss the proportions of a few curves may arise a society for collecting information on the various characters of lines, the simple modes by which they may be traced, and their applications to designs in every department of art.

I am, Sir, &c.

Joseph Jopling.

29, Wimpole-street.

The President of the Royal Academy.—Sir Martin A. Shee, in consequence of the state of his health, has resigned the office of president of the Royal Academy.

LIST OF NEW PATENTS RELATING TO ARCHITECTURE, ENGINEERING, &c., GRANTED FOR ENGLAND.

Furnished by Mr. A. Prince, of the Office for Patents of Inventions, Lincoln's-Inn Fields.

[SIX MONTHS FOR ENROLMENT.]

Richard Prosser, of Birmingham, civil engineer, for improvements in the manufacture of metal tubes, and in the machinery and apparatus for producing the same. May 1.

Charles Attwood, of Bishop Oak, near Walsingham, Durham, esquire, for certain improvements in the manufacturing of iron. May 3.

William Radley, Laburnam-terrace, Kingsland-road, engineering chemist, for certain improvements in the production of gases, and for their application to purposes of general illumination, and in the apparatus and machinery to be employed in manufacturing, measuring, and distributing the same. May 3.

James Foreman, of Ranelagh-road, for certain improvements in the construction and manufacture of pipes and tubes applicable to locomotive purposes, and to the conveyance of water, gas, and other fluids. May 6.

Charles Wheatstone, of Conduit-street, esquire, William Fothergill Cooke, of Kidbrooke, Blackheath, esquire, for improvements in electric telegraphs, and in apparatus relating thereto, part of which improvements are applicable to other purposes. May 6.

Joseph Hill, of Ipswich, wire-worker, for improvements in the manufacturing wire fabrics for blinds and other uses. May 6.

George Duckett Barber Beaumont, of Sandy Combe Lodge, Twickenham, Middlesex, for improvements in propelling carriages. May 8.

William Prosser, jun., of Pimlico, Esq., and Jacob Brett, of Hanover-square, gent., for improvements in railways, and in propelling railway carriages. May 10.

John Mellar Chapman, of Newcastle-upon-Tyne, banker, for improvements in the manufacture of rails, and other parts of railways. May 10.

Frederick Ransome, of Ipswich, engineer, for improvements in combining small coal and other matters, and in preserving wood. May 10.

Thomas Wells, of Ware, whitesmith, for improvements in the construction of timber and other jacks and floor cramps. May 17.

Alexander Mc Dougall, of Daisey Bank, Manchester, gentleman, for certain improvements in the method of working atmospheric railways. May 17.

Louis Antoine Ritterbrandt, of Gerrard-street, doctor of medicine, for certain improvements in the application of heat to boilers for generating steam, which improvements may be also applied to other purposes where heat is required. May 17.

Henry Deacon, of Eccleston, for improvements in apparatus for grinding and smoothing plate glass, crown glass, and sheet glass. May 22.

Jeremiah Simpson, of Burslem, oven-builder, and Joshua Seddon, of the same place, earthenware manufacturer, for an improved method of constructing the flues and interior arrangements of ovens and kilns used by manufacturers of china and earthenware. May 24.

Richard Fell, of Crown-street, Finsbury, plumber, for certain improvements in the generation and application of steam, and in obtaining and applying motive power. May 24.

Julius Adolphus Detmold, of the city of London, merchant, for improvements in the construction of metallic boats and other vessels having curved surfaces. May 24.

John Constable, of the city of London, merchant, for certain improvements in the manufacture of gas for lighting and heating. May 24.

William Prosser, jun., of Pimlico, esquire, and Jean Baptiste Carcano, of Milan, gentleman, for improvements in working atmospheric railways. May 24.

Henry Pinkus, of Great Marlborough-street, Middlesex, esquire, for improvements in obtaining and applying motive power to impelling machinery. May 24.

John Masters, of Welford, Leicester, gentleman, for certain improvements in trouser fastenings, and in attaching the same, and also in the application of an elastic material or fabric to trousers and other articles of dress. May 31.

APATHY OF GOVERNMENT AS TO LOCAL IMPROVEMENTS.

The *Westminster Review*, in an article to which we have already referred, remarks justly:—"It is yet but imperfectly understood that the test of all good government is local improvement. The spirit of British legislation is not comprehended by judging of it exclusively from the debates of the House of Commons. An intelligent foreigner visiting this country would find the data he requires less in the newspapers than in the streets. What is the true end of all social institutions but the social interest? What other meaning should have state policy, than that the people constituting the state should be well fed, well clothed, well lodged, well educated, and well protected from every calamity that human prudence can avert? A walk from Whitechapel to Westminster, and a few inquiries by the way, will explain to a stranger how far this object has been effected better than whole volumes of Hansard: and yet so little are the practical results of legislation thought of, that when two noblemen, a year or two back, accompanied Dr. Southwood Smith to Spitalfields, to see with their own eyes the state of the poor, the fact was noted at the time as a marvel, and rather as a work of supererogation on the part of lawgivers than as a branch of duty.

The reports of numerous commissions of inquiry have awakened a general expectation of extensive measures of usefulness connected with home administration; but the little that has yet been done shews to a lamentable extent how far more engrossing are questions of party conflict, and the old worn out theories of diplomacy, than any consideration of practicable benefits to the people, which might be realized by government almost without an effort.

Here are we, two millions of human beings, crowded upon a little spot five miles square, whence, as from a mighty heart, an impulse is communicated to every corner of the globe;—inhabitants of a city which, from its influence in human affairs, will be remembered when even Rome shall be forgotten; and what does this government of ours, or the statesmen composing it,—busy with the cares of an empire upon which the sun never sets,—do for *us*? Occupied with the regulations of Hong Kong, and the defence of British interests on the banks of the Columbia,—what share of the watchful vigilance of a British cabinet is enjoyed by *us*, here, on the banks of the Thames, in the streets comprising two hundred and fifty-one thousand houses round St. Paul's?

To answer the inquiry would be only to afford another illustration of the aptness of a large portion of mankind, while taking the warmest interest in the affairs of their neighbours, to forget the maxim of 'look at home.' But we doubt whether the history of the world would afford an example of the capital of a great nation more neglected in the national councils, less indebted to government aid for its growth and progress, as a place of civilized abode, than London.

In ancient times metropolitan improvement was an object for the ambition of kings. The glory of their capital was considered as their own. 'Is not this great Babylon that I have builded?' was an exclamation of pride, but of pride not unreasonably directed; and if Babylon corresponded with the description given of it by Herodotus, we may pardon the impulse of vain glory which turned the brain of Nebuchadnezzar. Egypt found in its Pharaohs,—Athens in a Pericles,—Rome in a succession of emperors,—architects and sculptors devoted to great structural works of public utility and the embellishment of their native cities; England only a George the Fourth. To no other British monarch does it appear to have occurred that great kings might be less worthily employed than in planning streets; or that if palaces and churches were worth building, their environs should be something more than a mere province of brick; and of late few persons of high influence or station appear to have troubled themselves with a thought about the matter. The royal patronage of Nash was the stimulus to which we may trace almost every improvement of importance since projected, or now being carried into effect. Regent-street, and the Regent's-park, created a taste for a better disposition of streets and buildings than had before existed, or than had then been commenced in Somers-town, and established the precedent to which we owe the entire renovation of many parts of old London, the palatial magnificence of Eaton and Belgrave-squares, the improvements on the estate of the Bishop of London, and the more varied and picturesque squares and crescents of the Kensington-park estate at Notting-hill.

Since the death of George the Fourth, Government has taken no share in the initiation of corresponding measures; but the impulse given has been sustained by the public, and in some instances reluctant consents have been wrung from chancellors of the exchequer in aid of the general movement. The apathy, however, of Government upon all questions connected with either municipal organization or structural improvement, has been shewn during the present session in the debates upon public cemeteries, the window duties, and various important suggestions of the sanitary commissions; and is exemplified by the history of the private bill now before the House for a new line of street between Westminster Abbey and the Vauxhall Bridge-road. We allude to the bill lately introduced with the sanction of the Metropolitan Improvement Commissioners; and which appears likely to be the first fruits of their three years' deliberation. This bill is only to give effect to a project *twenty years old*, and which obtained the recommendation of a committee of the House of Commons as far back as 1832. Fifty thousand pounds (for which a dozen different projectors have been quarrelling) are to be voted in aid of the line; and this is all that Government has done from that time to the present for the improvement of Westminster, south of Pall-Mall, beyond rebuilding the Houses of Parliament on perhaps the worst site that could have been found in England for a similar edifice; a mistake which has led to more money being sunk in the mud of the river to secure a foundation than would have purchased the fee-simple of the whole mass of ruinous third and fourth-rate tenements between Millbank and Buckingham Palace.

It is singular that the immediate neighbourhood of royalty should be the worst built, and the worst drained district of the metropolis, and yet, now that St. Giles's has disappeared, so it is; and streets of infamous reputation, which it is scarcely safe or prudent to traverse even in open day, form the only avenues to Westminster Abbey, from Belgrave-square and Buckingham Palace.

A Government that would tolerate the Almonry at its very doors cannot of course be otherwise than indifferent to the state of Wapping, Rotherhithe, or Spitalfields; and we need not wonder that the promise of a Thames embankment has hitherto proved illusory. In no other capital in Europe are the approaches of a noble river built up to the water's edge. To throw its banks open to the public between Blackfriars and Westminster bridges less money is required than would suffice for any one of the two hundred railroads now before Parliament; and Government cannot devise the ways and means. While perplexed with this difficulty, it can yet spend its millions to maintain the balance of power in Syria, to frighten Russia from Affghanistan, and coerce the ameers of Scinde into a respect for treaties.

At the present moment we are told that British interests require protection on the banks of the Columbia, nine month's sail from Greenwich. We complain not that such protection should be afforded, but lament that none can be spared for Greenwich itself, one of the suburbs of the metropolis. And yet what Londoner would sacrifice Greenwich Park for all the prairies in the Oregon territory, or Shooter's Hill for the whole range of the Rocky mountains? It will be happy for England when the physical and moral wants of her people shall obtain a tenth part of the attention which statesmen have hitherto bestowed upon the conquest and defence of distant and profitless dependencies. London in its most fashionable localities, west of Regent-street, gives but a faint indication of what the whole metropolis might become, and with it every town in England, if the duty of promoting public health, and of checking all abuses of local administration were made cabinet questions, in lieu of many others which absorb the time and energies of party leaders.

The imaginary difficulty of providing funds for local improvements is only an evidence of the want of earnestness in the will to provide them. The local revenue of the metropolis, derived from rates and trust estates, for public objects, is *three millions sterling!* Of these funds we believe a sixth are now wastefully or uselessly applied; but whether a sixth or sixteenth, no Government gives itself the trouble to inquire, and the existing municipal organization of the metropolis, with its innumerable vestries, boards of commissioners, perpetual churchwardens, and irresponsible trustees,—its parishes of twenty houses, and parishes of twenty thousand houses,—each parish with its separate staff, and its separate Acts of Parliament, establishing different laws in different streets,—remains to this day a scandal to the legislation of the nineteenth century."

Correspondence.

NICHES IN BRICKWORK.

Sir,—I am employed as foreman of bricklayers on a rather extensive building, where four brick niches are required to be executed in gauged work. They are to be semicircular on the plan, each three feet in diameter, and the heads are to be semicircular likewise: consequently they will form, when done, a quarter of a globe. Now, never having been called upon to execute such a work as the above, I am rather at a loss how to proceed properly with it. Perhaps some one of your numerous correspondents will be so good as to undertake to inform me, through the medium of your excellent paper, how I am to get the moulds, and the proper method of execution, so that I may be able to make a good and neat job of them. I am, Sir, &c.,

P. W.

SETTING OUT RAILWAY CURVES.

Sir,—Can any of your numerous correspondents inform me of the general method adopted in setting out a railway curve, and the rule by which the curve is found upon the ground?—and oblige, Sir,

Your obedient servant,

Amateur.

Miscellanea.

Discovery of a Stone Coffin and Skeletons.—On Thursday week the workmen employed by Sir Wm. S. R. Cockburn bart., and Sir Henry Rivers, in making the new road between St. Stephen's and St Saviour's church, found a tumulus; and beneath a domed arch, of rude but substantial masonry, there was a stone coffin, containing portions of a skeleton, and surrounded by numerous bones. This is square in form, hewn out of a solid block of sandstone, resembling that so plentifully abounding on Farleigh Down, and must have been occupied by a person of good stature, the excavation measuring five feet eleven inches, and the entire length being about seven feet. The dead was enclosed with a massive stone cover; as a further security was afforded by a vaulted arched chamber, reared above the coffin, the top of which was only 18 inches beneath the surface. The workmanship of the entire sepulchre was rude, but of a massive description; the arch alone contained two waggon loads of stone, while the weight of the coffin could not have been less than one ton. The only facts which can lead to a conjecture as to the date of interment, are the discovery of a coin lying on the top of the coffin, and of a spur which was found close to one of the adjacent skeletons. The coin has been examined by Mr. Harris, of Southgate-street, by whom it is pronounced to be the third brass coin of the Emperor Valens, A.D. 328, and U.C. 108. It was found beneath a fragment of Roman brick, and had apparently been placed in this position as a clue to any who might in after days light upon the tomb. The coin and brick have been placed in the Museum, Terrace Walk. The entire spot apparently abounds with the decaying traces of human mortality. We are informed that no fewer than three skeletons, or fragments of skeletons, have been brought to light. Many of these were perhaps interred in wooden coffins; this we infer from the fact that large iron square-headed nails lay among the bones. The remains have been re-interred not far from the spot in which they were discovered.—*Bath Chronicle.*

Church Decoration.—Long before the reign of Charlemagne, the custom of painting the interior of churches was already diffused among the Gauls, and a curious passage of the poet Fortunatus* would seem even to prove that there prevailed a sort of emulation between the ultramontane and the national artists, or those of barbarian origin. The accession of Charlemagne, however, gave a fresh stimulus to the fine arts through the whole extent of his empire; the mission of inspecting the churches and the paintings made part of the attributions of the royal envoys who surveyed the provinces. Every recorded fact conspires to prove that the artists of this school, so far from being the imitators, more or less servile, of those of Byzantium or of Italy, as is sometimes asserted, had the advantage over these two countries in giving free scope to their own powers of cultivation, unencumbered with the load of old traditions which had so long impeded the progress of the ultramontane artists. Hence it is that the Byzantine and Italian productions, from the ninth to the thirteenth centuries will not sustain a comparison with the contemporary works of the Germano-Christian school, which was at once more happy in its processes, more pure in the choice of its forms, and more fruitful in invention. In short, its tendency was rather historical than mystical. For the most part, the stirring scenes of the Old Testament were preferred for representation in the decorations of manuscripts, as well as in those of churches and palaces. The synod of Arras, in 1205, had in some sort consecrated this direction, already so conformed to the national taste, by declaring that painting was the book of the ignorant who could read no other; thus the characters of this popular writing, as it may be called, were multiplied to infinity, in all dimensions and under every variety of form, insomuch that the magnificence and multiplicity of this kind of ornaments ere long induced the monks of Citeaux, in their pious simplicity, to believe it their duty to signalize as a perilous abuse the constantly increasing luxury displayed by the bishops, in rivalry of one another in decoration of the temples. About the end of the tenth century, two important discoveries were made, namely, the fabrication of tapestry for the adornment of churches, and the art of painting on glass. The glory of the last discovery entirely belongs to France; and assuredly it did not less contribute to the development of modern art, and to the majesty of Catholic worship, than to place the imagination of the Christian in a state of prayer beneath the mysterious charm of that uncertain light which is so favourable to holy contemplation.—*Dolman's Magazine.*

Prospective Reduction in the Price of Building Materials.—Mr. Charles Lindley, the owner of five stone quarries in the neighbourhood of Newark, stated last week, before the House of Commons' Committee on the London and York Railway, that Mansfield stone in London was now 31*s.* 2*d.* per ton; and the cost of it, if it were conveyed by the proposed railway, would be 24*s.* per ton, which would give a saving of 7*s.* per ton. He had no doubt but that the railway in question would be used extensively for the conveyance of stone. In his neighbourhood was to be found the best building lime in England; and that lime would, he believed, be conveyed in great quantities to Peterborough, Cambridge, Boston, London, and other places by the proposed railway, and at a greatly reduced rate as compared with the existing cost of conveyance. The price of Mansfield lime was now 30*s.* 7*d.* per ton in London; the price would be 20*s.* 10*d.* per ton if it were conveyed by the proposed London and York Railway; and that there would, in that case, be a reduction in the price of that lime in London to the amount of 9*s.* 9*d.* per ton.

Royal Institute of Architects.—At an ordinary meeting, held on the 9th instant, Mr. Kendall, V.P., in the chair, a paper was read "On Ventilation and the prevention of smoke," illustrated by Mr. James Kite's apparatus. We shall probably print the paper at length next week. By the permission of General Monteith a series of drawings of Indian buildings was exhibited, and will be described at the next meeting.

* "Quod nullus veniens Romanâ gente fabrivit
Hoc vir barbaricâ prole peregit opus."
Lib. ii. Carm 9.

Making Clean the Outside.—They are cleansing St. Paul's of the soot and dust of many years. Washing won't serve the purpose: walls and pillars are scraped and holystoned; the church gets a "dry scrub"—like Nicholas Nickleby when the well was "froze." At this moment the façade resembles nothing so much as one of those portraits, clear carnation on one side of the face, and smirched with asphalt on the other, which dealers in paintings expose to shew how well they can "restore" pictures. Of course, the dean and chapter know too well the maxims of their own religion to rest satisfied with mere external purification; the cleansing outside is only typical of a more thorough scrubbing to be begun within. And within there is an accumulated dirtiness, of which the outside smoke and weather stains give no idea—the dirt of mammon-rusted souls. The buyers who were scourged out of the temple did not venture to make the privilege of seeing it a matter of purchase and sale. The only person on record who sought to earn something by shewing the view from the pinnacles of the temple was one whom the dean and chapter would scarcely venture to take into their service. And yet what was never done in the temple of the Jews, except by the Devil himself, is daily practised by the servants of a Christian cathedral. The dean and chapter pay their menials, as tavern-keepers do, by permitting them to levy contributions on visitors. At the threshold of St. Paul's, at every landing-place on its stairs, in every dim gallery, the luckless visitant is attacked by some extortioner in the shape of an old man or older woman. Even during the reading of prayers these semi-ecclesiastical showmen continue to gather pence in the aisles. It will be a most unchristian act in the dean and chapter to spend so much money in making clean the outside of the cathedral, if a few wheelbarrows are not hired at the same time to carry away this moral muck from the interior.—*Spectator.*

The New Royal Gardens.—We learn from the *United Gardeners' Journal* that the new royal garden at Frogmore, the formation of which was begun in the spring of 1842, is at length completed. The space within the boundary walls, which are twelve feet high, comprises an area of twenty-two acres; there is also an inner wall of the same height, distant about a hundred feet from the former, and extending round three sides of the enclosure, the north side of which, for the space of nearly a thousand feet in length, forms the site of a magnificent range of metallic forcing-houses, &c. which have been recently erected by Mr. Thomas Clark, of Birmingham. Each wing of this extensive range consists of a spacious vinery in the centre, one hundred and two feet nine inches in length, two peach-houses, each fifty-six feet eight inches long; two pineries, each fifty-three feet; and a green-house, fifty feet: the latter forms the terminus of the wing, the various divisions of which communicate with each other by means of five intervening corridors or lobbies, each of which is seven feet long. It is said that this assemblage of horticultural buildings combines every valuable improvement which has been introduced during the last half century, amongst which are contrivances for ventilation, which are at once simple and original: by the turning of a small windlass (which a mere child may do) it is said any quantity of air may be introduced, and increased or diminished at pleasure, over the whole interior surface of the buildings. The total length of the entire line of buildings, when completed, will be 936 feet, or 312 yards; an extent which, for a single range, is believed to be without a parallel in the horticultural world. Relative to the system of ventilation adopted we should be glad to hear more.

A Competition for Young Architects.—The committee of the Hull Mechanics' Institute are making extensive preparations for a grand polytechnic exhibition, to be held early in the month of August next. With a view to encourage emulation, they have offered various premiums; among them is one of "2*l.* for the best architectural drawing, plan, or elevation of a public building." All the productions sent in for competition should be original, and will be on view during the time the exhibition remains open.

On Building-rubbish as Manure.—The rubbish of clay, lime, or stones, obtained by the repairing or pulling down of old buildings, may be used to advantage as a manure, especially if derived from buildings which were tenanted by either men or cattle; because in that case it will contain saltpetre and ammoniacal salts, as these are always formed where animal putrefaction and decomposition is going on. Previous to being carried on the field it must be well mixed, broken in small pieces, and freed from large stones; it is also to be protected from much rain, which would soon extract the saltpetre and the ammoniacal salts. The amount of lime, loam, and even gypsum, which it contains constitute its value, as well as regulate the quantity which is to be brought on a certain area. At times it may be advantageous to mix the rubbish with humic earth in a compost-heap, in which case it must be well broken to pieces and sifted. A still better manure is the rubbish of burnt-down buildings; because it consists of wood-ashes, soot, much ammonia, saltpetre, lime, gypsum, roasted and burnt clay, &c. It is to be broken into small pieces, freed from wood, stones, &c., and soon used, else it would lose some of its ammonia.

St. John's College, New Zealand.—An attempt is being made to raise, by subscription, funds sufficient to erect of solid and enduring materials the fabric of St. John's College, Bishop's Auckland, New Zealand. It is estimated that, in consequence of the low price of building materials in the colony, requisite buildings of stone can be erected for 5,000*l.*, including theological college, collegiate school, native teachers (adult) school, native boys' school, infants' school (including orphan asylum), and hospital.

Oxford Architectural Society.—At the annual meeting of the Architectural Society, held last week, the Master of the University in the chair, a paper was read by Mr. Sewell, of Exeter College, on the Early Ecclesiastical Antiquities of Ireland. The report of the society was then read, from which it appears that the society is strictly resolved to confine itself to its proper duties and not suffer itself to be seduced, like a kindred society, into matters irrelevant and controversial.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For executing Works on the Leeds, Dewsbury, and Manchester Railway, being a distance of about 4¼ miles. The principal work on this division is the summit Tunnel, near Morley, which is upwards of 3,000 yards in length.

For the execution of a New Harbour at Greenock.

For the supplying of certain Mines in Cornwall, for twelve months from Midsummer next, with Norway Timber, half Dram and half Longsund, of good quality and average length. The probable quantity required is 710 loads.

For building the intended Somerset County Lunatic Asylum.

For the construction of Two Divisions of the Chester and Holyhead Railway, being Nos. 8 and 12. No. 8 contains a length of 7 miles and 54 chains. No. 12 contains a length of 5 miles and 26 chains.

For the erection of a Building in London for a highly patronised purpose, at the estimated cost of about 30,000*l.*

For supplying from 3,000 to 4,000 cubic yards of Broken Gurnsey Granite or other hard stone, for the repair of the Roads of Regent Street, Whitehall, &c., and for 1,500 yards of the same material for the repair of the Albany Road, &c.

For the erection of a Governor's House, and alterations of the Chapel, at the Worcester County Gaol.

For supplying the St. Marylebone Vestry, with materials for keeping the Foot-way and Carriage-way in order.

For the several works contingent on Warming and Ventilating the Chester Castle County Gaol.

For excavating and levelling Land, building Sewers, making a new Road, &c., on the Wheatley Estate, Erith, Kent.

For Bricklayers', Carpenters', Smiths', Plumbers', Painters' and Glaizers' Works, required to be done for one year, from the 24th inst., at the Churches, Chapels, Court-house, &c., of the Parish of St. Marylebone.

For lowering and making certain Improvements at the Yeuston Hill, Henstridge, Somerset.

For laying down a short Line of Railway, upon Pilbrow's Atmospheric principle, and for two Cornish Engines.

For Building Sewers in Bartholomew-close and Carthusian Street, within the City of London.

For erecting New Buildings and repairing others, on the farms belonging to the Trustees of the Denston Estate, at Wickhambrook, near Newmarket, Suffolk.

For Plumbers' and Glaziers' Works, at the Hackney Union Workhouse, for one year, from the 24th inst.

For Building a New Parsonage House, at Castle Cary, Somerset.

For Building a Poor Girls School, Mistress's House and Offices, in Wells Street and Short Brackland, Bury St. Edmunds.

COMPETITIONS.

Designs for houses to be erected at Dover. The ground is nearly seven acres in extent, and lies on a gentle slope between the south-west boundary of Dover Castle and the town. A premium of fifty guineas is offered for the set that may be most approved of.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

The timber and other trees now standing upon the estate at Woodseaves, Salop. By order of the Lord Chancellor made in the cause "Dickin *v.* Barker."

At Letts' Wharf, Commercial Road, Lambeth; 150 Loads of Oak Timber, 20 Loads of Oak Scantling and Plank, 40 Loads of Elm Timber and Boards, &c.

At the Sussex Arms, Brandon, near Coventry; several thousand prime Oak Trees, and a quantity of Planks and Quarterings.

At Brandon, near Coventry: several Thousand prime Oak Trees, and a quantity of Planks and Quarterings.

BY TENDER.

A Virgin Forest of Valuable Timber in Walachia. The principal part of the Trees is Oak. The said Forest may produce about 500,000 cubic feet of Timber.

At Little Bentley Hall, Essex: several Acres of Plantations, consisting of superior Firs, Larch, Spruce, &c., to be taken down by the Purchaser.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, June 16. — *Statistical*, 11, Regent-street, 8 P.M.; *United Service Institution*, Whitehall-yard, 9 P.M.

TUESDAY, 17.—*Linnæan*, Soho-square, 8 P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.

WEDNESDAY, 18.—*Microscopical*, 21, Regent-street, 8 P.M.; *Ethnological*, 27A, Sackville-street, 8 P.M.

THURSDAY, 19. — *Royal*, Somerset-house, 8½ P.M.; *Antiquaries*, Somerset-house, 8 P.M.; *Numismatic*, Somerset-house, 7 P.M. (anniversary).

SATURDAY, 21. — *Asiatic*, 14, Grafton-street,

TO CORRESPONDENTS.

"W. Ray" *is wrong in considering that the Metropolitan Improvement Society no longer exists; the office of the society is in Bedford-street, Covent Garden.*

"J. F."—*We shall be glad to see one of the papers of which our correspondent speaks. It shall be safely returned if unsuitable.*

"Suggester."—*The site of the Fleet Prison is not considered large enough for the proposed new Compter. See report of Committee in* Times *of 11th inst.*

"J. K."—*We have received our obliging correspondent's paper, and will give it early attention.*

"C. M. J."—*Shall appear next week.*

"Abram L." *differs from our correspondent Col. Mason, and directs attention to the brickwork in Leeds, which he says is universally excellent, and "truly beautiful."*

"A Church for Postage Stamps."—*In reference to a paragraph under the head of* "Absurdity," *which appeared in* "THE BUILDER" *a fortnight since, a correspondent offers 5l. worth of postage stamps as his contribution, if the statement be really true.*

"Westminster Improvements."—*A correspondent who expresses himself very strongly against the injudicious proposal to build out of view Westminster Abbey, and prevent its isolation for many years, has forwarded to us a petition proposed to be presented to the House of Commons. It lies at* "THE BUILDER" *office for signatures.*

"T. J. M."—*We shall probably print his letter next week, notwithstanding his request.*

"Iron Cement."—*A correspondent wishes to know how to form the best and most durable iron cement for joints.*

"H. J.'s" *inquiry has not escaped us; it will be answered in an article next week.*

"W. H." *came too late for consideration this week.*

"H. F." *query* "F. H."—*We are obliged to our old friend for his suggestions, and will give them due consideration.*

"Window Cleaning."—"W. C." *thinks the bowl of hot water would be found troublesome, and recommends the use of the wash-leather, and disuse of whiting. After washing the window, the leather must be squeezed nearly dry, and used for polishing the glass.*

"Mr. D." (Mornington Place).—*We shall be glad to see some of the subjects mentioned, and to know what arrangement is desired.*

Received: "*A Mason.*"—"*A Bricklayer.*"—"*G. Wood.*"

*** *We are unavoidably compelled to postpone "Geometry of Brickwork," "History of Art by its Monuments," "School of Design,"* (Constant Reader), *and several other articles, for which the respective writers must pardon us.*

ADVERTISEMENTS.

ATMOSPHERIC RAILWAY, Daily at Work, carrying visiters, at the ROYAL POLYTECHNIC INSTITUTION. This interesting Model is lectured on by Professor Bachhoffner at One o'clock daily; also on the evenings of Wednesdays and Fridays at Eight o'clock, and on the evenings of Mondays, Tuesdays, and Thursdays at Nine o'clock. The working of the Model always follows the Lecture. It is also worked at Four o'clock, and at other convenient times. The other interesting Works and popular Lectures as usual.
Admission, 1s.; Schools, half-price.

BED FEATHERS.—DUTY FREE.—HEAL and SON have reduced the price of Foreign Feathers the amount of the duty, and they can now offer—

Best White Dantzic	2s. 10d.	Best Foreign Greys	2s. 0d.
Irish White Goose	2s. 0d.	Irish Grey Goose	1s. 6d.
Best ditto	2s. 6d.	Best ditto	1s. 9d.
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List of prices of every description of bedding sent free by post.
HEAL and SON, 196, opposite the Chapel, Tottenham-court-road.

HIP TILES to suit slate roofs in colour; Ridges, with plain or rebated joints, roll tops, and vertical ornaments; drains, many sizes, with plain or socket joints; paving in squares, hexagons, octagons, &c., different colours; roofing, in Grecian or Italian styles, other devices also, or plain; conduits, which do not injure pure water; fire-bricks and tiles; clinkers, and out-door paving; sundry wall-coping, garden-borders, chimney-tops; also tubular and other flues of peculiar material. No agent, but a depôt at 23, WHITEFRIARS-STREET, FLEET-STREET, LONDON, under Mr. PEAKE'S personal care, to supply genuine TERRO-METALLIC goods at fair prices as per quality; also, additional Stock at No. 4 Wharf, Macclesfield-street, South, City Basin.
The TILERIES, TUNSTALL, STAFFORDSHIRE, are near the centre of England, whence boats are sent direct to any inland place; or to the Mersey for the coasts, the colonies and elsewhere.

PAINTING BRUSHES OF SUPERIOR QUALITY.
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11, GREAT MARLBOROUGH-STREET, LONDON,
Offer to Painters, Builders, &c., Painting Brushes of a quality far superior to those generally offered for sale, to which they beg to call the attention of all who prefer quality and durability to apparent cheapness.

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Sash Tools, and Common Tools.
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Lists of Prices of Painting Brushes, and of all other kinds of Brushes, forwarded on application. Established 1777.

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Linseed Oil, 2s. 4d. per gallon.	Yellow Oker Powder, 6s. and 8s. per cwt.
Boiled ditto 2s. 10d. ditto.	Fine Powdered Oxford Oker, 21s. and 28s. ditto.
Turpentine, 3s. 3d. ditto.	Ditto, ditto, in Oil, 36s. and 42s. ditto.
Turpentine Varnish, 3s. ditto.	Crome Yellow, 5d., 10d., and 1s. 4d. per lb.
Paper Varnish, 12s. and 16s. ditto.	Spanish Brown, 6s. per cwt.
Gold Size, 8s. ditto.	Stockholm Tar, 19s. per barrel.
Best ground White Lead, 26s. per cwt.	Gas Tar, 9s. ditto.
Second ditto, 23s. ditto.	Lamp Black, 20s. per cwt.
Third ditto, 20s. ditto.	Glue, 42s. and 48s. ditto.
Putty, 8s. 6d. ditto.	Green Copperas, 6s. per cwt.
Patent Driers, 42s. per cwt.	
English Umber, 8s. ditto.	

And every description of dry and ground Colours, Varnishes, &c. CROWN GLASS, price as at the Manufactory; BRUSHES, at Makers' prices.
The Anti-corrosion Paint for every description of outside work, resisting all kinds of damp, and it never blisters or peels off; it has now stood the test for the last sixty years, and has been used by the Government in most of the Colonies and Dock-yards, having received the approbation of the Hon. Board of Ordnance, and other public bodies, at the LONDON COLOUR, LEAD, GLASS, OIL, and VARNISH WAREHOUSE, 27, Coleman-street, City.
*** Country Orders must be accompanied with a remittance, or reference for Payment in London.

TO BUILDERS AND OTHERS requiring Scantling, Quartering Deals, Battens, Sawn Lathing, will find a large quantity for Sale at CLEMENT'S YARD, Horse-ferry Branch-road, Commercial-road East.—If by letter, to Mr. HARTLEY, 13, York-terrace, Commercial-road. Scantling from 1d. per foot.

BATH STONE.
T. E. WELLER, of STEEL-YARD WHARF (late Drewe's), begs to inform Stone Merchants, Contractors, &c., that he can supply them with best FARLEIGH-DOWN STONE on lower terms than ever before offered.—Depôt for immediate supplies, DRUCE'S WHARF, Chelsea.

MANOR IRON-FOUNDRY, MANOR-STREET, KING'S-ROAD, CHELSEA.
HAWORTH and Co. beg to represent to Builders, Engineers, and the public generally, that, having made considerable improvements and additions to their Premises, and conducting their business on economical principles, they are enabled to offer CASTINGS of every description at least 10 per cent. below the price of any other house in town. Brass Castings, Builders' Smith-work, Forgings of every description; Palisading, Railing-fronts, Balcony-railing, Verandahs, Bell-hanging, and all other Iron-work, executed with the greatest despatch, and at exceedingly low prices.

TO ARCHITECTS AND BUILDERS.
DOOR SPRINGS AND HINGES.—GERISH'S PATENT DOOR SPRINGS, for CLOSING every description of DOOR, consists of Single and DOUBLE-ACTION BUTT HINGES in Brass and Iron for Doors to open one or both ways, and Rising Hinges for the convenience of Doors opening on uneven Floors. Likewise Swing Centres, which consist of a combination of power uncqualled by any made at present. Manufactured by F. W. Gerish, East-road, City-road; and sold by all respectable Ironmongers in the United Kingdom.

TO ARCHITECTS, ENGINEERS, BUILDERS, AND OTHERS.
A HANDSOME DOUCEUR, or a Regular Commission, will be allowed by the advertiser to any gentleman connected with either private or public works who would recommend business, contracts, or jobs to an old extensive, and highly respectable factory in London, capable of executing engineering works to any extent consisting in brass or iron, and machinery of every description; the utmost secrecy may be relied on.—Apply to D. G., care of W. THOMAS, British and Foreign Advertising Agent, 21, Catherine-street, Strand.

VARNISH.—It has long been a desideratum amongst the consumers of Varnish to obtain a good and genuine article; brilliancy, facility of drying, hardness and durability are the qualifications necessary, but these are seldom if ever found united. The experience of a life-time devoted exclusively to the manufacture of this article, the great and important discoveries of modern chemistry, and the daily improvements in machinery, have enabled Messrs. George and Thomas Wallis to produce Varnishes (both oil and spirit) unrivalled in every respect, and they confidently recommend them to the trade, as deserving of notice both in price and quality.
Builders, Coachmakers, Painters, and others may depend on being supplied with a genuine and unadulterated article.
Fine Oil Varnish, from 10s. per gallon; best White Spirit Varnish, 2s. ditto; Best Spirit French Polish, 20s. ditto; White Lead, Oil, Turps, and Colours of every description of the very lowest prices.—WALLIS'S Varnish, Japan, and Colour Manufactory, 64, Long-acre, one door from Bow-street. Established 1750.

WALLIS'S PATENT LIQUID WOOD KNOTTING. — This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood however bad, and preventing them cating through and disfiguring the paint above.
Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.
In the application, skill is not required; a boy can use it as well and effectually as the best workmen: it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.
Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20s. per gallon.

TO ENGINEERS, ARCHITECTS, AND BUILDERS.
PATENT METALLIC SAND CEMENT.—The Metallic Sand, from its chemical qualities forms, when mixed with blue lias lime, a metallic cement of great strength and density; the iron, which is one of its principal constituents, combining with the bed in which it is deposited, and communicating to it a greater degree of hardness than can be obtained by admixture with any other known material. Concrete and mortar in which the metallic sand has been used are more durable than any other, continuing to indurate with time, and not being affected by damp, otherwise than by increasing in hardness from the oxydation which is thereby occasioned. Employed as a cement to turn water from brickwork in tunnels, sewers, and other underground works, the Metallic Sand is found cheaper, and from its eminent adhesive qualities to form a more solid and hydraulic body, in combination with the brickwork, than any other cement at present known; and in all cases the Metallic Sand is found the best substitute for pozzolano that has ever been presented to the public. As an external stucco, the Metallic Cement assumes a rich stone-colour without the aid of paint or tint of any kind, does not vegetate, and is entirely free from cracks and blisters, and continues to improve both in appearance and durability by exposure to the weather. The Proprietors refer with confidence to works in which the Metallic Sand has been extensively employed as concrete and mortar as specified in the prospectus, where also will be found references to very extensive erections which have been stuccoed with the Metallic Cement.
Further information will be given, and specimens shewn on application to Mr. C. K. Dyer, 4, New Broad-street; and at the Metallic Cement Wharf, King's-road, opposite Pratt-street, Camden New Town.

The Builder.

No. CXXIV.

SATURDAY, JUNE 21, 1845.

LAST week we examined the report recently made to her Majesty by Sir Henry De la Beche and Mr. Thomas Cubitt, chiefly so far as it related to the fall of the mill at Oldham, appending thereto, some general suggestions of great practical importance with which the report concluded. Relative to the former, however, we omitted one remark which should not be passed over; and that relates to the far too common custom of placing the boilers of steam-engines within the factories themselves, rooms filled with the workers being above them.

The Commissioners say justly, they consider this mode of placing the boilers (adopted chiefly to make the most of the space), very objectionable, remembering the accidents which have happened in such cases through the carelessness of the engine-man, or from imperfections in the boilers or the pipes connected with them. "Where the boilers so placed are near the street, as was observed to be the case in a factory now erecting in Manchester, the danger of loss of life is increased, since accidents from explosion may not only cause the death of those employed in the factories, but of those passing in the street. This is a point to which we would earnestly request attention when Building Acts may be under the attention of the legislature."

Mr. Hodgkinson, in his evidence, pointed out several instances in point wherein considerable loss of life was caused.

We proceed to extract that part of the report which refers to the failure of the part of the prison at Northleach. It appears that an addition having been considered desirable for the purpose of containing six prisoners, and an for a small building was prepared by Mr. Fulljames, the county surveyor for Gloucestershire, and a contract to execute the works was entered into by Mr. Thomas Jones, of Cheltenham:—

"The building was to have been 28 feet long, 25 feet wide, and 22 feet high, divided into six cells, 13 feet by 7 feet, having the walls, with brick arches for ceilings. The arches covering the lower cells were 4½ inches thick, rising 10 inches in a width of 7 feet.

The upper arches were 9 inches thick and the same rise. The height of the cells from the ground floor to the crown of the arch was 9 feet 3 inches, and in the upper floor 9 feet.

The building was commenced in the middle of May 1844, and carried on until the accident of the 13th of November, when the whole had been advanced, that the upper arches were turned, and a covering of concrete laid upon them.

According to the evidence of Mr. Pugh, clerk of the works, the lower arches were turned when the building was up one story, and the upper arches were constructed when the walls were sufficiently high, which was about the 7th of September. The arches were built with mortar.

There were no ties or braces across the cells of the lower story, but two iron ties, each divided into three portions, crossed the arches, so as to divide their length into three equal portions. These ties were fastened to the side walls, and those dividing the cells by means of iron plugs sunk into large stones and secured into them by lead, the plugs coming through eyes or holes at the ends of each portion of the ties. The ties were placed above the arches. The arches are described as having been put in during good weather, but subsequently much rain prevailed and soaked through the concrete above the arches and through the latter, so that the whole was in a wet state.

A crack was observed on the north-east corner of the building, at the latter end of October, and this was watched. It would appear that at the beginning of November the arrangements for tying the upper arches were considered, under all the circumstances of the case, insufficient; for orders were given to insert other ties which should connect the side walls through the springing of the upper arches. It was while John Aust, a mason, was employed making a scaffold for preparing holes to pass braces or ties across the building on the 13th of November, that he considered the arch above him unsafe, and before he went to his breakfast he marked it, to see if it were settling. On his return, he saw that the arch had sunk a quarter or half an inch, and of this he apprized the clerk of the works, who called off the men from their labour. This was scarcely accomplished before the six arches fell, and fortunately without injury to those employed on the building.

We attribute the fall of this small addition to the House of Correction at Northleach partly to the insufficient arrangement of the iron ties, placed too high for the strain, and partly to the want of protection of the building from the long continuance of wet weather, the rain having softened and partially washed out a portion of the mortar of the arches. From these circumstances, and the wet and unconsolidated state of the walls, there was no sufficient cohesion of parts to resist the general pressure, the walls were forced so far out as to permit the upper arches, with their load of unconsolidated concrete, to fall on the lower arches, and these readily giving way, the six arches were destroyed, leaving the walls in a damaged state. But for the effect of the rain the arches would probably not have fallen."

It is due to the architect to state, as it appears in evidence, that the contractor was bound to protect the building from the weather, and that the ties were not placed at the spring of the arch because they would then have appeared in the cells, which was highly objectionable.

The erection of fire-proof buildings, by means of iron-girders and brick arches, is becoming general, especially in Manchester and Liverpool, and it is of the utmost consequence that sound information on the subject should be disseminated. "The increase of fire proof buildings at Manchester," says Mr. Fairbairn, "has been steadily progressive in this district for the last thirty years, and I have no doubt, as the security and durability of these structures are better understood, that a much greater increase will take place; and that eventually every description of public building, and probably dwelling-houses may be constructed fire-proof.

At Liverpool, they have commenced building the warehouses fire-proof, and I can see no reason why the principle should not be extended to almost every description of building, particularly public edifices, such as the Houses of Parliament, Royal Exchange, &c., which, in my opinion, should have been constructed with cast-iron beams and arches, and *made perfectly secure from fire.*

Generally speaking, I am averse to legislative interference with the industrial resources of the country, but in cases such as cotton mills, and large public buildings, wherein numbers of people are congregated, the utmost caution should be observed in the structure, and probably it might add to the public safety as well as the security of property, if some controlling power was at hand, to advise and correct mistakes, in which the most perfect and well meaning are sometimes involved.

The greatest danger, however, arises, not from any desire to save expense, but from fancied security in people trusting either to their own knowledge of subjects they do not understand, or, what is still worse, to the gross ignorance of mere pretenders, whose position and opportunities for information precludes their advancement in either theoretical or practical science.

A knowledge of the strength of materials, and particularly of cast-iron, is but imperfectly understood; it is a subject which requires great labour and deep research, and even with those who have devoted the greater part of their lives and fortunes to these inquiries, it not unfrequently happens, that their labours are not always appreciated by those whom they are intended to serve; when I use the word appreciate, it is not in the sense that individuals and the public are indifferent to the value of such discoveries; but the force of prejudice, and attachment to preconceived notions, which in many cases are absolute imperfections, induce many to forego considerations of this kind, and to shut their eyes against demonstrative truths, calculated on the one hand to save considerable outlay in the cost of material, and what is of much greater importance, the security of life and property on the other."

As respected the arrangement of columns, beams, and tie-rods, it was impossible to lay down rules which would provide for every contingency. Mr. Fairbairn observed "that in fire-proof buildings for manufactories, the sectional area of the tie-rods should not be less than three square inches for every 20 feet in the width of the mill, and for warehouses and similar buildings five square inches will be a fair average proportion.

The walls should, in my opinion, never terminate with less than two bricks thick on the top story, and for every two floors downwards the increase should be an additional half brick, including an extra thickness of 4½ inches in the walls of the ground floor. For factory purposes the above proportions will be quite sufficient, but for warehouses and other buildings calculated to sustain heavy weights, an additional half brick in thickness to every story, terminating at the top with two bricks as before, will insure perfect safety. With these proportions, care must, however, be taken to flush or grout the walls; using at the same time the proper bond, and spreading the base of the foundations to at least one and a half times the thickness of the walls in the bottom story."

To shew the importance of scientific knowledge, it will be sufficient to mention, that a beam with a single flanch at the bottom thus ⊥, which will support a weight equal say to 1,000, may be broken if reversed and the flanch put upwards, thus T, with a weight equal to 340.

"It is well known, or it ought to be known, to every person giving instructions for the form and construction of iron beams, that the strength is nearly a proportional of the section of the bottom rib or flanch; and, according to Mr. Hodgkinson's experiments, a bottom flanch of double the size will give nearly double the strength.

These facts having been proved by direct experiment, it is important to all those concerned in the construction of fire-proof buildings, in which the lives of the public and the property of individuals are at stake, that the form of beams and the section of greatest strength should be *perfectly and thoroughly understood*; and, to those unacquainted with the subject, we would beg to refer them to Mr. Hodgkinson's paper on the strength of iron beams, in the fifth volume, second series of the 'Memoirs of the Literary and Philosophical Society of Manchester.'"

In every description of arch supported by iron beams, it is essential to have the tie-rods as low as possible; it is generally inconvenient to have them in the line of the chord of the arch, or at the bottom flanch of the beam, but they should never be higher than the soffit of the arch.

The strength of cast-iron columns is very little understood by builders; they use them of certain dimensions, because they have been used before of that size and have not failed; the difference in their strength which is found

when one end is rounded instead of flat, or when a column is not *exactly* perpendicular, with many other points of the greatest consequence, are seldom considered.

Mr. Hodgkinson in the report before us gives the following results of a number of experiments made by him on the strength of cast-iron pillars. The experiments were made by means of a lever compressing the ends of the pillar, which stood upright between two flat surfaces of hardened steel always parallel to each other.

"1st. It was found that a long pillar, with its ends flat and perfectly immoveable, was about three times as strong as another of the same dimensions with the ends rounded, so as to be capable of turning as on a universal joint. When one end of the pillar was rounded and the other flat, according to the definitions above, the strength was an arithmetic mean between that of the other two. In other words, if three long pillars be formed, all of equal diameter and length, and one pillar has both ends made round, another one end round and one flat, and the third both ends flat, the strength of these pillars will be as 1, 2, 3, nearly.

Some of the pillars with flat ends had discs upon the ends, to give them an increased breadth of bearing; but this, however necessary in practice, added very little to the strength.

2nd. A long pillar, with both ends flat, or firmly fixed, has nearly the same strength as one of the same diameter and half the length, with both ends rounded, as above.

3rd. If a solid pillar, be enlarged in the middle to $\frac{3}{2}$, or upwards, of the diameter of the ends, and taper from the middle to the ends like frustums of two cones, whose bases are united in the middle, the strength will be increased more than the weight of the metal by about $\frac{1}{3}$ of the whole. This will be the case whether the ends are rounded or flat.

4th. Similar pillars. If long pillars be cast and turned perfectly similar, the diameter being to the length in a constant ratio, the strength was found, from a mean of several experiments, to vary as the 1·865 power of the diameter, or any other lineal dimension. It varies, therefore, nearly as the square, but somewhat lower.

5th. If a pillar with flat ends be so placed, that the pressure it sustains acts diagonally from the extremity of the diameter at one end to the opposite extremity of the diameter at the other, the strength is reduced to one-third, as was proved by several experiments. It is easy to infer, that this is a case analogous to that of a pillar with rounded ends.

6th. Relative strength of columns of different materials. Representing the strength of columns of cast-iron by 1000, I found the strength in wrought-iron 1745, cast-steel 2518, Dantzic oak 108·8, red deal 78·5.

7th. The properties of columns, enumerated above, apply to such only as have the length so great that fracture may be considered as having been produced wholly by the flexure of the column. They apply, as appears from my experiments, to all cast-iron columns with rounded ends, in which the length is more than 15 times the diameter; and to all, with flat ends, in which the length is more than 30 times the diameter, or upwards. If the pillars are shorter than this, fracture takes place partly by flexure and partly by crushing; and the properties are more complicated than as here described.

In reply to the inquiry, "Have you not given formulæ for calculating the strength of cast-iron pillars or columns?" Mr. Hodgkinson said,—I found the strength of long cast-iron columns, with rounded ends, to vary as the 3·76 power of the diameter nearly; and those with flat ends as the 3·55 power of it; the length in each case being given. When the length varied, and the diameter was the same, the strength was inversely as the 1·7 power of the length, nearly.

Taking 3·6 as an approximate term between 3·76 and 3·55, and the co-efficients, as obtained from my experiments, we have, for columns fixed at the ends.

$$W = 44{\cdot}16\frac{D^{3{\cdot}6}}{L^{1{\cdot}7}} = \text{strength of a solid cylinder.}$$

$$W = 44{\cdot}34\frac{D^{3{\cdot}6} - d^{3{\cdot}6}}{L^{1{\cdot}7}} = \text{strength of a hollow cylinder.}$$

where W is the breaking weight in tons; D, d the external and internal diameter in inches; and L the length in feet.

If both ends of the pillars are rounded, the strength will be $\frac{1}{4}$ of that given by the formula.

If one end be rounded, and one flat, the strength will be $\frac{2}{3}$ of that in the formula.

The preceding formulæ are applicable to columns whose length is more than 15 times the diameter, when the ends are rounded; and more than 30 times the diameter, when the ends are flat.

If the pillars are shorter than as above, they will be crushed as well as bent; and the value of W will require to be modified by the following formula:—

$$W' = \frac{W\,c}{W + \frac{4}{3}c}$$

where c is the weight which would crush the pillar, in tons, if it were so short as to be broken without flexure. To find c multiply the area of the section of the pillar in inches by 49; since the iron I used (the Low Moor No. 3) required 49 tons to crush a prism of it whose base was 1 inch square."

Mr. Hodgkinson considers the mean crushing strength of cast iron 47 tons per square inch, and that this is on the average, six and a half times the force necessary to tear the body asunder; the tensile strength being 7·2 tons per square inch nearly.

In conclusion, we congratulate the commissioners on the quantity of valuable information which they have brought together in their report, and express a hope that the suggestions made by Mr. Cubitt may be immediately adopted.

CHIMNEY-SHAFTS FOR BOILER FURNACES.

Schedule F of the Buildings Act, after setting forth that no chimney-shaft (except that of a steam-engine, brewery, distillery, or manufactory) must be built higher than eight feet above the slope, flat, or gutter of the roof which it adjoins, unless such chimney-shaft be built of increased thickness, and so forth, says, "And as to the chimney-shaft for the furnaces of any steam-engine, or for any brewery, distillery, or manufactory, such shaft may be erected of any height, so that it be built in such manner, and of such strength and dimensions as shall be *satisfactory to the official referees, upon special application in each case.*"

In consequence of this, the district surveyors will not permit the erection of *any* chimney-shaft for such purpose, whether of greater height than that allowed for ordinary shafts or not, without a certificate and instructions from the official referees. The mode of proceeding is to forward a drawing of the proposed shaft to the registrar, and a letter requesting permission to execute it. In reply to this a certificate is granted (on payment of the fees), containing certain instructions. These, of course, vary with circumstances: an examination, however, of a dozen or more certificates of the sort, already granted by the referees, shews the following requirements:—

The shaft must be built of sound stocks; topmost five feet in cement.

It must be bonded every six courses with hoop-iron lapped at the angles.

The base of the footings must be one-half longer than the base of the shaft, and be placed *as low as the base of the footings of any adjoining wall or building.*

If the shaft be *square*, the height of it must not exceed ten times the length of the side at the top of the footings: if *circular*, twelve times the lower diameter.

The shaft must diminish in size upwards, and be at least one-third less at the top than it is at the bottom.

The projection at head of the chimney, if any, must not exceed three-fourths of the thickness of the brickwork from which it projects.

The shaft must be lined with fire-bricks to the extent of 6 feet at the least above the opening from furnace. The fire-bricks must not be tied to nor made to support the brick-work of the structure, but be removable at will.

The shaft must not be tied to any existing building or wall, and no wood-work must be fixed in or to it.

We have given these particulars in full, not merely to enable those who may have occasion to build furnace-shafts within the limits of the Act, to prepare their plans so as to avoid being called on to make alterations, but that others may have the opinion of the referees as to the manner in which furnace-shafts whether here or elsewhere, should be constructed.

To the former, it may be useful to suggest, that when they obtain the certificate from the office they should examine how far the instructions given by the referees clash with their own particulars. The district surveyors have determined not to exercise the *slightest* discretion in the matter, but simply to see the referees, certificate rigorously carried out; so that, for example, should any precautionary measure stated in the applicant's particulars be rendered even obviously unnecessary, by some additional requirements on the part of the referees, unless the former be specially excepted, the district surveyors would insist on the execution of both.

RETROSPECTIVE REVIEWS.

Though the desire for knowledge exists in this age in a degree previously unparalleled, it often occurs that the best aids to inquiry are entirely overlooked. The extraordinary extent to which a taste for magazine literature has spread, has given an influence to ephemeral publications, which ought rather to have been retained by a literature of standard excellence. A month often suffices to consign really meritorious work to complete oblivion, and a modern compilation, issued in periodical numbers, has a better chance of obtaining readers than the most original conception of an old author. Even the pursuits of the antiquary have received something of the prevailing tone, and researches in progress, and volumes on fine art, damp from the press, excite a larger amount of interest, and are more frequently consulted, than the not less important records of a year gone by. In architecture, as in other sciences, many of the most important doctrines, broached as new were promulgated in time past; but in this age whose especial sphere it seems, to create new combinations on a foundation of recorded facts and existing precedent, it does appear matter for regret, that many important old works and some of late date, exist in an oblivion from which an affirmation of their merits would be sufficient to remove them. It appears to us not less the object of an architectural journal to preserve the sources of knowledge already possessed, than to record the progress of science and art; and we shall therefore endeavour, from time to time, to call to mind the existence of certain valuable authorities which, in the active practice of an arduous profession, and the exclusive interest absorbed by recent publications, may have escaped the notice of our readers. Our limits will not allow us to enter very deeply into the subject matter of works often voluminous and elaborate, our object being rather to indicate what information is to be sought, than to criticise where criticism has already played its part.

D'AGINCOURT'S HISTORY OF ART BY MONUMENTS,

FROM ITS DECLINE IN THE FOURTH CENTURY TO ITS REVIVAL IN THE SIXTEENTH.*

The influence of the beautiful on the mind of man is exerted in other directions than evident to the superficial observer, or is manifested in the conceptions of poetry and fine Not less the gift of nature than the sense sight, or the faculty of reason, it is often powerful when other endowments are obscured debased. The sensibility to melancholy tions, and the sympathy with misfortune, with intercourse with the world does not entirely move from the most callous, cherish and vate the perceptions, and produce works which interest and delight the multitude. The

* 325 plates, 6 vols. Paris, 1823. ("Histoire de par les Monumens," &c., &c.)

history, and the examination of antiquities cite an interest, distinct from the unquesonable advantages that accrue, and the less mmendable pursuit of the mere collector. apse of time, and evidence of decay associate th the crumbling ruin, or the misshapen agment, an impression of beauty, which phyally they might have failed to excite, and nnect the scattered dust of cities with recoltions of the fall of empires, and decline of ates. The early state of a nation, or the riod of abasement, may be not less important their results than the most brilliant epoch its progress, and are equally deserving of e attention of the historian.

On the 15th of October, 1764, a traveller, journing at Rome, whose name has now beme familiar to every Englishman as the me of potentate or general, sat musing idst the ruins of the Capitol. The sound of spers rose from the church of the Franciss, once the temple of Jupiter; his mind erted from time present to time past, and e design of writing "The Decline and Fall the Roman Empire" started to his mind. ears elapsed ere the plan was matured; but e work at length completed, the history of e period, from the most uncertain, became ar and distinct. To this period the attenn of other investigators had turned, and it worthy of notice, that whilst the work of bbon traces the history of Rome from the tonines to the extinction of the empire in east, and to the time of Sixtus V. in Italy, t of D'Agincourt, on the "History of Art," veys a period commencing not quite two aturies later; and it seems likely, that as Agincourt and Gibbon both visited Paris ring the same year, and were both on terms friendship with Buffon, and other *savans* of French capital, that the two authors were uainted, and that the French antiquary may e gained the suggestion of his work from Englishman, to whose history he has made erence. The period of the decline of art is en by M. D'Agincourt to commence at the e of Constantine the Great, in the fourth cenr, and extends to that of Henry VII. in Engd, and of Julius II. in Italy, and of Albert rer, and Leonardo da Vinci, in the sixteenth. as of late years met with increased notice, in Hope's "Essay on Architecture" and he magnificent work of Mr. Gally Knight been admirably illustrated. As the forener of the Gothic style it is especially inteing. The architecture of the empire, ported under Augustus by the skill of cian artists, declined under his successors; rious execution and extravagant decoraon were substituted for elegance of form proportion, till beauty was crushed under ad of riches. The lives of the emperors, dered contemptible by every degrading , admitted of no very healthy influence n architecture: it became either the outlet extravagant ambition, or the means of ding the populace to their enslaved state. rament grew over every moulding, colossal ensions, and difficulties of execution were ght, but not for the proper object of the

he time of the Antonines was one of temry quiet, and other emperors left strucs of vast extent in every portion of their inions; but the *art* of architecture was ually tending to a decline, and all powers decoration were exhausted under Cara and Diocletian. Constantine destroyed works of his predecessors to form other dings, the principal of which were the ches of the new religion. The misfortunes h attended the fall of the empire, overmed the arts in the general ruin. Many vations were introduced, which, subsetly modified, became important features othic architecture. Such were arches ging immediately from the capitals of the ans, thus used in the basilica of St. Paul, out the walls, the most considerable of buildings of the fourth century,* and in h the old form and appellation of the ica, or court of justice, were revived for purposes of a Christian church. Many of columns were taken from the mausoleum adrian, and from other edifices, and are of le of art greatly superior to the rest. At period, columns were frequently lengthby an additional member, and subsequently, in some cases, they were supported on the backs of animals; all these schemes originating in the want of ability or inclination to erect new works adapted to the purpose. In the church of St. Agnes we find three stories, exactly like the arrangement of the Gothic cathedral. The lower story has arches springing from the columns; above these is the gallery corresponding with the triforium, and used for the same purposes; and above this, the clerestory windows. The early period in the decline of art is rendered of great interest by the catacombs, in which the early Christians placed the bones of the martyrs, and in which they themselves often found refuge from persecution, and which the subsequent toleration they enjoyed contributed to render of the highest interest, and available for decoration. The catacomb had become more and more like the church, being used for the purposes of worship; and the motives of religion, which drew the early Christians to erect their churches over the graves of the martyrs, produced the arrangement of the upper and lower church or crypt, which became so usual at a later date. But the church itself was sometimes in imitation of a sepulchral chamber, as in a church at Ravenna. The church of St. Clement, at Rome, is believed to have been erected towards the close the fifth century, or beginning of the sixth, and exhibits the disposition of the primitive churches: the plan being similar to that of basilicas. The building is terminated by an apsis, where is placed the episcopal chair. The close of the fifth century saw the Goths, under Theodoric, masters of Italy, — some change took place in the style of architecture; but Ravenna, their principal seat, contains no remains which we can call Gothic, if the pointed arch is to be considered the leading feature in that style. The mausoleum of Theodoric is a fine work of construction, but otherwise has a low rank as a work of art. The form of the voussoirs to the arches is curious, and there are similar instances in England. The Ponte Salario, three miles from Rome, was constructed by Narses, in the thirty-ninth year of Justinian's reign, A.D. 565. The principle of solidity, which has preserved this work to the present time, seems never to have been lost by the Roman architects; but its ornaments are of such a character as would disgrace any school of art. The causes of this corruption had been multiplied: the difficulty of finding artists, who had studied the principles of the fine arts had increased from day to day, till a complete ignorance was the result, and the effect was visible upon all styles of architecture. Another course was the necessity of remodelling old forms to make them conformable to ecclesiastical rites. One of the consequences of the insufficiency of the architects was the transformation of pagan temples into Christian churches: thus the ancient temple built of brick, situated near the circus of Caracalla, underwent this change. The seat of the Greek Government at Ravenna brought the influence of the Greek taste into Italy, and the church of St. Sophia became a model frequently adopted. The church of St. Vitale, at Ravenna, was erected under the exarchate of Narses, and is remarkable for the construction of its vault, which is formed of pots arranged spirally, each one bearing on the one below it. The tribes which Narses had collected to assist him in the conquest of Italy succeeded about the middle of the sixth century in establishing themselves there. They introduced a style often bearing close resemblance to our own Norman architecture, and called the Lombard style.

"We have examined," says M. D'Agincourt, "three stages of decline: the stage first removed from the time of perfection, was characterized by a prodigality of ornament, imprinted with the Asiatic luxuriousness, which produced embarrassment and confusion. The second stage was marked by a forgetfulness and absence of the same ornaments. The third stage, of which we are speaking, is marked by the immoderate use of a multitude of accessory parts, which, far from meriting the name of ornaments, are as reprehensible for the place they occupy, as for their superabundant quality and execution. This last disorder was the general system of architecture, till the establishment in the eleventh century of that other system, to which has been given the name Gothic." The career of Charlemagne in the eighth century was marked by a fostering care for the arts, and architecture for a moment appeared to alter its whole character; but the change was but temporary. The infusion of Greek taste at Pisa and Venice also passed away: in the latter city the cathedral of St. Mark was erected by foreign artists in imitation of that of St. Sophia. According to M. D'Agincourt, the first indication of the style which afterwards swelled into the Gothic architecture of the thirteenth and fourteenth centuries occurred during the ninth century in the church at Subiaco, near Rome. But Mr. Knight, with more reason, shews there is cause to doubt whether this church is of so early a date. During the first half of this century architecture made some progress, but long before the tenth century, and during the whole of that period, its progress was completely arrested.

In the eleventh century the art was in a state of activity, for which it was indebted to Greek artists, who were employed in every part of Italy. Many of the churches in Lombardy are of this date, and they were characterized by large porches, and alternate courses of different colours. In the twelfth century, the cloisters of St. Paul, without the walls of Rome were built, in which were introduced twisted columns of every variety. To this date is also assigned by D'Agincourt, the complete adoption of the Gothic style. In the thirteenth century, Gothic architecture was the prevailing style. Mr. Knight considers there is no doubt, that the pointed arch first entered Italy in this century from the north; a singular fact, as it had previously been employed for two centuries by the Normans in Sicily. The first church which had any influence upon the style of art in Italy was that at Assisi, which is Gothic in all its parts. The fourteenth century was the period of the principal buildings of Europe, but the Italian architects never caught the true spirit of the style, or overcame the tendency to the horizontal, so inconsistent with the character of pointed architecture. It was an imitation imported by the people rather than by the artists, and there is perhaps but one building, in which it can be said to have found place in Rome. Its most striking feature is marked by the prevalence of the sister art of sculpture, in which the Italians had made greater progress. The style remained in Italy till the close of the fourteenth century, and Brunelleschi introduced a different manner in the fifteenth. The earliest works of the revival may be said to bear some resemblance to those of the decline, but greatly surpassed them. The art at once gained a new vigour; and as the Gothic of Italy had not the merits of the style in other countries, we cannot regret the change. Alberti, an architect of refined and educated taste, by his example and precepts, hastened the progress, and under Bramante, in the sixteenth century, a school of Italian architects commenced, which has existed till the present time.

The work of M. D'Agincourt is a monument of human industry. It is not confined to the art of architecture, but devotes a space, even greater, to sculpture and painting. The progress of the arts is traced, in every change of taste, from the time of Constantine to that of Michael Angelo. There are three volumes of plates, and an equal number of letter-press. The monuments of art illustrated are 1,400 in number. Several plates exhibit the gradual progress of the art, and its decline: one gives a chronological series of arches, and others shew the state of architecture in the east. The Gothic architecture of Sweden, and the Arabian architecture from the eighth to the fifteenth century are illustrated. One plate is entitled "Conjectures on the origin of the pointed arch," and illustrates some curious theories. The comparative forms of detached baptisteries, of the fronts of buildings, of vaults, cupolas, and columns, and the various modes of construction, are very clearly shewn, as well as the styles of Brunelleschi, Alberti, Bramante and Michael Angelo. The life of M. D'Agincourt was spent in the preparation of his great work, of which he did not live to see the publication.

Born at Beauvais, April 5th, 1730, he commenced his career, under the especial protection of Louis XV., in the military profession, but left it at the instance of that king, who determined to place the brothers and nephews of

* It was erected by Theodosius, A.D. 386.

M. D'Agincourt under his care. Devoting himself to the welfare of his family, the amiability of his character, and his taste for the arts, made him sought and cherished in the most distinguished circles of the capital. Having completed the duties he had undertaken, he was free to follow the bent of his inclinations. Desirous of remaining in France, he preferred a responsible post under government at home to employment in a foreign country. His reputation and talents soon drew around him some of the most celebrated men of the French capital and he employed a part of his income in the formation of a cabinet of designs, pictures, and antiquities. The study of natural history was not less an object of his attention, and he numbered amongst his friends, Bernard de Jussieu, J. J. Rousseau, Buffon, and d'Aubenton. His wit, and power of amusing, made him welcome at all the *soirées* of Paris; and his more solid attainments recommended him to men such as Marmontel, Saurin, Destouches, the younger, La Harpe, Suard, Morellet, and Voltaire. In fact, the life of M. D'Agincourt is the history of an intercourse during half a century with the most distinguished men of Europe. Passionately fond of the arts, he cultivated them as a man of taste; he designed and engraved with facility, and was on terms of intimacy with the best artists of his day. The friendships he formed only augmented his ardour in matters relating to the arts, and his desire to learn their history. At length, Louis XV. being dead, he no longer felt any obligation to refrain from the project of travelling through Europe, and especially of exploring Italy. In 1777, he visited England, Belgium, Holland, and part of Germany; afterwards returning to Paris, he remained there till the latter part of the next year, when he started for Italy. He was then forty-eight years of age. Having traversed Savoy and Piedmont, he went to Genoa, and thence to Modena, where he secured the friendship of the illustrious Abbé Tiraboschi, author of the "History of Italian Literature." He then made a stay of some months in Bologna, to examine and delineate the curious monuments in that town, having already conceived the vast project, which became the object of all his researches, and the principal occupation of his life.

In passing through Belgium, Holland, and Germany, M. D'Agincourt had directed his attention to the numerous monuments of Gothic architecture, with which these countries abound. He had studied the march, and traces of art during the "dark ages," and in the midst of productions of an extravagant taste (*d'un gout bizarre*), but often original and bold. In Lombardy and the Venetian country, monuments, more ancient still, appeared to him imprinted with traces of the fall of art from the time of the Greeks and Romans, whilst in those which belonged to the age bordering upon the *renaissance* he believed he saw the "barbarism" of the middle ages dissipating little by little, and the genius of the arts, like a new Titan crushed under an immense weight, seeking to remove the burden which overwhelmed it, darting through the interval brilliant scintillations, and soon taking a new life, shaking off the dust and rust which overwhelmed it, disengaged from its chains, full of vigour and youth, again astonishing and charming Italy, and returning to the polished world noble pleasures, the most perfect enjoyments, sweetness of manners, and enduring glory. Such were the observations, which gave to M. D'Agincourt the grand, but difficult idea of tracing the history of the arts through the aberrations, into which they had been carried by the removal of the seat of empire to Constantinople—the mixture of Asiatic taste, and the fusion of styles brought, from the north by the Goths, and the south by the Arabs. The thread abandoned by Winckelmann, at the fall of art, had never been entirely broken, and the materials for regaining it might be found amongst monuments, the least important, the most shapeless and fragile, as miniatures in manuscripts, registers and archives, in certain structures, in the bases of more modern edifices, and even in the bowels of the earth, in catacombs and labyrinths, whose origin, use, and singular ornaments, have occasioned so many conjectures, and will again occasion so many researches and discoveries. Such was, from this moment, the principal object of the labours, the journeys, and the studies of M. D'Agincourt. Towards the middle of the year 1779, he visited Venice, and remained with the Abbé Morelli, librarian of St. Marc's library. He afterwards returned to Bologna, but shortly left for Florence, and passed some months in visiting, on foot, different works of the ancients, with a view to discover the systems adopted. In November, he arrived at Rome, where he took up his abode in the house formerly inhabited by Salvator Rosa. Eighteen months hardly sufficed for him to gain a general idea of the ancient, and modern works of art. In 1781, he visited Naples, Herculaneum and Pompeii, Pæstum and Salerno, and at the end of the year returned to Rome. The labours he had undertaken were conducted with the greatest assiduity, and to bring his enterprise to perfection, he spared no labour, no expense; he directed most extensive researches in Italy and the rest of Europe, and had illustrations engraved under his own eyes of an immense number of works of art. In 1782, notwithstanding the representations which were made to him, he determined to make a detailed examination of ancient catacombs. Besides those previously examined, he had several, which had never been examined, opened at his own expense, and his researches were not unattended with danger. The labours of M. D'Agincourt, his liberality in placing their results at the disposal of others, spread his fame throughout Europe, and the world expected with impatience the work, on which he had been so zealously engaged. Louis XVI. had interested himself in it, and the plates had been sent to Paris, when the disorders of the revolution induced the friends of M. D'Agincourt to send them back again. Subsequently, the political horizon having cleared up, he confided the publication of the work to M. Dufourny, a member of the Institute, who had made researches in conjunction with his own. But the appearance of such a work was attended with extraordinary expense, and the calamities of the revolution had hardly left the author sufficient for the wants of his old age. M. M. Treuttel and Würtz hesitated not to acquire the right of publishing so important a work, and remunerated the author in such a manner, as to secure his future comfort. The wars which preceded the restoration of the Bourbons, and the difficulty of communications, retarded the publication, and the *livraisons* appeared at such extended intervals, that M. D'Agincourt could not hope to see their completion. He employed himself at this time in the publication of a work, styled "Recueil de Fragments de Sculpture Antique en Terre Cuite," containing upwards of 300 subjects. This had hardly appeared, when his last illness commenced, and finally he expired on the 24th September, 1814, at the age of 84. His corpse was followed by the French Ambassador, and by artists and literati of all nations, to the church of Saint Louis des François, where some time afterwards a monument was erected to his memory. His work filled a *lacuna* in the history of art, and has been the foundation of some, more recently published, and better appreciated. E. H.

BUILDING GROUND, WHITE KNIGHTS, READING.

Our readers are aware that the late Duke of Marlborough's magnificent estate, known as White Knights, was purchased last year by parties who propose to divide it for building purposes, and that plans for laying out the property were obtained by the offer of premiums. The land is now coming into the market, and when we consider its surpassing beauty and its contiguity to the Great Western Railway, by which it is reached from London in less than an hour and a half, there can be little doubt that it will be speedily covered with villas. We had occasion to visit the spot last week, and are induced to think there is nothing like it in England available to the public. The botanic gardens with their magnolias and conservatory; the wilderness, filled with American plants now in full bloom; the lake, bridges, China cottage, valley and fountain, offer a succession of pictures of extraordinary beauty; and these are to be reserved for the enjoyment of those who occupy houses on the estate. Mr. Mocatta and Mr. George Godwin are appointed architects.

THE SCHOOL OF DESIGN.

Sir,—From your observations at the bottom of the report of the progress and state of the school of design at Somerset House, it would appear that you suspect "something rotten in the state of Denmark," stating, as you do, that some further information must be elicited to prove the efficiency of the present system.

I can give you a little information, but I am sorry to say that it is to prove its inefficiency. The report sets forth that each student is taught as far as possible with reference to the promotion of the particular object for which he joined the school: further, that the more advanced students are exercised in original designs, and composition, &c., and are taught to apply to various practical purposes the skill they acquire. Sir, excuse me if I pause,—I am overpowered when I think of the talent required to carry all this into execution. Here would be a task for Cellini if yet alive! for the Italian arabesque painters —and Raphael himself—a glorious task for the old French designers Messonier, De la Fosse, and others of that school, or for Percier and Lafontaine, or for such of our English architects as have made decorative design their study; but it would at least be a task for a practical designer of twenty or thirty years' practice in the art of design for manufactures and for decorations; so at least most people would think, but not so the council of the school of design. A master who had studied the ornamental art would require a salary of two or three hundred pounds; but a portrait painter — a Spitalfields' weaver — a mechanic will do the work for 120*l.*; so they have sent down a portrait painter to Birmingham—a mechanic to some other part of the country—and installed, with great parade, a weaver at the Spitalfields' school of design for 100*l.* per year, to instruct the people in all those wonderful things which the report would have us believe are taught in the school. It is impossible to say what may follow: men will soon gather grapes on moors, and figs on thistles. What folly in any man to give a guinea to Copley Fielding at every lesson, when any person could teach as well by shewing merely a few good drawings, and at one-tenth the expense; or why give 400*l.* with a boy to a noted architect, when any bricklayer would instruct him as well for a trifle?—or why give much with a boy to a respectable, clever tradesman? The fact is, that the council maintain that, with the various examples in the school, any man may play the master, and save the money of an experienced teacher. Time will shew, but I am very much afraid that the cry in the *Times* newspaper, of "what is the school of design about?" will be re-echoed before long from one corner of the country to the other.

The director, Mr. Wilson, is a man highly qualified for the post he fills—his talents, his urbane and courteous manners, render him most valuable,—but he is fettered by a council perfectly ignorant of the qualities which ought to accompany a teacher in a school of design, and of the methods which ought to be adopted to make practical draughtsmen; for I find fault too with the immense time lost in making chalk drawings, which are perfectly useless to practical draughtsmen. I find fault too with the vague and indefinite manner in which the drawings for competition are specified, there being no common-ground given to run this race upon—the same failing which is so much to be deprecated in architectural competitions.

Having found as much fault as I can, I must now say something in praise, and for that purpose, turn with pleasure to those students who study the frescoes, and whose copies are beautiful, and very much surpass Sang's style of painting for finish; and with designs furnished by competent architects or designers, they might soon drive him out of the field —but neither they, nor Mr. Sang, nor any man living, will ever be able to paint by the yard, and design and draw too.

I am, Sir, &c.

A Constant Reader.

GREENHOUSES, VINERIES, AND AVIARIES.

AWARD UNDER THE BUILDINGS ACT.

SIR,—In my last to you on the subject of a pigeon-house, situate in the back-yard behind my dwelling, Princes-road, Bermondsey (see BUILDER of 31st of May last),* I promised to forward you the result. I beg leave now to state that I have had notice to take up the award; and protesting against the jurisdiction of the referees over such, I did not take it up at the time appointed. On the following morning, early, the district surveyor called with the award, and desired to know how I intended to act; my answer was, as before, "You have no jurisdiction, and may take what course you please."

The following is an abstract of the award:—

"We do hereby certify and award that the said building is contrary to the said Act, and we do further certify, that although greenhouses, aviaries, and such like buildings are exempted from the rules and provisions of the said Act, as to the *walls* and other requisites of attached buildings and offices, and *although no express provision* is made as to the walls of such structures, yet such structures, and the walls thereof, must be so placed and so constructed, as not to be dangerous to the adjoining premises, nor to communicate fire to the interior of the buildings to which they belong. And with regard to the costs and expenses attending this proceeding, we do further award that the same be paid by the said W. S. Hollands, the sum of 3*l.* 5*s.* 8*d.*"

For the benefit of the public, I beg to give you a description of this bird-cage or enclosure. The part alluded to is an enclosure round a few pigeon holes, or what are termed dove-boxes, which rest against a 9-inch wall—no fastening whatever; this enclosure is 7 feet by 6 feet, and 4 feet high, uprights 1½ inch thick, and lattice sides, diamond work; it took about one and a half bundles of laths. The top is covered with zinc, it has no connection with the dwelling, and there is a 9-inch brick (sound best stocks) well built wall between. Leaving your readers to judge for themselves if or not I take the proper course,

I am, Sir, &c.

Bermondsey Square. W. S. H.

*** The award on the subject of greenhouses, which we published last week has excited much commotion. The question now is, how greenhouses and conservatories *are* to be constructed: whether or not the district-surveyor is to be called on to decide in each case, according to his own views, what may or may not be erected. The award in Mr. Hollands' case, which bears on the same point, defines the referees' views a little more closely than the first-mentioned did, and perhaps before long they will consider it necessary to issue some express instructions on the subject.

TO LESSEN THE COMBUSTIBILITY OF HOUSES.

SIR,—Though conscious that you are much pestered with projectors and projects, I must increase the number of your tormentors by one. I have a project for diminishing the combustibility of houses. A simple one, as you will see, when I tell you that it is merely the substitution *of iron for wooden lathing* in all cases where wooden laths are now used for partitions, ceilings, studding, &c., &c. In every house that is burnt the *lathing* supplies the *train*. The fire creeps up the walls, ignites the joists and floors, and in short prepares the bonfire with perfect pyrotechnic art. No fire could possibly pass from a room without combustible laths on wall or ceiling (or wainscotting, which is rare in modern houses) to any other room. I know nothing of the comparative expense of wooden and iron laths, but I see that hoop-iron is very cheap, and laths being much thinner might be made much cheaper: the difference in cost therefore could not be very considerable, and I know that I would joyfully pay 10*l.* additional in rent for the house for which I now pay 120*l.* rent, if I knew that all its lathwork was of *iron*, and that there was a moral impossibility that I and my family should ever be burned in our beds. This additional 10*l.* per annum may represent builder's profit for 150*l.*, but I think I am safe in assuming that the difference between iron and wooden lathing would not amount to one-third of the money. All the projects of fire-proof houses that I have seen propose to substitute metal for walls, joists, and rafters, and some suggest floors; but this is all folly; walls, joists, and rafters, never begin the fire, or conduct it in its early stages of progress, and floors very seldom: it is *the light work* that begins the mischief, and carries it on. I am, Sir, &c.,

Gordon-square, June 16. A CITIZEN.

*** We withhold our remarks on the above, as we shall probably be led to some general observations on the construction of fire-proof dwellings before long. If our correspondent will refer to our leading article of June 7th (p. 265, *ante*), he will see that his suggestion is not entirely novel. It is satisfactory to observe that much interest has been excited by what has already appeared on the subject in our pages.

We have received a prospectus of a "Fire Protective and General Buildings Improvement Company," formed for the purpose of introducing improved modes of constructing buildings, secured by letters patent, on principles combining the preservation of life from fire, property from robbery, and improved ventilation, for the promotion of future inventions and improvements connected with building, and the establishment of rooms for the exhibition of models and for other purposes connected with the building trade: but are at present uninformed as to the plans proposed.

PUBLIC PARKS AND WALKS AT MANCHESTER.

WE stated a few weeks since (page 203, *ante*) that a deputation from the committee appointed to carry into effect the object of providing public parks and places of recreation in Manchester, had waited upon the premier, with the view of obtaining a grant from Government in aid of their design. Sir Robert Peel then offered the sum of 3,000*l.*, which the deputation felt bound to decline, as partaking rather of the character of an eleemosynary dole than being a liberal and appropriate grant consistent with the importance of the object in view, and the relative position of the parties to it. A reconsideration of the matter has induced the committee, through the medium of the Mayor of Manchester, to address a letter to Sir Robert Peel, in which they state that they think it their duty to accept of the sum of 3,000*l.*, but indulge the hope that it will be considered by her Majesty's ministers and by Parliament as a portion only of that assistance which a community like Manchester may reasonably seek at the hands of the Government; and, after referring to the great personal interest which the premier has manifested in the success of the experiment, they state that the sum paid into the bank to the credit of the committee amounts to 27,409*l.* 2*s.* 11*d.*

The following is a copy of Sir Robert Peel's answer:—

Whitehall, May 29, 1845.

Sir Robert Peel presents his compliments to the Mayor of Manchester, and begs leave to acknowledge the receipt of his communication of the 26th instant.

Sir Robert Peel will give directions for the issue of the sum of 3,000*l.* in aid of the voluntary contributions raised in Manchester and its neighbourhood for the purpose of providing public parks and places of recreation, but he does not feel himself justified in giving any assurances on the subject of a further additional grant.

Sir Robert Peel is much obliged to the Mayor of Manchester for the information conveyed in his letter respecting the progress made by the committee, and offers his best wishes for the successful progress of their useful labours.

GEM ENGRAVING.—The committee of the Art-Union of London in their last report drew the attention of the public to the neglect into which gem-engraving had fallen in this country. To follow up the subject they have now offered three premiums of 60*l.*, 30*l.*, and 15*l.* for the best cameos in profile of the head of Minerva, having a sphinx on the helmet, in the collection of bronzes at the British Museum. They must be cut in onyx of not less than two strata, and be at least one inch in length.

THE NEW ROAD THROUGH WESTMINSTER.

SIR,—I have read the remarks in THE BUILDER respecting the improvements from Pimlico to Westminster Abbey with almost painful interest. It is certainly most lamentable that a gentleman holding so responsible an office as the Earl of Lincoln does, in a commission of taste, improvement, and embellishment, should have pledged himself so hastily to carry out any one plan without consulting the wishes of the community at large.

I see by the voluminous Second Report of Metropolis Improvements of 2nd August, 1838, that Mr. Rigby Wason joined a number of gentlemen in the purchase of all the property from Brewer-street to the Broadway, in the line of the intended new street, with the patriotic view of aiding in these improvements; and it would perhaps be unjust to alter the plan so far as their purchases extend, *i. e.* from Broadway to Brewer-street. But surely there can be no impropriety in modifying the plan of the new street from Broadway to the Victoria Tower.

As the Bill is now before Parliament, no time should be lost in endeavouring to procure an alteration in the Bill or the plan of the street, or the insertion of a clause to reserve the power to Government of improving the vicinity of Westminster Abbey at some future time. The dean and chapter do not like to be disturbed; but when they are gone, any new appointments might be made with an understanding that their residences would be removed across the road, and subterraneous passages formed to the Abbey cloisters for their convenience.

I think that arcades across a road on the south side of the Abbey, as recommended by the Metropolitan Improvement Society, would in some measure obstruct the view of the two principal buildings, viz., the Abbey and the Victoria Tower. A subterraneous passage, on the contrary, would leave the road open, be much more private, and being made on the same level as the cellar floors of the present old houses, and of course also of the new, the alteration of the residences would scarcely be felt by their inhabitants. And if the roadway were raised at that spot only two feet (a rise that would be quite imperceptible to passengers) it would admit of a good height for the passage ceilings, at the same time that the floors would not interfere with making the main sewer of a proper height and depth.

I really wonder at the commissioners, that they should so far forget themselves and their office, as to wish to build out of view the venerable towers of Westminster Abbey and the splendid new Victoria Tower; but it is just like our forefathers (and we must blame them no more) who built out of view the noble cathedral of St. Pauls, when they erected their narrow, crooked, Ludgate Hill.

Although I am a stranger in London, I feel so great an interest in having the improvements *well done* if done at all, that I have written a petition to the House of Commons and signed it, and I take the liberty of sending it to your office for public signature.

I do hope and trust you will exert your influence and stir up the friends of improvement to use dispatch in this matter, for no time should be lost. I remain, Sir, &c.

T. I. M.

*** The petition lies at the office for signatures.

CEMENT ON IRON.

IN reply to your correspondent at Worcester, *all cements mixed with water* are objectionable as applied to iron; the most effectual mode is to run the mouldings with Hamelin's Patent Mastic, manufactured by Messrs. Charles Francis and Sons, Nine Elms, London. This mastic is mixed with linseed-oil to the consistency of damp sand, and, previous to the application, the iron girders should be well saturated with *boiled* linseed-oil. Hamelin's Mastic has been in use for upwards of thirty years, and sticks most tenaciously to all kinds of hard substances: I have even used it upon glass. It requires an expert workman to manage it, what the London men call a regular "mastic hand." However, the manufacturers will, if requested, send ample directions for the use of the material.

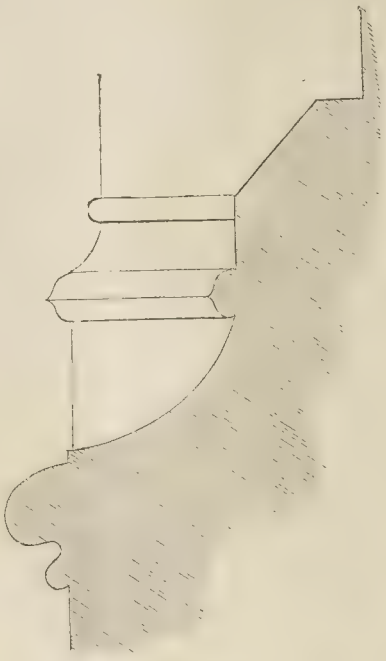
FRANK TYRRELL.

Newcastle-upon-Tyne, June 12th, 1845.

* Page 256 *ante*.

NEW DOORWAY AND DETAILS FROM YORK MINSTER.





Section on K—L.



Section on Q—R.



Section on A—B.



Section on E—F.



Section on H—I.

NEW DOORS AT YORK MINSTER.

When York Minster was last attacked by , the centre and south doors of the west it were destroyed. The annexed engraving resents the new door designed to replace latter, by Mr. Sydney Smirke, together with e of the details at large.

Next week we shall give an engraving of centre door, with the scale and all the re- ning details. They are from drawings by James Wylson, who wrote the account of recent fires and restorations at the ster, which appeared in former Nos. of journal.*

GEOMETRY OF BRICKWORK.

BRICK CAMBER ARCHES.

he heads of the apertures of doors, windows, other openings are most frequently finished straight arches being placed across them. en, therefore, straight arches are required e executed in gauged brickwork, it be- es necessary, in order to adapt bricks such a purpose, to prepare moulds or plets for marking, cutting, and tapering bricks so that when the bricks have cut and rubbed and brought to corre- d with the moulds, and are arranged and n their places, they shall then form strong, uniform, and symmetrical arches. ight arches of this description are usually ed *cambered* arches, the soffit lines of ch are made concave, or to rise upwards the springing points with a curve. A fectly straight line, from some optical illu- always seems to bend or sag downwards, it is principally for this reason that what called straight arches are cambered so as prevent them from having a sagging ap- rance; and, moreover, if the soffits were executed with a camber, it is very likely they then would become round from the nkage and settlement of the work.

he degree of camber, or rise, from the ght line which connects the springing ts of the arches varies with the widths of apertures. It is the usual practice to e the camber rise one inch to an opening feet; but it would involve considerable ble to strike a curve for every arch when are of unequal widths, therefore, in order revent the necessity for this, bricklayers provided with a camber-slip, which is e of a piece of good deal or mahogany, t 4 inches wide, and half an inch thick; this, from being made of sufficient length, to 8 feet, is capable of answering to any ing up to this width. One edge is made e curve of a segment of a circle, accord- to the above proportions, and the other is made either straight or with a curve, h rises about half an inch or half the height e other. The intrados of the arches is de- ed from the greater curve, and the extra- rom the lesser; and sometimes the extra- s made straight; but the proper way is to e it of the lesser curve. Now in order to ate the necessity of striking the curve of mber-slip with a radius, that otherwise be of great length, another method is lly adopted for that purpose, which is simple, and is well known to almost every enter. The principle is deduced from the ty-first proposition of the third book of id's "Elements of Geometry" (*which see*) ly, that all angles in the same seg- of a circle are equal to one another. following description will shew the man- f drawing the curve in question; and by ame principle and varying the proportions, portion of the circumference of any circle ver flat, may be drawn by it; and it is nes of manifest utility to all persons en- d in building.

t *a c* (fig. 1) be any chord of an arc or a of an aperture, and *d b* any versed sine e of the intended arch. Place two pins all nails at the extremities of the given d *a c*, and place two long rulers or straight- against the nails, the rulers crossing other and intersecting in the point *b*, ng an angle, *a b c*. They must then be ed together at the lap *b*, and also by a across on the straight-edges, so as to this angle. Bring the point *b* of the ection of the straight edges to the point *a*,

* See pp. 158 & 175.

DIAGRAMS TO ILLUSTRATE THE ARTICLE ON GEOMETRY OF BRICKWORK.

Fig. 1

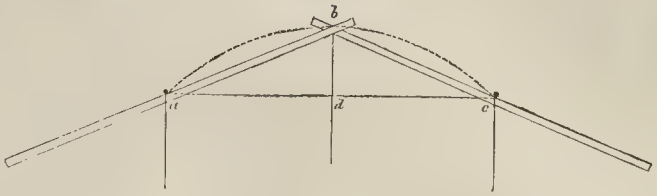


Fig. 2.

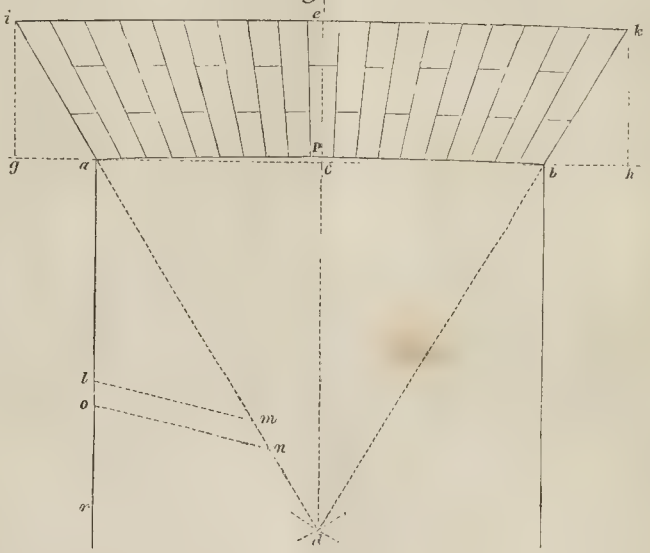
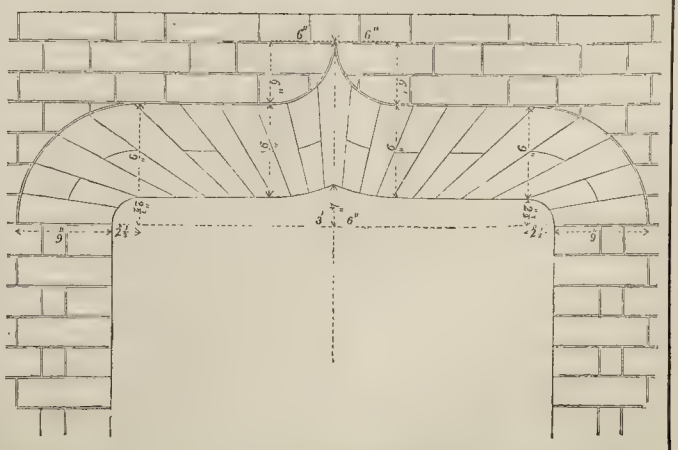


Fig. 3.



and then hold a pencil in the intersection, and slide the edges of this instrument against the nails, and the pencil will describe the arc *a b c* as required. Each of these straight-edges must be somewhat longer than the chord *a c*, otherwise the whole of the curve cannot be drawn at one operation.

The bricklayer, then, being provided with a camber-slip, which ought to have a line marked or finely cut-in across it at the centre of its length, we will now shew him the manner of preparing the moulds and getting the bevils, for the purpose of cutting and rubbing the bricks by, so as to form a camber-arch. Draw an indefinite straight line, *g h* (fig. 2), and upon it take any point, *c*, and make the length, *c a* and *c b*, each equal to one another, *a b* being the width of the opening, which in this example is equal to 3 feet 2 inches. At right angles to *a c* draw *d c*, and produce it indefinitely beyond *c*. A perpendicular from the point *c* may be drawn with a square, or by taking *a* and *b* any two equal distances from *c*, as centres, and with any radius greater than half *a c*, describing arcs intersecting each other in the point *d*, then drawing a line through the points *d* and *c*, and it will be the perpendicular required. Now set off on each side of the centre line of the camber-slip two equal distances, similar to *c d* and *c b*, and apply the soffit edge of the camber-slip, so that these distances shall coincide with the points *a* and *b*, and draw the intrados *a p b*. Take a point *g*, outside the point *a*, the distance from which it is intended for the arch to rake or skew, which in this example is equal to 7 inches, and make *b h* equal to *a g*. On the points *g* and *h* erect perpendiculars, *g i* and *h k*, and make *g i* and *h k* each equal to the intended height of the arch; this should be equal to four courses of bricks less the bottom joint, or 11½ inches. When the width of the opening is about 5 feet and upwards, it is the usual practice then to make the height of the arch equal to the height of five courses of the wall, less the bottom joint. Then with the lesser curved edge of the camber-slip, placed on the points *i* and *k*, draw the extradosal curve, *i e k*. Join *i a* and *k b*, and produce these lines to the point *d*. Procure two thin and narrow straight-edges of wood, about 20 inches long each, and also another piece of wood about 3 inches wide, and the same length as the others; this is for a mould or templet to mark the bricks, and ought to be of well-seasoned hard oak, for the purpose of better resisting the wear upon it.

Now, in order to ascertain the taper of the mould for cutting the bricks by, find the lengths of the lines *i e k* and *a p b*, the former being, according to this example, equal to 52 inches, and the latter equal to 38 inches, and the thickness of the upper part of a course of bricks of an arch being nearly equal to 2¾ inches, then, by the rule of three direct, as 52 : 38 : : 2·75 : 2·01, that is 2 inches nearly, the thickness of the bottom.

Now draw a line square across the intended mould near to one end, and at 11½ inches (the height of the arch) from it, draw another similar line; then from the edge of the mould set off 2¾ inches on the upper line, and 2 inches on the lower, and make the inclination of the mould according to this proportion. But the same inclination may be got geometrically by finding a fourth proportional, which is from the twelfth proposition of the sixth book of Euclid's "Elements of Geometry," thus: take two straight lines, as *a d*, and *a r*, forming any angle *d a r*, and upon *a d* make *a m* equal to *i e*, and *a l* equal to *a p*, and join *l m*; make *m n* equal to 2¾ inches, and draw *n o* parallel to to *l m*; *l o* is equal to 2 inches nearly as before. Although we here give this and the foregoing method of finding the taper of the mould, still they are but approximations, but they are pretty near the truth; and by adopting the one or the other the bricklayer will save himself much trouble, which must otherwise arise in bringing the moulds even to this degree of accuracy. We now want to ascertain how many courses of bricks can be got in the arch, and in order to find this, we must measure the length of the line *i k*, which is equal to 52 inches, and then try how many times 2¾ inches there are in 52 inches; it will be found that 19 courses are required. And here we would remark that it is desirable in a gauged brick arch to have an odd number of courses, so that the odd courses may stand in the centre, and form a key to the arch; and the bottom, or soffit brick, of the key-course should always be a stretcher. We have assumed 2¾ inches as being the size of the top part of a course of bricks in an arch, but any other dimension, either more or less, may be taken instead, as bricks vary in thickness; and therefore a thickness must be taken according to the size the bricks will hold. And although we have been thus particular in shewing the manner of finding the taper of the mould, yet sometimes it is the practice of bricklayers, when the inclination of the skew-back is not given, to assume a taper for it at once, and without any attention as to how much the arches are to rake or skew from the perpendicular; this of course obviates the necessity of some of the previous performance.

Now fix on a point on the edge of the mould or templet, where its width corresponds with the bottom thickness of a course of bricks of the arch, which in this example is equal to 2 inches. Find the centre of the mould at top and bottom, and draw a line along it through these points. Then place the mould in the situation of the key course, so that the centre line on the mould may coincide over the centre line of the arch, and also that the point on the edge of the mould may come over the line forming the soffit of the arch, and on the left side of the centre line. Now place one of the straight edges against the left edge of the mould, and then remove the mould, and place the second straight-edge against the edge of the first, that is in the place of the mould; now remove the first straight-edge, and slide the mould against the second straight-edge, until the point on the edge of the mould coincides again with the soffit line of the arch; and proceed in this manner to the last course, or to the line *a i*, and if the mould falls short, or runs beyond this line, the process must be repeated, in the former case by taking a point on the edge *above*, and in the latter case *below* the first point, until the last course coincide with the line *a i*; and if the mould should not be parallel with the line *a i*, a few shavings must be taken off the edges with a plane, either at top or bottom, so as to make it taper accordingly. When the templet or mould has been brought to the proper taper, it should be once more traversed, and the joints of all the courses marked as it proceeds. It may also be observed, that the joints of all the courses will radiate to the point *d*, where the inclinations of the skew-backs meet. It is necessary to state that particular attention should be observed in firmly holding the straight-edges, so as not to let them slip, while traversing the mould, as otherwise it may be the means of creating great confusion, and probably spoil the work.

Now, having got the mould to the proper size and taper, something less than this thickness must be taken for the purpose of getting in the putty joints for bedding the courses. Place the mould in its proper position at the key course, and then place the straight-edges one on each side of it, and close to it. Then push the bottom of the mould upwards, and place, in the vacant space, between the left hand straight-edge and the mould, at top and bottom, two equal substances of a thickness which a putty joint is to be of, and push the mould downwards, closely pressing against them. Remove the straight-edges, and make a mark on the edge of the mould below the former, and directly over the soffit line. All the soffit bricks are to be marked and cut from this point, which should be cut in, what we shall now term, the top edge. It is the practice sometimes to make a mark on the edge of the mould where its width is equal to the top thickness of a course of bricks, and then to traverse the mould along the top line of the arch.

The next operation is to find the bevil for the soffit of each course of bricks from the skew-back, including the key; and to find the lengths of each course from the soffit to the top. These processes are very simple. Place the two straight-edges perpendicularly on each side of the extremities of the skew-back, and upon them firmly fix the camber-slip, so that it coincides with the points, and exactly with the soffit line of the arch; now commence with the first course next the skew-back, by placing the narrow end of the mould under the camber-slip, and bring its top edge to correspond with the line of the first course, and, with the point cut on the edge over the point at the soffit line. Hold a knife or pen against the soffit edge of the camber-slip, a make a mark across the mould, this ma with the bottom edge of the mould, is angle, or bevil for the first course. Now ma a mark on the top edge of the mould at extreme upper point of this course, that is, the extrados of the arch; and the distance fr the lower mark to this is the length of the of the first course. The bevils of all the ot courses, and their lengths as well, can be tak off by the same processes. The bevil of skew-back is taken by laying the mould ab the line *g a*, with the lower edge straight with and the larger end projecting somewhat o the line *a i*; then, by laying a ruler across mould, straight with and over the line *a i*, drawing a line across the mould by the ed of the ruler, this line, with the edge *g a* of mould, will be the bevil or angle of the ske back. In order to form the skew-back bric the stock of the bevel is applied against th bottom outer edges; the blade laying acr their faces being a guide to the tin saw marking them; then, apply a square agai their faces to the lower and upper points of bevils, and mark the bottom and upper b across; then cut away the superfluous mate at the ends to these marks, and afterwards them on the stone until they suit the be Sometimes the top bricks of the arch not cut to their lengths till the last, when arch is laid down on a bench, and the les curved edge of the camber-slip being laid wards on the arch, the tops of all the bri are then marked by it and cut. In the exe tion of camber arches it is desirable that whole of the courses of bricks should be uniform thickness. This is requisite, merely for the purpose of obtaining a reg appearance, but in order to adapt the bri to the work, and to prevent them from be cut away and wasted. According to the fo going method of striking out a camber arch, the courses of bricks will be of equal thickne for if lines be drawn from the points of soffits, and at right angles to the joints, square ends thus cut off will all be of ec thickness.

The bricks which are to be cut for the a are first rubbed on a stone, and made squa the bottom outer arrises being also made straight and fine as possible. In commenc a course of the arch, the bevil of the s brick is first marked across the face nea one end; a square line is then made fr the lower point of the brick across the tom; a bevil line is then marked in on back face from the point of the square where it cuts the bottom back edge. The sup fluous substance being now cut off, the en then rubbed, and made as clean and uniform possible, properly adjusted to the bevil, square from the outer face. The brick is t laid on what is termed a bedding stone, wh is usually a piece of thin marble about 9 ches wide and 2 feet long. It is then mar with a small tin saw, or a nail, from the mo which is placed against the front and b sides of the brick; the fixed point cut in edge of the mould being always brought as to coincide with the upper point on each of the soffit. The marks on the front and b faces at the points next the soffit are joi with a line which is cut in the end of the so and is thus made parallel with the bed. brick is then turned on edge with its face wards, and the tapering mould is then pla against the soffit with one edge kept ab ¼ inch above the brick. The edge of ei the header or stretcher side of a thin, obl templet of wood, whose angles are made fectly square, the width of the header be 3¾ inches, and the width of the stretcher be 7¾ inches, is then placed against the mould, other edge being the guide for the tin saw marking either the header or stretcher w By this manner of proceeding, it will be that both the headers and stretchers are mar off parallel with the soffits. The superfl brick at the end and top side is now cut a with the brick-axe; but the utmost care sh be taken to cut the ends of all the brick square as possible from the outer face, as w of care and neglect in attending to this portant particular is very often the cau arches settling and bulging outwards, the centre bricks dropping out of their pla For when the courses are being set, all ciencies are usually packed up with mor

hich, from not being of sufficient solidity to ear the weight of the superincumbent pres- ure, yields to the impressed force, and, there- ore, causes the arches to crack and give way. fter the superfluous material is axed off, the rick is then rubbed on the rubbing-stone, and reat nicety is required to be observed in this articular, so as to bring the upper edges of the rick, both at the back and front faces as well s at the end, to the exact gauge, as then the oints will not only be of equal thickness hroughout the arch, but the whole of the ricks when set will be better calculated to ustain and distribute equally among them the ressure under which they are liable to be ubjected.

The soffit brick, then, being finished, the ext step is to prepare the upper brick. The nd which is to be placed next the soffit-brick to be cut and rubbed square from the face, nd made to suit the bevil of that course; it is hen placed against the end of the soffit-brick, nd marked both on the back and front face ith the tapering-mould, its length being taken rom the mark which corresponds to the ngth of that course. The bevil is then to be laced against the top edge of the brick to he mark, and its length marked across to the evil with the tin saw, the ends being marked quare across also. The angles which the end akes before the brick is tapered are equal to hose of the other end, and although there will rise some little irregularity in the tops of the pper bricks of the arch, arising from the dif- erence of curvature between the extrados and ntrados, still it will be found to be so very ight, as not worth noticing in actual practice. he superfluous material of the brick in ques- on is then to be axed off, and the brick, as at, must then be rubbed carefully on the one so as to correspond with the taper of the offit-brick and the mould. The same opera- ons are then to be gone through with the emaining courses.

We have received the following note, which ill sufficiently explain itself:—

"Sir,—Will you be so kind as to inform a ricklayer the proper method to strike out an ch, of which the enclosed is a sketch as near I can make it, so that it can be executed in rickwork, and set in putty. The opening is feet 6 inches, the rise 4 inches, the face inches, and soffit 4½ inches, and you will blige your humble servant, H. J."

We have somewhat altered the original ough sketch, as sent us, in order to make the rch more suitable for execution. All the ourses of bricks of an arch of this descrip- on are to be struck out upon precisely the me principles as are those of the foregoing mber arch. The courses, as arranged in the nexed arch (fig. 3), were traced and marked om a small paste-board mould by following e soffit curve. An approximation to the roper taper for the mould was obtained by ading the lengths of the extradosal and in- adosal lines; then, as the length of the ex- ados : the length of the intrados :: the thick- ss of a brick at the top : the thickness next e soffit. From what has been said in refer- nce to the execution of a camber arch it is pposed that no difficulty will arise in strik- g out and executing an arch similar to this. he centres and dimensions are sufficiently finite and need no description.

The courses of bricks of both two and four ntred arches are usually arranged upon the me principles as the camber arch; a taper is nerally assumed for the mould, which is aced in the situation of the key-course, and aversed downwards until it coincides with the ringing line. And sometimes the courses bricks of elliptical arches are formed by e same method; but we intend by-and-by our time will permit, to give a general de- ription of forming and executing gothic, iptical, semi-circular, segment, and other ches, as well as niches.

With reference to the manner of *setting* uged work generally, we must also leave that til another occasion.

John Phillips.

Smoke Prohibition Bill.—Last week, Mr. Mackinnon moving that the House of mmons resolve itself into a committee to ther this measure, it was observed that only members were present, when an adjourn- nt immediately took place!

INSTITUTION OF CIVIL ENGINEERS.

At a meeting held 10th June, 1845, Sir John Rennie, President, in the chair, the paper read was by Mr. James Stirling, and described an ingenious air-engine, invented by his brother and himself. The movements of this machine are founded upon the well-known pneumatic principle, that air has its bulk or pressure increased and diminished in proportion as its temperature is raised or lowered. The appli- cation of this principle was exemplified by drawings, and a model, exhibiting a machine composed of two strong or tight air vessels connected with the opposite ends of a vertical cylinder, in which a piston works in the usual manner. Within these air vessels are sus- pended two air-tight vessels or plungers, filled with non-conducting substances, and attached to the opposite extremities of a beam capable of moving up and down alternately, to the extent of one-fifth of the depth of the air- vessels. By this motion of the plungers the air, which is in a heated state below, is moved to the upper part of the vessels, and in its transit traverses a series of vertical capillary passages between thin metallic plates, which absorb the greater part of the caloric; the remainder is taken up by a refrigerator of tubes filled with water; the air at the heated end is at about 700°, and has a proportionate pressure. When it arrives at the cooled end, it is reduced to about 150°, and the pressure diminished to a corresponding extent. There- fore, as the interior vessels move in opposite directions, it necessarily follows that the pres- sure of the condensed air in one vessel is increased while that of the other is diminished. A difference of pressure is thus produced upon the opposite ends of the piston, and a recipro- cating motion results, which is communicated through a beam, connecting rod, crank, and fly-wheel to the machinery when driven. Machines upon this principle were stated to have been worked for some years past at Dundee, with considerable saving of fuel, as compared to a steam-engine of similar power, and doing the same work. It is now proposed to adopt it to marine purposes, to which, from its simplicity and slight expenditure of fuel, it appears well fitted. The theory of the expansion of air, and its practical adaptation as a moving power were very fully discussed, as were the mechanical difficulties which ap- peared to have been very ingeniously overcome by Mr. Stirling, who attended the meeting, and explained his invention. The engine ap- peared to receive the approval of the members who were evidently not prepared to find so perfect a machine, and one so practically useful.

On the 18th instant a paper was read by Mr. G. Edwards. It described the method employed for breaking up the shoals in the river Severn, between Stourport and Glouces- ter. These shoals consist of marl rock, so compact and tough, as to resist all attempts to break it up with the steam-dredger, or by prize-bars, or with a powerful species of sub- soil plough. Recourse was therefore had to blasting with gunpowder, and the process of these operations formed the subject of the paper. It appeared that during the summer months there was in some places only 2 feet depth of water over some of the shoals; and the navigation was therefore greatly impeded.

In 1842 an Act was obtained for the im- provement of the Severn; and under the directions of Mr. W. Cubitt the various works were commenced. The object was, to obtain a channel with a depth of at least 6 feet of water at all times throughout the river. Messrs. Grissell and Peto were the con- tractors for the work, and for them Mr. Edwards designed and executed the blast- ing operations. A series of rafts were moored in a line over the shoal parallel with the bank of the river. Along the centre of each raft, there was an opening through which wrought-iron tubes 3½ inches diameter, were driven down at intervals of 6 feet apart through the gravel down to the marl; withinside these tubes the workmen used the chisel-pointed jumperbars to make the short holes to a depth of 6 feet below the surface. The loose stuff was extracted by an auger-tool, a cartridge of canvas, well pitched and tallowed, containing 3 lbs of powder, was lowered through the tube into the hole, which was well rammed with loose marl. The charge was then fired by means of Beckford's fuse. There was generally but little apparent external effect from the shot, except lifting the pipe a few inches, but sometimes a column of water would be driven up through the pipe to the height of 40 or 50 feet. It was found that each shot loosened a mass of marl of conical or parabolic form, of which the borehole was the centre and its bottom the apex, so that four adjoining shots of two parallel lines would leave between them a pyramidal piece of marl, which was removed by the dredging machine with the loose stuff. This operation of blasting was repeated in parallel lines down all the shoals, and the stuff was dredged up at the rate of 200 to 300 tons per day. The cost of the blasting was about 9s. 9d. per cube yard. It was stated that the six principal shoals had all been successfully operated upon, and great credit had been given not only to the design but also to Mr. Edwards for the systematic and complete manner in which he had arranged and conducted the operations.

An excellent working-model was exhibited, by Mr. Slyde, of the steam-excavator. Several alterations appeared to have been made in its form and the mechanical parts of its combination, adapting it for dredging under water. It was much improved, and seemed now likely to become a useful instrument in engineering operations.

SUSPENSION BRIDGES.

Sir,—I have but this moment seen The Builder of the 31st, and should have been astonished at the attack upon my plan of bridges if I had not known the source of your information. The first part is from a letter by "An Old File," which appeared in the *Mechanics' Magazine*; this is a direct false- hood, and for proof that it is so I refer you, and such of your readers as may be interested in the subject, to the number of that excellent periodical that was published on the 31st. The second part I think is from the *Mining Journal*, which is also equally false, and is re- futed by calculations in the last number of that periodical. But lest this may not be the particulars to which you allude, I will give you a list of the bridges that have been and are erecting on my plan, which vary from the small ones in the park to bridges for the heaviest traffic of 250 feet span. They are— the Victoria Bridge, Bath; five Government bridges, in the Regent's Park, London; five for the Indian Government; one across the Leveu, in Scotland, for Sir James Colquohoun; two for the Earl of Caledon, in Ireland; one across the Bam, at Banbridge, in Ireland; one for G. S. Harcourt, Esq., at Wraysbury, near Windsor; one for H. Miller, Esq., at Frome; one for the river Lea trustees, at Bow, Middlesex; a county bridge in the parish of Hexton, Wilts; and a pri- vate bridge for Col. Wroughton Stowal, Wilts. Besides these I have upwards of 30 copies of plans, &c., in my office at the present time for bridges in contemplation, or about to be erected, in various parts of the world, with which I am connected. I also refer to all I have written upon the subject, and shall be happy to hear and to consider any objections that may be raised against either of the bridges that I have erected, or any that are in contem- plation, or against any thing I have written upon the subject; but I must beg the favour of argument being used rather than assertions.

I do not wish to criticise any other part of your remarks, for this is all that concerns me, yet still I will hazard a few observations on them. I must object to your position, that calculations are not always to be relied on, it is the abuse and not the use of them that mis- lead men. The accident at Yarmouth would not have happened if the engineer had calcu- lated the forces of that bridge, for I find from the data given it was capable of resisting a weight on the platform of only 40 lbs. per square foot with safety, whilst at any time it was liable to a load of 70 lbs. There is another point in which I differ from you, though I grant percussion, &c. may alter the internal structure of iron and weaken it, yet in a bridge which is perfectly quiescent, nothing but being strained beyond the limits of elasticity can effect the strength of the structure, the deter- mination of which is a matter of *calculation*,

and if adhered to, nothing need be apprehended. I could instance several suspension bridges that have stood many years in this country without injury, whose limits of elasticity do not exceed 30 lbs. per square foot, whilst at any time they are liable to be loaded to 70 lbs., which they may bear once or twice, but it would permanently cripple and weaken the structure, and repeated loading eventually destroy it. I must also differ from you in supposing that a suspension is more liable suddenly to give way than a compression bridge; in proof of the contrary I will instance the fall of the bridge across the Mill Fleam, at Derby, those at Ashton-under-Lyne, and several others that have occurred lately by which lives have been lost. The fact is, the erroneous principles upon which both suspension and compression bridges are constructed of necessity compel their failure directly any part, however trivial, yields. This for several years I have been trying to impress upon the public, and have at last succeeded. And though there are still many persons who object to my plan, yet I am happy to know that eventually they must acknowledge it to be correct." For upon what natural principle can it be argued that the failure of a single part, however trivial in itself, should destroy the whole.

It is impossible but that some parts must be weaker than others, and the weakest part will always be proportionably most strained, and should at any time the pressure on these parts exceed the limits of elasticity, it yields, and the bridge fails also. What argument then can be brought forward to support a principle that reduces the strength of the whole to that of the weakest part. And I tell the mathematicians (for as I know something of that science, without presumption may I tell them so) that the principle is wrong—and not all the reasoning in the world can make it right—and that a bridge should no more be destroyed by the failure of a single part than a limb of a tree should fall down by lopping off a part from it; the fractured end in both instances would fail, but the rest should remain as firm as ever.

I am, Sir, &c.,
Bath, June 16th. JAMES DREDGE.

N.B. The Montrose Bridge did not fall at the opening, but a long time afterwards at the time of a boat-race. J. D.

*** We have inserted Mr. Dredge's letter, notwithstanding that a threat of an action for libel if we did *not* do so accompanied it, and had nearly led us to adopt a contrary course.

SIZE OF MAIN DRAINS UNDER BUILDINGS ACT.

SIR,—I am at a loss to know what size to make the main drain for carrying off soil. In the Act it mentions, that it must be in transverse section at least equal to a circular area of 9 inches diameter. Now, as I am not sufficiently competent to understand such ambiguity, will you, in your next number, make the point clear, for I find many other persons puzzled equally as much as your humble servant, A BRICKLAYER.

*** We wish no part of the Act was more ambiguous than the clause quoted. A 9-inch barrel drain (or larger) may be used, or a drain of any other shape provided it afford water-way (area) equal to a 9-inch barrel drain. The area of the latter is 5 inches and 3 parts, so that, for the sake of example, a rectangular drain not less than 9 inches by 7 inches may be used, or one 12 inches by 5¼ inches, since the area of either of these is equal to that required.

ARCHÆOLOGICAL CONGRESS AT LILLE.—Members of the French Archæological Congress held at Lille, visited Tournay on the 8th inst., and examined all the antiquities of that very interesting town. They were received with extraordinary demonstrations of respect even to the ringing of the great bells of the cathedral. Relative to this, the bishop of Tournay who received the congress in the episcopal palace said, "The bells you hear gentlemen, sound but for God and our princes: you are the princes of science, and I have thought it right to make them utter your welcome." Our countryman, Dr. Bromet, is the only representative of England mentioned, and is described as the *president* of the Archæological Society of London. Next week we shall give a few particulars of Tournay and its cathedral.

RAILWAY STRUGGLES.

SIR,—In No. 122 of your valuable periodical, you allude to the expensive contest now being carried on between the "broad and narrow gauges" and the interest it excites in the Parliamentary Committees and the railway world. Being a looker-on and unconnected with railways, and without entering further into the question of the gauges than to state, that it appears the difference in cost of earthwork between the broad and narrow gauge is 6½ per cent., 7 per cent. land, with a larger expenditure in bridges, carriages, &c., and an additional expense in the upper works to carry the heavier locomotives, &c., as well as extra lines of rails to suit the traffic of the narrow gauge, it appears to me that the difference of the cost of construction would amount to at least from 20 to 25 per cent. in favour of the narrow gauge. With reference to speed, the express trains on the London and Birmingham Railway exceed one mile per minute, and it has been stated with regard to the power of draught, that ninety-five waggons in one train, each containing seven tons, have been conveyed on the narrow gauge, and I have yet to learn the superiority of the broad gauge, or that more has been accomplished by it. It appears to me, Mr. Editor, that the Government and the legislature are exceedingly culpable in looking on with apathy and indifference, while thousands are squandered in these fruitless contests, and although a department of the Board of Trade was obviously appointed to investigate the merits of the various lines of railway before being submitted to Parliament and to report thereon, opposition seems to be carried on to a greater extent and with greater virulence than before. The appointment of the Railway Department of the Board of Trade has not, I conceive, effected the purpose contemplated, for the old channel is still open to railway promotion, with all its expensive paraphernalia; and bills pass through or are rejected by the parliamentary committees, notwithstanding the reports of the Railway Department of the Board of Trade being in favour of or against them. It evidently has been no check either upon reckless speculation or inveterate opposition. The reports of the Railway Department of the Board of Trade, although very able documents, were in general unfavourable to those lines that would compete with existing lines of railway, so that in many instances important places would be connected with rather circuitous routes; certainly the great speed attained on railways has in a measure almost annihilated space, but still I very much question the policy recommended in preferring such routes, at an additional expense to the traveller, when direct ones can be obtained, merely to uphold monopoly, nor do I believe from the spirit of the age the public would long submit to any such arrangements. Railway companies with little delicacy deprived turnpike roads and canals of the whole, or at least, a great portion of their traffic, and now if the public interest require it, they cannot complain of a little fair competition in their own way. The Romans in laying out their roads adopted a straight line between termini without reference to intermediate obstacles, and our own engineers in setting out canals and turnpike-roads, secured the most direct route the nature of the country would admit of, and even important alterations and improvements have been made to shorten the distance between places of considerable traffic. So I suppose the improvement of railways will be left to the next generation, who, enlightened by our errors, will perfect the system we so erroneously and injudiciously began. Again, the most approved system for working railways seems to be very imperfectly understood, some eminent engineers advocating the locomotive, others the atmospheric system (amongst the former are the Stephensons, Macneill, and others; the latter Brunel, Cubitt, and others), and each party asserting the superiority of its own hobby; but in the present state of the question the public at large are incompetent to form an opinion. As the present time would be a good opportunity of investigating the merits of the rival systems of propulsion, as well as that of the gauge, the construction of railways, their upper works, &c., I would suggest the propriety of a commission being appointed, with adequate powers to collect evidence or conduct experiments, composed of eminent men possessed of great scientific attainments and extensive experience, who would be qualified by an intimate knowledge of the subjects at issue, to grapple with them in all their different and difficult bearings.

I am aware that implicit dependance is not to be placed upon the opinions of our engineers, as they are not infallible (besides many of them, like those in other professions, do that they are required to do and are paid for doing); and, as a proof of what I state, at the completion of the Liverpool and Manchester Railway, fifteen miles per hour was considered by engineers to be the maximum speed for a locomotive engine and train, the gradients worked successfully now were considered to be impracticable then, as were other points that are now established, which would extend this communication to too great a length for the columns of your journal.

As many millions of money are at stake in these railway projects, and as the best principles of construction and propulsion seem to be but *a mere matter of opinion*, I conceive, Mr. Editor, the subject is of the utmost importance to the community at large, and I respectfully submit, worthy the consideration of the legislature and the Government of a great commercial country like ours, who should emulate the rulers of the kingdoms of ancient Greece and Rome in the zenith of their glory, and turn their attention on a broad and comprehensive scale, more particularly to the improvement of our means of communication, and the better development of the internal resources of our common country.

I am, Sir, &c., B. B.
Brecon, South Wales, June 16, 1845.

NEW CHURCH, NEAR RAMSGATE.

TRINITY Church, Mount Albion, St. Lawrence, near Ramsgate, was consecrated on Wednesday, June 11, by the Archbishop of Canterbury, who arrived at eleven o'clock, and was received by about 20 clergy, the committee, trustees, and churchwardens. After the service a capital cold collation was laid at the vicar's, where 40 clergy and others met the Archbishop, who looked well, and commended the church and its promoters. Flags were flying at St. Lawrence, and triumphal arches erected. The church is in the perpendicular style (the style of the fifteenth century), and will accommodate 770 persons. It is 75 feet 6 inches long, and 52 feet 6 inches broad internally, and is divided into naves and aisles by octagon pillars, carrying a clerestroy. The ceilings are all boarded and open. The pewing and free-seats, uniform, low, not painted, but varnished. There is a four-light painted-glass window to the chancel, with figures of St. Mathew, Mark, Luke, and John, paid for by subscription; and a two-light window presented by Mr. W. E. Smith, the builder of the church, at the east end of the south aisle, both made by Warrington, of London.

The building is faced with flints, with freestone quoins. The cost of the whole, including all expenses, was under 3,000*l.*, being less than the architect's estimate; of this about 1,600*l.* only has been raised, for the rest the promoters are responsible. The ground was presented by Mdlle. D'Este. The architects are Messrs. Stevens and Alexander, of London.

GLASS ROOFING.—We learn from the newspapers that within the last few days a rather novel importation has been made in the port of London. This is a small quantity of glass tiles, similar in point of form to the common clay tile for roofing buildings, the advantage held out being their lightness, and being pervious to the rays of the sun. The latter quality is presumed to render them suitable for the roofs of greenhouses, as they will not interrupt the heat and light, whilst they are sufficiently strong to resist the effects of hail-storms, which will much reduce the cost of insurance on greenhouses, &c. The importation is made from Antwerp, and they are chargeable with a duty of 14*s.* per cwt. under the present tariff. They have the appearance of the common green glass, and if the experiment is found to succeed, it demands the immediate attention of our home manufacturers. We shall be glad to learn where these glass tiles can be obtained.

DRAKE'S MODEL OF ST. PETER'S AT ROME.

The St. James's Bazaar, which "in its time plays many parts," contains at this moment a fine model of

—— "the dome,—the vast and wondrous dome,
To which Diana's marvel was a cell;"

It is made in wood by Mr. Drake, of very large size, and is well worthy of examination. It was the work of seven years, and must have required a stock of patience, as well as skill, larger than is usually possessed. In the anteroom is exhibited a very good panorama of Rome, "the city of the soul,"—the "lone mother of dead empires," which will serve to prepare a traveller for the disappointment which is usually experienced on first entering the eternal city.

'The goth, the Christian, time, war, flood, and fire,
Have dealt upon the seven-hilled city's pride;
She saw her glories star by star expire,
And up the steep barbarian monarchs ride,
Where the car climb'd the capitol; far and wide
Temple and tower went down, nor left a site:
Chaos of ruins! who shall trace the void,
O'er the dim fragments cast a lunar light,
And say, 'here was, or is,' where all is doubly night?"

In addition to the model and view, there are some original sketches by Michael Angelo, Sangallo, Bramante, and other architects connected with the building, and which, though slight, are very interesting.

APPLICATION OF DIFFERENT STYLES OF GOTHIC ARCHITECTURE.

Sir,—My attention was attracted last week to a paper in your magazine bearing the signature E. H., and to a remark met there, to the intent that the architects of the present day were expected to study the example of the middle ages, and to design their works in accordance with the true spirit of that remarkable period of barbarism and refinement. I do not quote *verbatim*, but I believe that my impression as to sense is correct. To do this, it is well said that we must visit the objects themselves, and there learn to feel the beauty of the styles we intend to design in.

This seems, indeed, to be an age of adaptation,—the solemn character of the Egyptian, the grace and beauty of the Grecian, Roman, Goth, and Middle Age are united in one age. But I have often thought that there is one circumstance which adds considerably to the striking effect of some of our finest old English structures, which is, that all improvements or additions were made in the prevailing fashion of the time. The diversity thus occasioned has often furnished a theme for admiration: Early English, Decorated, or Perpendicular arches were inserted in Norman walls, and it very frequently happens, that the old Norman doorway is the only relic left of the original church.

This circumstance has been of great use to the antiquary, who builds his era on the fashion of carvings, mouldings, and forms of arch and tracery. But returning to the idea of the beauty of non-uniformity, let us take, for instance, a large church with transepts,—the chancel and choir Perpendicular or Decorated, the transepts and centre tower semi-Norman or Early English, and the nave Norman. Other combinations may of course be chosen, but I think that a union of styles would give more of the correct feeling of the middle ages than to carry out our large works as all of one period.

Viewing such a church as suggested from the nave, we have a bold foreground, the vista gradually becoming more adorned till, at the eastern end, the beauty is complete; then stained glass and rich decoration should finish the picture, and satisfy the eye.

The arrangement just contemplated will be found in some of our finest cathedrals,—Durham in a degree, Lincoln better, and others might be named, perhaps, where the feeling is more fully expressed.

It has been said that invention in architecture has ended, that we can but copy now. Whether the elements of design are exhausted or not, there seems to be a general feeling against every thing new in architectural design; and unless we have a precedent for what we do, it is not correct and does not please. In the other branches of the arts we are progressing; but perhaps it may even be impossible to catch the genius of the early world, when man had every thing to design, and revelled in the luxury of an open and untrodden field. Now we are told of every suggested idea, "Why that is as old as the hills." The rail appears the only road to favour at present.

C. M. J.

Correspondence.

ST. MARY'S NOTTINGHAM.

Sir,—Doubtless for some years past you have heard of the contemplated restoration of this magnificent pile, and, unfortunately, it has only been hearsay, for nothing has been done. You will also probably recollect that about four months ago tenders were publicly advertised for, and there was every prospect of the building proceeding under the able hands of Mr. Cottingham. Thus far all the world has heard, but in this, as in many other cases, more remains to be told. Here is another instance of an unrestricted competition, and I am afraid it will end in another failure. I believe four tenders were delivered; three were very close together, about 5,000*l.*, and very near the architect's estimate, the fourth was 2,400*l.*! By begging and praying, the builder who named that sum obtained leave from the committee to amend his estimate, and went through it with the clerk of works to see what was absolutely left out, and then sent it in at 2,800*l.*, which the committee allowed. Mr. Cottingham, as a matter of course, disliked having his designs murdered by such a tender, believing the works could never be done for the money; so of course he objected to it, and therefore the committee discharged him; and this *protégé* of theirs is to carry out the works, while Messrs. Scott and Moffatt are to step into Mr. Cottingham's shoes.

I have, I fear, already trespassed too much on your patience, and will merely subscribe myself,

An Uninterested Party, but a Lover of Justice.

Nottingham.

PURIFICATION OF WATER.

Sir,—I am much annoyed with the water I raise from a well in which is fixed a vast iron pump; the soil or bottom of the well is composed of gravel, and so is that of the whole neighbourhood.

The water is hard, but what I chiefly suffer from, is the water that is pumped at night being of a *red* or *rusty* colour, the next morning with a strong metallic smell, and a coating of a metallic substance on the surface of the water.

The kindness of a suggestion to remove this evil from any of your subscribers, will be highly esteemed by Yours, &c.

Exeter, June 17th A. X. Y.

Miscellanea.

Cannel Coal.—It is not generally known that Cannel coal can be employed in the fine arts, and that for the bases of statues, plinths, and a variety of other purposes, for which black marble and other fossil substances are used, this fossil can be substituted at a less cost and with less difficulty in the cutting or carving. A very elegant vase of this material, something in the shape of the well-known Warwick vase, but flatter and partaking more of the patera shape, has been lately cut out of a block of Cannel coal, or rather "turned" out of the block by means of the lathe. The artist is a Mr. J. Dallaway. The vase stands on a fluted column of the same material. It has, we believe, been shown to his Royal Highness Prince Albert, who has expressed his satisfaction, both with the design and the workmanship of the artist. The polish that the material of which it is composed receives with very little labour, is surprising. The block came from the estate of the Duke of Norfolk, near Sheffield.

The New Paddington Hospital.—His Royal Highness Prince Albert will lay the foundation of the new hospital at Paddington on Saturday, the 28th instant, at three o'clock in the afternoon. Mr. Hopper is the architect. We understand the choice wavered for some time between that gentleman, Mr. French, and Mr. Alfred Lang.

Bristol and Clifton Drainage.—The local papers say the Report of the Government Commissioners on this most important subject has aroused the inhabitants to form a Drainage Company. Clifton was gradually being ruined by the abominable cesspools made around the houses; and from the strata of the rocks, it is proved that all the wells are, more or less, affected by the overflowing of these cesspools! The calculations shew that for a small sum from each house (one quarter the expense of emptying the cesspools) a per centage exceeding 10*l.* per cent. will be realized.

New Church at Hull.—A meeting of the subscribers to the Hull Church Building Fund was held last week to decide on the best plan for the proposed new church to be dedicated to St. Paul, when that of Mr. William Hey Dikes, jun., was selected from a great number that had been sent in and exhibited in the large room of the dispensary three weeks prior to the meeting. The church is designed to seat 1,200 persons, without galleries, and the walls are to be entirely of stone, without plaster. Mr. Dikes, we believe, is a native of Hull, but at present located at Wakefield.

Fall of a Floor in a Mill.—A few days since, soon after the commencement of a sale by auction in Dean Mill, Yeadon, near Leeds, the second floor on which the company were assembled gave way, and upwards of 50 persons were precipitated into the room below along with a great quantity of wood, machinery, and other weighty property. There were upwards of 100 persons in the room when the accident occurred, yet, astonishing to say, not a limb was broken, nor any one seriously injured.

Foul Air in Wells and Cesspools.—Mr. Green, of Sudbury, has been rewarded by the Society of Arts and Sciences for a method of purifying wells, &c., from the foul air which so often accumulates in them when long closed, and has not unfrequently been destructive of life. The plan is simply to throw into the well a quantity of unslacked lime, which, as soon as it comes in contact with the water, throws up a column of vapour, driving before it all the deleterious gases, and rendering it perfectly safe for the workmen to descend immediately.

Testimony of Respect to Mr. John Gray, Civil Engineer.—This gentleman, who has been the resident engineer of the Hull and Selby Railway ever since the completion of the line, had last week presented to him by upwards of 150 mechanics and workmen under his superintendence, an elegant silver tea and coffee service, on the occasion of his resigning his appointment for a more lucrative one on the London and Brighton line.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For executing Works on the Leeds, Dewsbury, and Manchester Railway, being a distance of about 4¼ miles. The principal work on this division is the summit Tunnel, near Morley, which is upwards of 3,000 yards in length.

For the execution of a New Harbour at Greenock.

For the construction of Two Divisions of the Chester and Holyhead Railway, being Nos. 8 and 12. No. 8 contains a length of 7 miles and 54 chains. No. 12 contains a length of 5 miles and 26 chains.

For the erection of a Governor's House, and alterations of the Chapel, at the Worcester County Gaol.

For supplying the St. Marylebone Vestry, with materials for keeping the Foot-way and Carriage-way in order.

For the several works contingent on Warming and Ventilating the Chester Castle County Gaol.

For excavating and levelling Land, building Sewers, making a new Road, &c., on the Wheatley Estate, Erith, Kent.

For Bricklayers', Carpenters', Smiths', Plumbers', Painters' and Glaizers' Works, required to be done for one year, from the 24th inst., at the Churches, Chapels, Court-house, &c., of the Parish of St. Marylebone.

For lowering and making certain Improvements at the Yeuston Hill, Henstridge, Somerset.

For laying down a short Line of Railway, upon Pilbrow's Atmospheric principle, and for two Cornish Engines.

For Plumbers' and Glaziers' Works, at the Hackney Union Workhouse, for one year, from the 24th inst.

For Building a New Parsonage House, at Castle Cary, Somerset.

For the Removal of several Wrecks in the Thames.

For Excavating and Carting away the Soil and Rubbish, and making a Brick Barrel Culvert in Coventry.

For the Erection of a Dwelling House, Offices, and Farm Buildings at Bourton, near the Shrivenoam Station, Berks.

For Repairing the Roofs of the Union Workhouse and Offices at Thornbury, and for the Painting, Colouring, and Whitewashing the Exterior and Interior Walls, Wood-work, Railings, &c., of the same building.

For the Erection of Schools, and Teachers' Residences, for the Trustees of the Worfield Charity, near Wolverhampton.

For the Erection of a New Church in the parish of Whitechapel.

For the Erection of Schools and a Teacher's Residence in connection with the new church of St. Jude, Whitechapel.

For the Repairs to the South Aisle, Roof, &c., of St. James's Church, Bury, St. Edmunds.

For the Erection of New Schools at Great Chesterford, Essex.

For 200 tons of New Iron Butt and Plate Hoops, and for 40 mille great tale of Baltic and Quebec Pipe Staves.

For the Erection of a New Church at Homerton.

For a Footway Paving to be laid down in the Parish of St. Paul's, Deptford.

For re-building a certain Bridge called Roache's Bridge, in the parish of Fordingbridge, in the County of Southampton.

For repairing and improving Horrington Bridge, in the parish of Arreton, in the Isle of Wight.

For re-building Alverstone Bridge, in the parish of Brading, in the Isle of Wight.

For repairing Langbridge, in the parish of Newchurch, in the Isle of Wight.

COMPETITIONS.

Designs for houses to be erected at Dover. The ground is nearly seven acres in extent, and lies on a gentle slope between the south-west boundary of Dover Castle and the town. A premium of fifty guineas is offered for the set that may be most approved of.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

The timber and other trees now standing upon the estate at Woodseaves, Salop. By order of the Lord Chancellor made in the cause "Dickin *v.* Barker."

In the parishes of Terling and Fairsted, Essex: 215 Capital Oak, and 11 Ash Timber Treses, many of them of large dimensions.

At the George Inn, Rowde, Wiltshire: 108 Elm Timber Trees, and 58 Oak ditto. They are of good and some of large dimensions.

At Beale's Farm, near Badley Hall, Ardleigh, Essex: 130 Oak Timber Trees of good dimensions, and 3080 Bavins.

At Norton Hall, and Parleigh Round Bush Farms, Essex: an assortment of Oak, Ash, and Elm Timbers and Whips.

At Mrs. Burchell's Farm, Little London, Woodham Walters, Essex: 130 Oak, Ash, and Elm Timber Trees.

BY TENDER.

A Virgin Forest of Valuable Timber in Walachia. The principal part of the Trees is Oak. The said Forest may produce about 500,000 cubic feet of Timber.

At Little Bentley Hall, Essex: several Acres of Plantations, consisting of superior Firs, Larch, Spruce, &c., to be taken down by the Purchaser.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, June 23.—*Geographical*, 3, Waterloo-place, 8½ P.M.; *British Architects*, 16, Grosvenor-street, 8 P.M.

TUESDAY, 24.—*Medical and Chirurgical*, 53, Berners'-street, 8½ P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.; *Zoological*, Hanover-square, 8½ P.M.

WEDNESDAY, 25.—*Geological*, Somerset-house, 8½ P.M.; *Pharmaceutical*, 17, Bloomsbury-square, 9 P.M.

THURSDAY, 26. — *Royal Society of Literature*, 4, St. Martin's-place, 4 P.M.; *Medico-Botanical*, 72, Sackville-street, 8 P.M

FRIDAY, 37. — *Phhiiological*, 49, Pall Mall, 8 P.M.

SATURDAY, 28.—*Royal Botanic*, Regent's-park, 4 P.M.

TO CORRESPONDENTS.

"Prevention of Fire."—*C. W. remarks that the balusters of a staircase when of wood greatly assist the progress of fire, and urges that iron should be used instead. The importance of having a staircase wholly incombustible cannot be overrated. Wooden staircases seem specially contrived to spread a fire when it does happen, from the bottom of the house to the top.*

"P. A. T. H."—*The letter alluded to, referring to fire-proof staircases, has not reached us. We never omit to acknowledge communications. Perhaps our correspondent will favour us with a copy of it.*

"Prudence."—*The British Mutual Life Assurance Office is in Bridge-street, Blackfriars.*

"A Constant Reader" *would be obliged by being informed through the correspondents of* THE BUILDER *the best and most durable polish for slate, and mode of application.*

"Curves."—*In Mr. Jopling's communication on this subject, last week, after the word "hyperbola," for "archoids" and "cypoids," read, "the* cardioids, *the* conchoids, *the* cyssoids." *The Decorative Art Society should solicit our able correspondent to explain his system at one of their meetings.*

"M. C. C."—*It would be invidious to mention one foundry where castings are not removed red-hot from the sand, as we hope the contrary practice, very properly reprobated in the report from Sir Henry de la Beche and Mr. Cubitt, is the exception rather than the general rule.*

"J. D. Wyatt."—*We shall be glad to receive occasionally a notice of proceedings at the ordinary meetings.*

"F. T."—*The latter paper mentioned by our correspondent would be more likely to meet our views at this moment than the former, as we have already had occasion to refer to the Minster in our pages several times, and must do so again.*

"B. B., a Reader."—*Weale has published a work which gives the information sought, as to taking out quantities, &c.*

"A Mason," *wishes to know where Dr. Reed's ventilator for bed-rooms can be obtained. We think our correspondent errs in the name.*

"W. J. S."—*A letter was left for him at the office as requested. It will apply to* next *Thursday, if considered desirable.*

"D. D."—*The question he asks, namely, "which of the numerous cements now in use is the best," is put to us nearly every week. Our experience of all is not equal, and we might do injustice therefore if we replied.*

"J. K."—*We fear our correspondent's theory is not tenable: we will, however, give it further consideration.*

"E. J. N. S."—*We have thought it necessary to keep back the sketch until we can compare it with the front, and cannot yet promise to engrave it. If our correspondent desires to have it, it shall be left for him. Whether we use it or not, we shall feel obliged to him.*

"J. L." *next week.*

"J. J. B."—*The advertisement was published in our Number for May 17th; we regret it escaped the attention of our correspondent. A paragraph directing notice to the land appeared in the same number, p.* 237.

"A London Subscriber" (Nottingham).—THE BUILDER *is always ready for delivery by eleven or twelve o'clock on Friday: the fault must rest with the news-agent. Hereafter arrangements will be made to ensure even an earlier delivery.*

Received: "*A Subscriber*" (*Brick Niches*).

ADVERTISEMENTS.

PUBLICATIONS.

Just published, price 5s., neatly bound in roan, with tuck, gilt edges, and lettered, a Pocket Edition of

A CYCLOPÆDIA of the NEW METROPOLITAN BUILDINGS ACT, together with the Act itself, a Folio Table of the Metropolitan Districts (old and new), a List of the Surveyors, with their Residences and Offices, and a Table of Fees to be paid to the Registrar for services performed.

In the Cyclopædia all the details of the Statute are arranged Alphabetically, so as to be instantly found, and accompanied by extensive references and counter-references to the sections of the Act itself and its minute provisions.

By the late A. BARTHOLOMEW, Esq., F.S.A., Architect, Surveyor of the Hornsey District.

Published at the Office of "The Builder," 2, York-street, Covent-garden; and to be had of all Booksellers.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

ATMOSPHERIC RAILWAY, Daily Work, carrying visiters, at the ROYAL POLYTECHNIC INSTITUTION. This interesting Model lectured on by Professor Bachhoffner at One o'clock daily, also on the evenings of Wednesdays and Fridays at Eight o'clock, and on the evenings of Mondays, Tuesdays, and Thursdays at Nine o'clock. The Model always follows the Lecture. It is also worked at Four o'clock, and at other convenient times. The other interesting Works and popular Lectures as usual.

Admission, 1s.; Schools, half-price.

TO CONTRACTORS, BUILDERS, MASONS, AND BRICKLAYERS.

JOHN TRICKETT, Agent, 14, FERRY STREET.—At CLIFF and HUSLER'S Wharf, near the Ferry House, Isle of Dogs, A GOOD STOCK always on HAND of Yorkshire Landings and Paving of the Best Quality, also Sinks, Steps, Coping, Sawn Robinhood Parkspring, Greenmoor, and Harehills, and also the same Stone in Block, and a good selection of Portland and Bath Blocks. Cargoes constantly arriving in the River which can deliver alongside any Wharf above or below Bridges. Mr. Cliff's celebrated Fire Bricks and Clay, warranted equal to Stourbridge, and at considerably less prices. The best Lincolnshire Pan and Plain Tiles, at low prices.—JOHN TRICKETT, AGENT, 14, Ferry-street, Isle of Dogs.

N.B.—A Fly now runs to the Ferry House, near the Wharf, every half hour, from the Limehouse Station, Blackwall Railway.

FOX'S PAPER VARNISH, 6s. 8s. and 12s. per gallon; satin size, 21s. per cwt. Carriage Varnish, 10s. per gallon, warranted to stand for outside work; every description of gilders' and decorators' materials. Burnish gold size, 1s. and 1s. 6d., oil gold size, 3s. and 4s. per lb., warranted; burnishers, pencils, tips; gold, 5s. per 100. Grinders' Colours kept ground; badgers, combs, &c. At the manufactory, 50, Old Compton-street, Soho. Prices lower than any other house. Strong and clear size always ready. N.B. Country orders attended to with dispatch.

TO ARCHITECTS, ENGINEERS, BUILDERS, AND OTHERS.

A HANDSOME DOUCEUR, or a Regular Commission, will be allowed by the advertiser to any gentleman connected with either private or public works who would recommend business, contracts, or jobs to an old extensive, and highly respectable factory in London, capable of executing engineering works to any extent consisting in brass or iron, and machinery of every description; the utmost secrecy may be relied on.—Apply to D. G., care of W. THOMAS, British and Foreign Advertising Agent, 21, Catherine-street, Strand.

IRONMONGERY.

BUILDERS will find it greatly to their advantage to purchase IRONMONGERY of CLUSE and BOSE, 35, CITY ROAD, corner of Tabernacle-row, and near Old-street Road.

Best Cut Clasp.

3d.	4d.	6d.	9d.	10d.	20d.
5½d.	7d.	9d.	1s.	1s. 6d.	2s. 3d. per 1,000.

Cast Lath Nails, 12s. 6d. per cwt.; Sash Weights, 7s. 6d. per cwt.; Best Cut Floor Brads, 18s. per cwt; Butt Hinges 2-inch 1s., 2½-inch 1s. 6d., 3-inch 2s. per doz. pair. ELLIPTIC STOVES with Inside Backs, 3½d. per inch: Register with Inside Backs, 7d. per inch. Every other description of Ironmongery at prices equally low.

DUTY off WINDOW GLASS. — On April the 6th, Squares stouter and of better make than formerly for Glazing purposes at 6d. per foot.

NURSERYMEN, MARKET GARDENERS, AND OTHERS requiring Small Glass, will find a greater variety of sizes (a large Stock of which is constantly on hand) than is kept by any other house in London, from 4d. per foot. Flattened Sheet, Stained, Fluted, the BIRMINGHAM Sheet Plate (superior in all respects to every other make) and Ornamental Glass of every description. Complete List of Glass, Lead, Colours, &c., at ready-money prices, may be had (gratis) on application to R. Cogan, at the Western Glass, Lead, and Colour Warehouse, 5, Princes-street, Leicester-square, London.

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A parcel of very Superior Spruce Oker, suitable for PLASTERERS AND PAINTERS, to be sold at 6s. per cwt.

POLONCEAU'S BITUMEN PAVEMENT for paving Foot walks, Terraces, Garden walks, Stables, Coach Houses, Granaries, Corn Stores, and Sale Warehouses. For the exclusion of Damp and Vermin in Basements it is particularly adapted, and for Roofing Dwelling Houses, Porticos, Balconies, and Sheds.

Price 2s. 6d. per square yard.

BITUMEN for covering the Arches of Bridges, Culverts, &c. &c. on Railways and other places (with instructions for laying it down), may be had at the rate of 45s. per ton, by applying to JOHN PILKINGTON, 15, Wharf-road, City-road.

TO ARCHITECTS.

IN consequence of many complaints having been made to the Company, by Architects, of a spurious material having been used in the execution of Works where the SEYSSEL ASPHALTE had been specified for, the Directors, with a view to ensure the fulfilment of any such specification, have authorized CERTIFICATES to be granted to Builders where the

SEYSSEL ASPHALTE

has been used. For the purpose of securing the use of the Genuine Article, Architects and others are recommended to insert in their specifications the "Seyssel Alphalte, Claridge's Patent," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used, gas-tar and other worthless and offensive compositions have been introduced. I. FARRELL, Secretary,

Stangate, near Westminster Seyssel Asphalte Company.

Bridge, Jan., 1845.

Books of Instructions for Use may be had at the Office of "The Builder," and of all Booksellers in Town and Country, price 1s.

*** In proof of the necessity of the above advertisement, it may be mentioned, that it has come to the knowledge of the Directors, that in certain works which have been executed by Messrs. Curtis, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

The Builder.

No. CXXV.

SATURDAY, JUNE 28, 1845.

THE recent discussions, or rather conversations, in the House of Lords, respecting the new Houses of Parliament, will, it is to be feared, greatly affect the successful execution of the works, and must be regarded with considerable interest by the profession, if not by the public at large. Their lordships, the Peers, it seems, are not conveniently located; their temporary house is found, when they assemble in any number, to be confined and ill-ventilated, to say nothing of its want of grandeur and effect; and they are therefore most anxious, and have been for a long time past, to force forward this portion of the general design, quite irrespective of the other parts. A committee, appointed by their lordships, have from time to time examined Mr. Barry, and Mr. Grissell the contractor, to ascertain the progress made, and have led the former, by their urgency, to promise the completion of their portion of the building earlier than, under the various circumstances which control him, was possible.

"Would it not go on faster," said the committee, "if every man and every stone now employed on the building generally were applied to the House of Lords alone?" And when the architect said "Yes," in reply, they ordered that every man and every stone *should* be so employed. If Mr. Barry had been an older practitioner, and had felt himself sufficiently firm in his position to brave the displeasure of the committee, he would at once have told their lordships that such a proceeding was quite out of the question; that he had other masters to regard, — the Commissioners of Woods and Works, the Commissioners of Fine Arts, the various officers of the Houses, all pressing their several claims; that he had the public to consider, and his own reputation as an artist; moreover, that it was not simply unwise, but impossible. As it was, however, he seems to have allowed the committee to consider that their instruction would be complied with, and was induced, under pressure, to name an earlier date for the completion of the House of Lords than he should have done.

As regards the general progress of the works, the most casual examination of the structure, with due consideration of the elaborate nature of the carved decorations, unexampled in modern days, will serve to shew that no time has been lost or efforts spared. It is now four years since Grissell and Peto laid the first stone (the foundations being already formed),—what are four years for such an undertaking?—and from that time to this fifty men have been constantly employed *on the ground*, with many more in preparing elsewhere, and have never been kept waiting by the architect.

Some persons think, if we may use the word here no thought is really given, that when the architect has produced the design for a building his work is over, and that it may, without further thought, be forthwith carried out. Nothing is more erroneous, especially as regards Gothic architecture: it is then that the architect's labour commences, and his skill is proved. In such a work as the Houses of Parliament, every superficial yard demands the closest thought, and requires as many detailed drawings as for the whole of an ordinary dwelling-house. Every ornament, every moulding, every line, must be produced and delineated; and over all these does Mr. Barry's own pencil pass. An architect careless of his reputation may get through any amount of work, *by deputy*; but if determined to execute it to the best of his power, strive as he may, he can only produce a certain quantity, and we will venture to say that the architect of the new Houses of Parliament finds little time for other occupations or recreation from early on Monday morning till late on Saturday night. The wear and tear must be immense.

The life of an architect even under favourable circumstances is one of toil and anxiety; and he needs to have no extraneous circumstances to harass and perplex him. We have heard a member of the lower House declare his ability to write poetry by the mile; we may probably find one of the upper House profess the power to design gothic details by the acre, and laugh at the idea of limits to a man's power in so simple a matter. They would be equally entitled to credence: we should merely say they were exceptions from the general rule.

In judging of the asserted delay, which, according to Lord Brougham, has given Mr. Barry the name of delay (as Quintilian said of Tully, that he was not only an orator, but the name of eloquence), the public should bear in mind that the river front which they see is only one-third of the whole structure, much of which they cannot see. The buildings altogether cover eleven acres, and their cubical contents have been estimated at half as much more than the contents of St. Paul's Cathedral, which occupied about five and thirty years in building, without any material interruptions. They should also know that the whole building is made fire-proof, and that the difficulty of combining this with Dr. Reid's extraordinary arrangements for ventilating the structure and taking off the smoke, has been immense. Over these latter the architect has up to this time had no control; but so much delay and inconvenience has been caused by them that a rupture has occurred, and it now rests with the ruling powers to establish the supremacy of one party or the other. We do not wish ourselves to throw any blame on Dr. Reid; the whole is an experiment, and its magnitude is so great as necessarily to demand much deliberation, but it is too bad that an architect's operations should be suspended, his designs altered, and his views interfered with; and then that he should be blamed for what has been done against his will. The work in the lobby of the House of Lords was delayed six whole months because the system of ventilation there was not determined on.

The Peers now insist on having their house ready for occupation in February next, and the greatest efforts are consequently being made. All the walls and the ceiling are to be covered with carved wood-work of the most elaborate character, and this is being forced on by 150 additional workmen much more rapidly than is desirable. It will probably be ready for fixing about October, and instead of remaining as it should do in the drying rooms during the winter ready for fixing in the summer, will be taken into the new building in the bad weather, and probably be irreparably injured. Do what they will, moreover, the House of Lords *cannot be completed by the time named*, nor is it desirable that it should be. Surely, if their lordships would consider that this building is not simply for some immediate or temporary purpose, but is intended to last for ages, and that the great object should be not to do it quickly but well, they would restrain their impatience and allow the architect to work out efficiently the whole design. If the present accommodation is bad, let it be made better; re-construct the temporary House of Lords during the ensuing vacation, and persuade them to put up with the indignity yet a little longer, so that their order may be worthily lodged ever after. The architects of the middle ages produced the noble works to which we now appeal with pride, slowly, by degrees, and as works of love; at least let us give the nineteenth century one chance, and not by unnecessary and child-like haste, risk adding another failure to the crowd which already disgrace it.

ILLUSTRATIONS OF ARCHITECTURE FROM THE BRITISH MUSEUM.

THE XANTHIAN MARBLES.

WE have directed attention, in previous numbers of THE BUILDER, to the want of a museum for British antiquities, and those of the middle ages generally. But if we mention the continued want in this particular, it is right to recollect, that excellent provision is made, at least, for the antiquities of the ancients. The general arrangements of the British Museum are conducted on a scale of munificence, productive of the greatest benefits to all classes. The collection has become so extensive, that it is quite impossible to be acquainted with all the treasures it contains, even in one particular line of study, whilst the most valuable fragments can never be examined without suggesting fresh points for inquiry. It will be our object in some future numbers of this journal to direct the attention of the architect, and the decorative artist, to such portions of the collection as bear upon their peculiar pursuits. The art of sculpture occupies a large space, but most of the examples are equally interesting to the architect, and afford even the forms of the furniture, and of many utensils of the ancients. Lately the collection in the Elgin room has been enriched with casts from some remaining portions of the Parthenon. Amongst these is the sacred owl of Minerva. There is also a cast of the capital, from the monument of Lysicrates. No one can examine the figures from the temple, which are at present deposited in the Museum, without wonder at the careful execution in objects so far removed from the spectator; but the wonder is greatly increased on finding from the work of Revett and Stuart, that the Elgin marbles form a very small part of those formerly existing. This may also be seen on referring to a restoration of the pediment, or to the large models of the temple in its present, and its original state, now constructing in the Elgin room. But the most important acquisition, which the Museum has received, since the Phigalian frieze, is that of the Xanthian marbles. These have previously been described, but their architectural interest leads us again to refer to them.

The country of Asia Minor occupied an important position in the ancient world, and one strongly contrasted with its present state, regarding which there is still great want of information. Few have contributed more to a knowledge of its ancient state than Mr., now Sir Charles Fellows, to whom we are indebted for the transmission of the Xanthian marbles to England, and who has published two journals of his visits, and an account of the proceedings at the ancient city. The tombs of Asia Minor are probably as curious as the receptacles for the dead in any country, not only from their immense number, but their forms and workmanship. Whilst the character of their sculptures proves many of them to have been of the best age of Greek art, their architectural character is often singular and unintelligible. There are among them, not only isolated constructions, but also, and perhaps in greater number, excavations like the Roman tombs of Petra. Many of them shew a closer similarity to timber construction, than is observable in the Doric temple of the European

Greeks, and in fact they resemble the huts of the present inhabitants of the country. This is observable in a fragment carved in imitation of the cross poles, projecting from the eaves of the hut. A roof having its section in the form of a gothic arch is common. Many of the monuments are each nothing more than the frustum of an obelisk, with a few large fillets as cornice. The monument called the "Harpy Tomb," of which there is a model in the Museum, was of this form, and it was decorated with the sculptures, supposed to represent the story of the Harpies flying away with the daughters of King Pandarus. But the most interesting monument is one erected to commemorate the conquest of Xanthus by Harpagus, the general of Cyrus, in B.C. 546, as described in Herodotus, book i.* When discovered it was a mass of ruins, but has lately been restored in a model, placed in the Museum. This trophy consists of a lofty basement, supporting a peristyle. The former was surrounded at the foot, and beneath the cornice, by the bas-reliefs,—representing the siege of a walled town, and a contest of horse and foot combatants,—which are at present in the collection. The edges of these portions shew the contrivance for procuring a perfect joint; the meeting surfaces are perfectly smooth for the breadth of an inch at the front, but within are left rough for the mortar. The perfect cohesion obtained was equally favourable to the stability of the mass, and the beauty of the work; indeed the joints were sometimes so close that a knife could not be inserted, and it has even been asserted, that many of the Greek temples were constructed entirely without mortar. The cornice of the basement, in the monument under consideration, is curious from its two ovolos, which are placed one immediately above the other; they are enriched, and have beneath them an enriched bead, the whole being decidedly of Grecian workmanship. The top bed of this cornice shews the position of the column of the peristyle which was fastened into the block, probably by a copper plug. It is, however, certain, that a wooden pin was often employed, and one of these was lately presented to the Institute of Architects by Mr. Hamilton. The peristyle has fourteen fluted columns of the Ionic order, supporting a pedimental roof, and inclosing a small "cella," which, however, appears from the *model* to have been built solid. The porticos are tetrastyle, and the intercolumniation areostyle. The bases are peculiar from their extreme height. They have the reeded torus, as in the Erectheum, and beneath it two hollows separated by beads; but the hollows are not like the scotia of the attic base, and, as in Grecian examples, there is no plinth. The frieze is ornamented with sculpture, as are the pediments, and also the frieze of the cella. Parts of these friezes represent the guests seated at a banquet, probably the carousal after the victory. The angles and apex of the pediments have figures in motion, and there are also figures of men and animals in the intercolumns of the peristyle. The antæ of the *cella* have very beautiful capitals enriched with pateras, and waterleaves; and are, as in most Greek examples, of less breadth in flank than in front. The order has no architrave; the only moulding beneath the frieze being similar to the tænia in the Doric order. The pieces of the entablature were bound together by copper cramps (⟛ this form), run with lead, as may still be observed. The crowning member of the pediment (*sima*) has been continued along the flanks and ornamented with lions' heads, being in this respect like the Roman system; the Greeks were in the habit of stopping it at a short distance from the front. The dentils are unusually large, and the slabs of the roof covering in the model are also extremely large; is there authority for these peculiarities in a building so essentially Greek?

The greatest interest cannot but be felt in the examination of these remains,—their beautiful workmanship, the fine treatment of the sculptured decorations, place them as second only to the finer works from the Parthenon. They were produced in a country, which had greater influence upon other nations than any other, Athens not excepted. Asia Minor was the nurse of Grecian philosophy and art, and it is melancholy to reflect upon its present debasement. E. H.

* See BUILDER, page 63, *ante*.

ON THE SHAPE OF HOUSE DRAINS.

SIR,—Having some time since recommended, through the medium of THE BUILDER (pages 593 and 606, vol. ii.), that in the construction of *house drains* it would be extremely desirable to employ good, strong, and well-burnt cylindrical pipes, made of clay, and glazed inside, in lieu of the present method of building them, both cylindrically and rectangularly of common bricks, I cannot but regret that you in your judgment of this matter should have thought it desirable to have somewhat suggested in answer to your correspondent, "A Bricklayer," last week, that the construction of house drains might be of a rectangular or square angled shape; and that they might be thus built of certain sizes equal to a circular area of 9 inches diameter, in order to comply with a clause to that effect in the New Buildings Act.*

In this age of improvement it is highly desirable to promote and enlarge the adoption of scientific principles as much as possible, because the more we have recourse and conform to such principles the more certain and correct will all subjects to which they are applied, be in their results; and upon no subjects, and in no case, are the principles of science more applicable, and more required, than to the improvement and correction of the false principles of drainage. It appears to me that a very great error was committed in framing the clause in question, by leaving the forms, sizes, and construction of house drains so undefined; and also in not declaring at once that for the future all drains should be made of a cylindrical shape, or that their bottoms should be made concave or semicircular, and as even and uniform as possible.

The arrangement and construction of house-drains may seem, and no doubt it is to many builders, a very trifling and worthless affair; their formation being considered of very little consequence, and indeed the manner in which they are generally executed proves this statement to be a fact. No parts of a building require more attention, and more nicety in producing perfection in arrangement and construction than should be observed in the building of house drains. It is by the means of proper and efficient drains that animal and vegetable filth engendered in dwelling houses is usually carried off; and the discharge of this becomes the more certain and perfect according to the pains taken in producing accuracy of form, size, arrangement, and construction of the drains. The building of drains is a subject of great and *serious* consequence, in reference to the effect they are calculated to produce on the health of the inhabitants of dwelling-houses, and, therefore, their utility and efficacy are of the utmost importance to the sanatory condition of the population. The valuable evidence which has been elicited by the inquiries of the Health of Towns Commission, with reference to the subject of drainage, and the impetus that has recently been given to the propriety of providing good and perfect drainage in places where none exists at present, and the agitation which has resulted from its publicity, has had, in a great measure, the desirable and salutary effect of arousing the attention of the public mind to the evil effects of bad, and the necessity and great importance of good and efficient drainage of dwelling-houses. So far as the metropolis is concerned, the New Buildings Act has provided, and that very considerably, for the extension of drainage, by obliging persons to build sewers in front of, and to lay drains into them from all houses that shall hereafter be built, if there be any sewer or open watercourse under the jurisdiction of any of the Metropolitan Commissions of Sewers within 100 feet of such intended new buildings. This is certainly one grand and excellent step towards providing for the extension of house-drainage; but this Act does not provide for the formation of sewers in populated districts where none now exist, nor for obliging persons to build sewers for the drainage of premises or new districts. If the points where sewers have already been carried up, and which are hidden and buried, and the water courses and other places, under the jurisdiction of the various commissions of sewers, be narrowly and strictly watched by the district surveyors, all or most of these points may fall within the distance stipulated by the Act, namely, 100 feet from the intended buildings; and were these points known and properly defined they could be made subservient to the extension of drainage. I think it would be a good and desirable plan to ascertain and mark all these various places and points on a good-sized map for the use and reference of these gentlemen; as otherwise buildings may be allowed to be carried up without any, or an improper drainage, from the surveyors not being properly acquainted with these particulars.

The employment of common bricks in the construction of drains, and especially drains of rectangular formation, cannot be too highly reprobated. Drains of rectangular construction are not only calculated not to afford a powerful resistance to the pressure of the ground which is filled in around them, and therefore are liable from this cause to disarrangement and destruction, but such a form is also contrary to hydraulic principles, as the energy, action, and power of the streams in lifting and carrying along substances in suspension with it, is materially retarded and destroyed by such a form and arrangement, as might very easily be proved. The means of carrying off the animal and vegetable matter from dwellings is entirely dependant upon the quantity and power of the water which passes into the drains; and the mechanical action and power of the water may be rendered altogether inefficacious for this purpose by the sluggishness of their falls, their sizes, and their forms. It is really surprising to observe how persons go on from day to day, and from year to year, forming these things, when they are known to be exceedingly bad in principle and inefficient in action, because such formations have become a business of habit; and also, as is too often evinced, from a stubbornness against introducing improvements. The use of pipes in the construction of drains is rendered the more necessary in consequence of the notorious carelessness of bricklayers in building brick drains; for let it be taken as an *axiom* that whenever a bricklayer has to execute a piece of work which is to be immediately covered over and hidden, without being watched, the chances are that he is sure to perform it in an unsound, slovenly, and improper manner. I have often observed drains being laid through houses in the following manner: two parallel lines of two or three courses of bricks were laid flat, or on edge upon one another, and at about seven inches apart, and sometimes without any mortar; no other bottom or channel being formed or provided for the passage of fluids and substances along them than what was afforded by merely the *bare earth*. And yet no means are available for preventing such reckless and abominable proceedings.

Of all the routine of construction in buildings, the arrangement of the proper sizes and falls which drains should be of, and the construction as well, are least cared for, and less thought of; so long as there be an aperture and channel formed, whether it be rectangular, rectangular, or however various in form may be, it is considered sufficient to answer the purpose; indeed, this too is notorious, and can be proved to the satisfaction of any one if he will only take the trouble to examine their interior constructions. The interiors of drains are usually parts of a building which are unseen; indeed, this is actually the case even during the time of their execution, and the best and only manner of properly observing their state and the way in which they have been built, is by examining their inside from the interior of a sewer; and as this mode of examination does not fall to the lot of very few persons, I take leave to say that, when thus observed, their appearances are truly abominable. From the improper and imperfect manner in which the brickwork is usually performed, and the bad way in which the ground is filled in around them, the drains are invariably squeezed and crushed into all manner of shapes and sizes; and sometimes, while building, their interiors are left half full of either brick rubbish, clay, or gravel, which lays upon their bottoms so long as the drains exist, or till they become entirely choked by the deposition and accumulation of matter,

* The remark to which our correspondent refers was made simply to explain the meaning of a clause in the Buildings Act, and to shew what *might* be used, and had no reference whatever to the best form.

cleared out. Besides, the bottom halves of ck drains are usually laid dry on the ground hout mortar or cement, and the consequence that the greater part of the fluid which ses into them percolates through the joints the bricks and is absorbed by the subsoil, from this cause a drain cannot be con- ered otherwise than as a long and narrow e of cesspool. From the uneven manner in ich the bricks are usually laid along the toms, and from the rubbish and pieces of rtar that are left within them as well, these trusions present a succession of internal gularities and stoppages; so that at every h or so along the bottom and sides, the ter, and animal and vegetable matter which arried along in suspension with it, becomes ested in its progress to the sewer; and sequently the soil becomes deposited upon bottoms of the drains, and these, from this other circumstances before referred to, mately become choked, and are thus ren- ed of no utility and service whatever in isting the discharge of the sulliage through m to the sewer. During the time the tter is collecting within the drains, and this y be going on for months together, the in- bitants are very much annoyed, and in- santly complain of foul vapours and stench, ich emanate from the decomposition and mentation of the accumulated matter ough the various vents within and about houses, and effluvia of the most filthy, some, and malignant description, are in- ed by them. It has very often been shewn arly and forcibly that wherever bad drainage ets the surrounding atmosphere becomes ated and charged with malaria and poi- ous gases, which have a most injurious ct upon the health of all those persons who ide in such places, and, very often, these es are the cause of the production of ilent fevers. The use and abuse of cess- ols have very often been spoken of, but I lly cannot see what difference there can be ween a cesspool, and a long line of ill-con- ucted drain, which runs under a house, and ains all, or nearly all, the filth which is dis- rged into it, and has to be cleared out iodically, precisely the same as a cesspool. f drains are to be made at all, the work- nship should be made as clean, smooth, perfect as possible, otherwise a cesspool nearly as effectual: and it is only a waste time and money in building drains hout particular attention be observed in se points, and also in making them so as prevent foul air and fluids from escaping ough them. I have seen the interiors of drains whose calibre is exceedingly ll, and have been in use many years, per- ly free and clear from deposits and ac- mulations, while the bottoms of large brick ns contiguous, were half-filled with de- ted matter; their size and roughness sing the matter to lodge within them.

o all persons who are any way engaged in formation of drains a knowledge of the ntific principles of statics and hydraulics is ly desirable; indeed, no drainage could be *perly* laid down and conducted without knowledge and the dependance and ner of applying these principles to

The proper and efficient drainage very great many houses in all parts of the ropolis are rendered altogether ineffectual the circumstance of the bad and impro- construction of their drains; and the ities afforded by the sewers in carrying he sulliage are by this means of little or no t. And the improvements which are ly taking place in the metropolis by ening and reconstructing the sewers, and rwise affording good, efficient, and perma- drainage of premises, are in very many nces of no service, because no control is ved to be exercised over the manner of ning and constructing private house-drains. ay appear somewhat difficult to legislate he arrangement and construction of pri- drains, but most assuredly considerations difficulties ought not to have any weight n it is observed that the building of a ate drain and a sewer are so mixed up and ded together that the efficiency of both rendered reciprocal, and are thus mate- dependant upon their proper falls and rtructions; for whenever the one is badly ged in these respects the other is ren- d almost useless in consequence. I have very often been applied to and asked where the drain pipes in straight lengths and curved junctions, and of the description and strength which I have suggested could be procured. But from not knowing where such are to be obtained, if at all, I have not been able to give a direction, and thus recommend, and ensure their actual application to practice.

From the great impetus that is expected to be given to the manufacture of glass, in consequence of the repeal of the duty, I see no reason why cylindrical drain pipes of various diameters should not be made of glass, as such a form, and the smoothness of this material would afford facilities in accelerating the discharge of the drainage of houses into the sewers, that no other material could so well do. There is no question but that they could be made of sufficient substance and strength to enable them to resist very great pressures; and that they could be made with proper joints, and in lengths both curved and straight, with proper curved collateral junctions, convenient for using. The interiors of drains cannot be too smooth, for smoothness of surface and proper falls and sizes are the principal points to be observed in their construction. Good, thick, well-burnt cylindrical drain-pipes were very much in use in England about a century and a half ago, for I have seen and taken up many that were laid down about that time; and with all the boasted science and skill which has of late been shewn on the subject of drainage and sewerage, we are still considerably behind hand with what was done and generally practised by the Romans, especially in the drainage of their villas. This people used pipes of earth very extensively, both in the conveyance of water from springs and aqueducts to their houses, as well as in carrying off the drainage therefrom into the main sewers.

Whatever may be said in reference to the subject of tubular drains, it can have no other effect than of promulgating their efficiency, and of clearing the way for their use. As for the originality of proposing tubes for drains, it would be the height of absurdity and plagiarism in me to claim it, for what Pliny says in his natural history on the subject of drain-pipes would appear to set this matter at rest. He says that "If a man would convey water from any head of a spring, the best way is to use *pipes of earth* made by potter's art; and the same ought to be *two fingers thick*, and one jointed within another, so as the end of the upper pipes enter into the nether, as a tenon into a mortaise, or as a box into the lid: the same ought to be united and laid even with quicklime quenched and dissolved in oile." And he says further that "the skill and knowledge of pottery is more antient than founderie or casting brasse;" and again "how beneficial is the earth unto us in yeelding us *conduit pipes* for to convey water into our bains."* Now, whether any one else can lay claim to anticipation, invention, or originality in proposing the use of conduit or drainage pipes after this, I leave to competent and impartial judges to say. I hope, Mr. Editor, you will take every opportunity of recommending the employment of proper cylindrical tubes for the construction of drains, instead of the present mode of building them with bricks, so that by these means better drainage from houses may be produced, which must tend very much to sanatory improvement. Drains should never be constructed of a rectangular form, but should always be made circular, at least their bottoms should where the water runs; for if I take a barrel drain say of 9 inches diameter, its area is equal to 63·617 inches; and the side of a square drain having the same area is equal to 7·976 inches: therefore, now supposing that the quantity of water running through each of these drains to be equal and half full, then the semi-circumference being equal to 14·137 inches, the length of the base of the square added to half its height on each side is equal to 15·952 inches, or nearly 2 inches more. So that we have an actual retardation and loss of power in the stream through friction of nearly 2 inches by using the rectangular drain. And this is not the only loss of power in the stream, for the depth of the water in the square drain is less than that in the circular one by more than half an inch, for in the former the depth is equal to 3·963 inches, and in the latter it is equal to 4·5 inches, the difference being equal to ·537 of an inch. The hydraulic mean depth of each can be found by dividing the transverse area of the water expressed in square inches by the border of the section minus the upper surface of the water. We have a considerable loss of power in several ways by adopting a rectangular shape for a drain, therefore their use should be entirely abandoned; and I think no drains can be better formed, or can afford means of better and more effectually carrying off the animal and vegetable refuse from dwelling-houses than can be done by smooth cylindrical tubes. This letter has run out to a length that I originally did not contemplate, but the magnitude and importance of the subject must be its excuse.

I am, Sir, &c.
JOHN PHILLIPS.

* Pliny's "Natural History," translated by Philemon Holland, 1634.

THE BRITISH ARCHÆOLOGICAL SOCIETIES.

WE continue to receive many letters relative to the dissension, the majority of which urge that members really anxious to effect a junction, should publicly pledge themselves not to attend either meeting at Winchester unless some arrangement be previously made. One gentleman, who signs himself "E. N.," says:—

"SIR,—Your very excellent observations from first to last relative to the Archæological Association are so very suitable to the occasion, and have so much enlisted my sympathies, that I beg to submit to you the question, whether the best mode of bringing the petty squabble to an end would not be for the nominal members to desire their names to be erased from the list; for my own part I thought it so discreditable to remain connected with a society so divided, that I have requested the secretary of each party to erase mine. It must be much regretted by every one who values antiquity, that from want of a business-like constitution the advantages that might have resulted from the co-operation of so many able antiquarians have been prevented."

Mr. Wansey, F.S.A., has addressed to us the following letter, which has also appeared in other journals:—

"Lamenting as we all must the dissensions which exist amongst us to our discomfort, injury, and reproach, I have been hoping some influential members would have come forward publicly to try and heal them. Anxious for the well-being of our association, I respectfully recommend,—that we stop not to inquire who is right or wrong; two rival societies together cannot be for good, and one is tempted to say 'a plague on both your houses:' while the world will jeer, and cry out, '*Tantæne animis cœlestibus iræ?*'

Suppose both dissolve, and men the most considerable amongst us for character and station undertake to draw up laws to be submitted to a general meeting, for the government of one new society, embracing all, to be then constituted: officers, &c., to be chosen as usual. I see no better way of getting out of our present undesirable position, and take this mode of addressing you, as the most practicable.

Arborfield, near Reading,
June 19, 1845."

We have the names of more than a dozen influential members who would willingly aid in restoring unanimity. It is said to be common in one part of India when there is any dissension between church and state, for a man to go to the top of a certain pagoda, and vow that if the quarrel be not terminated in twenty-four hours that he will return and throw himself off; and they further relate, that sooner than have the blood of the man upon their heads, both sides usually yield a little, and so the difference is adjusted. Can we not find some devoted friend to peace and quiet to try this move on Westminster Abbey, and thus literally, precipitate an amicable result? If it succeeded, we should claim a daily allowance of milk and honey fore the rest of the year.

THE OFFICIAL REFEREES.—Mr. Higgins has resigned the office of referee under the Buildings Act.

ST. MARY'S MARYLEBONE AND PADDINGTON HOSPITAL.

Sir,—As one of the three architects mentioned in the paragraph respecting "The New Paddington Hospital" in last Saturday's Builder, I beg to say that the passage in question does not convey a correct impression of the state of the case. Mr. Hopper is the "Honorary Architect" of St. Mary's Hospital, the committee having thankfully accepted the offer of that gentleman's valuable gratuitous services in aid of the charity. Mr. Lang and myself, as members of the committee, having also placed our professional assistance at the disposal of the committee, were requested to take part in a *friendly* contribution of plans with Mr. Hopper, in order that the committee might not be restricted in their choice to one set of plans, they having determined (wisely in my opinion) that no competition for the employment of the architect should take place, whereby they would have been deprived of Mr. Hopper's services, and would have exposed themselves to all the heart-burnings, jealousies, suspicions of favouritism, and other unpleasant results usually attendant on competitions. Mr. Hopper's plan was unanimously preferred, and even then, with the kind consideration he has always shewn towards his juniors in the profession, that gentleman suggested that Mr. Lang and myself should be allowed to produce elevations to his plan, which was accordingly done, but the committee not feeling at liberty to expend their funds upon mere decoration, resolved to adhere to the design submitted by Mr. Hopper which is of a plain character (in accordance with his own stipulation upon accepting the office of honorary architect), but thoroughly suited to the purpose, and which it is expected will be effective from its very simplicity of design and breadth of proportion.

Thus it will be seen that there never was any intention to compete (as might be inferred from the paragraph in question), among the three parties named, for the situation of architect to the charity, consequently there could be no "wavering in the choice," when there was no choice to be made; and whilst I will always maintain my own right when assailed, I will equally disclaim any attempt to give to me or to any other party that position which justly belongs to another. Having from the first supported the propriety of the charity availing itself of Mr. Hopper's services, I have felt it to be a pleasure as well as a duty to render him all the assistance in my power, in sharing his labour and anxiety to promote the interests of the charity, in carrying out the contemplated building for the hospital.

George Russell French.

18, Sussex-gardens, 23rd June, 1845.

LIGHTHOUSE ON THE GODWIN.

Mr. Bush after having surmounted every obstacle in the erection of the building to contain the "light for all nations," is now contending with the greatest difficulty, namely, its useful application. The Trinity Board has the exclusive privilege of managing the lighthouses on the English coast, and although this privilege was originally granted for the public good, it has now, like many more, become subservient to private interests. The elder brethren are jealous of their rights, they cannot brook the intrusion of a bold, persevering and clever man succeeding where they have failed, and they appear more disposed to visit the offending party with their displeasure than to hail the success of the undertaking, and to reward the skilful engineer for the additional protection he offers to the lives and property of our merchants and seamen. We understand that it is the intention of Mr. Bush to take up his residence, with his wife and family, in the lighthouse, and to have the highest chamber illuminated with a pale blue light for his own use. Of course, however, this will at the same time have the effect of warning ships, and a telegraph is erected to signalize vessels at the back of the Godwin. As the lighthouse stands 36 feet above high-water mark, it is Mr. Bush's intention, in order to protect his new residence, to discharge rockets in dark nights, or sound a gong in foggy weather.

TOURNAY AND ITS CATHEDRAL.

Tournay, lately visited by the French Archæological Congress, as mentioned in the last number of The Builder, is situated close to the French frontier, towards the western extremity of Belgium, and is a singularly interesting old town. It was one of the first places in Belgic Gaul where Christianity developed itself, and has a long and curious history. The architectural student will find there much to engage his attention and stimulate investigation. Within a very short distance of each other he may find specimens of the different styles of building which prevailed during several centuries, and see almost at a glance the progression of the changes which took place: I allude more particularly to dwelling-houses. There is one very ancient specimen near the church of St. Brixe. The whole is of stone, and terminates in a gable. The windows, about five feet high and four feet wide, are each divided into two openings by a small column with plain leafed capital. One of the lower windows has simply a rectangular mullion down the centre, the edges of which are chamfered to within a certain distance from the top and bottom. The string courses, consisting merely of a square member and a hollow, continue through the whole front, and form straight window heads, over which are introduced discharging arches. The adjoining front is precisely similar. In the Rue des Jesuits there are some houses of the same character, but of a somewhat more advanced period. The columns and caps are nearly the same as those before mentioned, and the upper part, perhaps 50 or 60 feet in extent, consists wholly of windows and small piers alternately.

An early advance upon this arrangement would probably be the introduction of a transom to divide the windows into four, and so to form a *croisée*. A house near the Grand Place of Tournay affords a very perfect example of the application of pointed architecture to a street front, at the beginning of the 16th century; and near the Eglise de Château is a large building, now the Horse Infirmary for the artillery, which would seem to be an example at a later stage of the decline. It is constructed of red brick and stone, and presents gables, pointed headed windows, other square windows divided by mullions, and large dormers in the roof. The mouldings, however, are Italianized, the discharging arches, partly stone and partly brick, which occur even over the pointed headed openings, are made into adornments, and all the ornaments which appear are of mixed design. Later still, the line of the gable became altered into a scroll, the mullions of the windows disappeared, and the Gothic panelling on the face of the building gave place to pilasters and entablatures elaborately adorned with figures, fruit, and foliage, as may be seen in numberless examples remaining in most of the towns.*

Some of the churches are exceedingly interesting, but the great point of attraction is the cathedral (*Nôtre Dame de Tournai*), which is unquestionably one of the most important buildings in the country, whether regarded simply as a specimen of the architectural skill of two different periods of time, or as recalling by association the events of many centuries,— a sublime *souvenir* of the middle ages.

Seen from a distance, with its forest of towers high above the surrounding buildings, its effect is very striking; nor are the pleasant anticipations so raised in any degree lessened by a close approach. In form, it is a Latin cross, with five towers; namely, one on the east and one on the west side at each end of the transept, and one at the centre of the cross. The transept is terminated at each end by a semicircular absis, similar to many churches in Cologne and other parts of Germany. The nave has an aisle on each side, separated by piers and small columns bearing semicircular arches, which in various parts approach the horse-shoe form.† Above these, is a second range of piers and arches of similar or greater height than the first, forming the front of a large gallery, extending the width of the aisles. Over these is a series of arches against the wall, springing from short piers. The clerestory and the vaulted ceiling were the work of barbarous repairers in 1777, and took the place of the ancient wooden roof: they will shortly be restored to their original appearance.†

All the capitals of the lower columns in the nave are sculptured to represent foliage, and are exceedingly sharp and clear. In earlier times, they were all painted and gilt, and further decorated by scripture mottoes around the abacus. Much of the stone-work is rough and has been covered with stucco: the columns and other parts that were exposed, are of Tournay stone polished.

The four great arches at the junction of the cross are pointed, and have also been embellished by colour, much of which is still visible.

The interior of the semicircular absis, terminating the transept at either end, is exceedingly beautiful, and produces a very striking effect. At the bottom a series of six lofty columns 2 feet 8 inches diameter, and about 24 feet high, built up of ten courses of stone and placed at a short distance from the wall of the absis, support narrow semicircular arches raised on legs. Over these are two triforia and a clerestory, and the whole terminates in a half dome with plain ribs converging to a point.‡ The capitals of the columns consist of volutes and of leaves. The base of each pillar has four sculptured leaves at the angles of the pedestal.

Originally the choir was about one-third the length of the building, and terminated in an absis similar to those of the transept in form and style. This portion of the building, however, was rebuilt, as is mentioned hereafter, and is now an exceedingly fine specimen of the pointed style, resembling in some respects the choir of Cologne Cathedral, although executed much before that wonderful building.

The present choir has an aisle and a series of small chapels on both sides, which continue round the east end. Lofty columns, bearing acutely pointed arches, separate the aisle from the choir. In each spandril of the arches is a circular ornament in mosaic work, and above rise a very elegant triforium and lofty clerestory. Behind the triforium is a series of peculiar quatrefoil lights, blocked up and unknown until lately (as indeed was the whole of the triforium), but now again filled with stained glass.

The choir is elevated above the nave by three steps for about one-third its extent, and then by a fourth for the remainder of the length, and is paved by black and white marble in square. The high altar has four additional steps. The pillars in the choir were originally constructed with that daring which characterizes many of the earlier efforts of pointed architecture, and soon gave symptoms of insufficiency. They were then strengthened by additional masonry at the back, and even now are remarkable for their lightness and elegance. It may be mentioned that when the choir was rebuilt, the old chancel arch, which was probably semicircular, was cut away to make room for a pointed arch, as also was the case at the entrance from the transept to the aisle of the choir on each side. Painting and gilding have been used throughout as a means of decoration, and will probably be again resorted to when the whole of the substantial repairs have been executed.§ A series of flying buttresses surround the choir externally, and it is between these that the chapels are formed, terminating in gables.‖ The roof of the choir above the vaulting is of oak, and of great height.

Round the outside of the clerestory of the

* Lille, a French town, but close to the Belgic frontier, and where the congress met, displays a great number of houses of this character, of great richness, and, in some cases, much beauty.

† The piers occupy a square of 6 feet on the plan, set diagonally. The openings are 13 feet 6 inches wide, and about 11 feet 6 inches high to the springing of the arch. There are nine such compartments on each side of the nave.

* The galleries in ancient churches were used for the purpose of separating the sexes, and even different ages of the same sex. This was perhaps rendered necessary by the custom of *saluting*, which then obtained amongst "faithful."

† During the whole of the eighteenth century continual injury was done to the building by injudicious endeavours to support the fabric; many openings, especially in the transept and the clerestory of the choir, were bricked up, the capitals of the columns and other decorative portions were covered with whitewash, and the frescoes which adorned the walls destroyed.

‡ These vaults are formed of rubble work, under a wooden roof, and are less than two feet in thickness.

§ In a chapel, south side of the choir, the spandrils of the arcade are painted to represent angels bearing scrolls.

‖ These flying buttresses are double. The upper arch was apparently formed first, and this being found insufficient, the lower arch was then added.

nave there is a continuous gallery, formed within the thickness of the walls, and faced by small octagon columns and arches of the Tournay stone, originally polished.* Elsewhere there are various galleries in the walls, so that all parts of the building are practicable.

The same stone is employed in the construction of the building as the rock consists of on which it stands, so that it may be said to be a continuation of the solid substratum. Nevertheless, there are many very serious fissures and settlements, especially in the transept and choir, which need extensive repair. The west front of the building has been disfigured by various alterations; a groined porch in the pointed style extends the whole length of the front, and above it a large pointed window has been introduced so as to destroy entirely its original character.† There is a variety of sculpture under the porch, but the greater part of it is modern and very uninteresting. The cathedral is entered by two doors, one on the north side of the nave, and the other on the south, adjoining the transept. The north door is of the transition period. It consists of a semicircular archway beneath a pointed trefoil arch, the whole profusely adorned with ranges of sculptured figures, animals, and foliage. On each side of the light which occurs between the circular and the pointed arch is a small twisted column. The four towers of the transept are each different in detail, and have been executed at different times. They all display, however, a mixture of pointed and semicircular arches.

The whole length of the cathedral within the walls is, as nearly as I can estimate it, 420 feet. The transept, which is nearly in the centre of the building, is 212 feet from north to south. The width of the nave including the aisles, is 70 feet; the choir is a few feet wider. The height of the choir is 110 feet. As a datum for comparison, it may be mentioned, that Salisbury Cathedral, according to Mr. Britton, is 450 feet long within the walls, 78 feet wide in the nave, and that the height of the choir is 81 feet; in other words, it is 30 feet longer, 8 feet wider, and 29 feet lower than that of Tournay.

Concerning the age of the cathedral there has been some controversy. Mon. B. C. Dumortier, a member of the Belgic Chamber of Representatives and of the Royal Academy of Brussels (and in company with whom the writer had the good fortune to examine the building), published first in 1837,‡ some remarks on the cathedral, and then in 1841, a second pamphlet,§ with a view to prove that the nave of the existing building belonged to the sixth century. These essays display much learning and ingenuity, but more enthusiasm, and this latter has served to blind the writer to all that militated against his desire to obtain unlimited reverence for his favourite building, and, like an unruly Pegasus, has carried him far away from the goal he sought, namely the truth. Absence of direct statement by early writers that the nave was destroyed, serves to prove to M. Dumortier (as in some similar cases it has been urged by other continental antiquaries) that it has not been rebuilt, and so far from the fact that pointed arches form an essential feature in it being deemed sufficient to weaken his opinion, it is proof strong as holy writ that the system of pointed architecture arose in Belgium, and that in the cathedral of Tournay is to be found its first out-budding. In confirmation of his opinion, M. Dumortier informed me, that a charter had been recently discovered, dated 1257, proving that the architect of Cologne Cathedral was a Belgian. It sets forth that the monks of Cologne, in consideration of the services performed by Master Gerard, of St. Trond (*Gerardus de Sancto Trudone*), in directing the construction of their cathedral, had assigned to him a certain estate of land.

There is sufficient evidence to induce the belief that the cathedral was founded at the end of the third century, and rebuilt about the middle of the fifth century, with the aid of Clovis, by St. Eleutherius. Chilpéric in 578. endowed the cathedral largely, and his original deed of gift, "*cum sigillis*," remained among the archives of the chapter until they were burnt in 1566.* Louis le-débonnaire added to the cloisters of the cathedral in 817, and Charles the Simple further endowed it. Soon after this, however, namely in 882, the Normans ravaged Belgium with fire and sword, and inspired such universal dread, that the people, adding to their prayers "from the fury of the North-men, Good Lord deliver us," fled in all directions. Tournay, rich and important as it then was, did not escape; the walls and the chief buildings were destroyed, and the inhabitants were forced to abandon the town, to which it seems they did not return until the beginning of the tenth century. At the time of this invasion there can be little doubt the cathedral was pillaged, and partly, if not wholly demolished; and it is probable that its re-erection was not attempted until quite the close of the tenth century, in which the inhabitants returned, or rather the beginning of the eleventh. All analogy shews that earlier than this, the nave and transepts could hardly have been commenced, and that it was probably much later before they were completed.† If analogy, however, were deemed insufficient to remove the ground for controversy respecting the age of the cathedral, it would seem to be destroyed by the recent discovery of a MS. entitled "*Ritus Officii divini ecclesiæ Tornac*," and dated 1656. This gives a list of the various fêtes formerly celebrated in the cathedral, and points out the 9th of May (which was then annually celebrated) as the anniversary of the dedication of the church, in the following words: "*Dedicatio ecclesiæ, est festivus dies in populo intrà muros. Triplex est cum octavâ et duplex primæ classis*;" and then, *Videliscet novæ, anno* 1066." Monsieur T. Le Maistre d'Anstaing, who mentions this MS. in his very interesting work on the cathedral,‡ remarks that doubtless there were more consecrations than one, as for example that of the choir, and those after partial restorations; but that this being the first, was properly regarded as the most important, and, being duly observed, had been handed down to the date of the MS. alluded to.

In a comparatively short space of time after this date, if the historian Jean Cousin is to be believed,§ the choir becoming too small and probably being injured by the events of troublous times, was cleared away to make room for a more magnificent structure. Cousin states, that the first stone of the new choir was laid in 1110; and that it was finished about 80 years afterwards or more. His authority for this statement, however, does not appear. According to certain old chroniclers quoted by M. d'Anstaing, it was vaulted in 1242, at the expense of Walter de Marvis; but it would seem that divine service had been performed in it previous to that date, its dedication being ascribed to the year 1200.

At the end of the twelfth century, pointed architecture was but just developing itself, so that we must conclude either that the choir of the cathedral of Tournay is one of the earliest monuments of that style, or that the received statements are erroneous. I am inclined to believe the former.

The restoration of this noble monument has been proceeding for several years past at the expense of the nation, and is approaching to completion. There is a rough sketch of the building by the writer in the sixth volume of the *Civil Engineers' Journal*.

GEORGE GODWIN.

* There is a curious gallery of this description round the Eglise de Chateau in Tournay.

† The west front had originally two small towers at the angles. These towers at the extremity of the west front are found in many buildings in Belgium, at the Eglise de Chateau before mentioned, St. Bavon, Ghent, &c.

‡ "Revue de Bruxelles," Dec. 1837.

§ "Dissertation sur l'age de la Cathédrale de Tournai," Bruxelles, 1841.

* The deeds must have been very numerous, if we believe a contemporary writer, who says that the melted wax from the seals formed a stream down the hill.

† It is but fair towards M. Dumortier to give in his own words, his argument against the assumed destruction of the cathedral by the Normans:—"L'histoire de la translation du corps de Saint Eleuthère sous l'évêque Hédilion en 876. immédiatement avant l'invasion des Normans, nous fait connaitre qu'à cette époque l'on avait démoli la chapelle de Saint Etienne, qui était située à la suite de la cathédrale. Voici comment s'exprime la chronique écrite au XIe siècle: *Prenulatum tornacensis ecclesiæ Heidelone, viro prudenti et justo possidente, basilica beati Stephani, prothomartyris, quæ sita est post ecclesiam Christi genitricis semperque virginis Mariæ destructa est.* (a)

Le soin que prend le chroniqueur à nous apprendre la destruction de la chapelle de Saint Etienne annexée (?) à la cathedrale, indique clairment la conservation de celli-ci. Si ce vaste monument, dont l'existence est démontrée et au VIe et au IXe siècle, avait été détruit lors de l'invasion des Normands, le chroniqueur se serait-il borné à nous apprendre la destruction d'une de ses parties? C'est ici que s'applique se vieil adage; *inclusio unius, exclusio alterius.* Ainsi il demeure démontré que la cathédrale de Tournai ne fut pas detruite à cette époque, et qu'elle resista à l'invasion Normande. En effet, celui qui a vu ce noble édifice, et considéré l'épaisseur, des colonnes de sa partie romane, la solidité des matériaux employés a sa construction, n'hésitera pas à reconnaitre qu'avec de tels matériaux il existait des conditions de durée que l'on ne retrouve pas dans les églises des provinces Rhénanes, et qu'ainsi s'explique pourquoi Nôtre Dame de Tournai a pu résister à une époque où tant d'autres édifices religieux ont succombé Au lieu d'être construite comme les églises des bords du Rhin en un calcaire sablonneux, friable et de peu de durée, la basilique de Tournai est construite en calcaire anthraxifère, espèce de marbre tres dur, et faisant feu sous le briquet. Pour détruire un édifice aussi gigantesque et composé, de pierres aussi solides et aussi massives, il faudrait de milliers d'ouvriers et un travail de plusieurs années. Or, les Normands avaient toute autre chose à faire que de passer leur temps à un tel ouvrage. Aussi, tous les chroniqueurs et les historiens de Tournai ont parlé de la Cathédrale, et l'on ne trouve, dans leurs écrits, aucune indication d'où l'on pourrait induire que ce vaste monument aurait été détruit et reconstruit à la suite de l'epoque carlovingienne. Au contraire, preuve certaine que l'édifice etait deja bien vieux à cette epoque il est constant que le chœur roman fut démoli vers la fin du XIe siècle, et qu'en l'an 1110, l'on commença la construction du chœur actuel, l'un des monuments les plus vastes et les plus hardis de l'art gothique."

‡ "Recherches sur l'Histoire et l'Architecture de l'Eglise Cathédrale de Notre Dame de Tournai." 1842.

§ "Histoire de Tournay par Jean Cousin," Douay, MDCXX.

(a) Elevatio corporis beati Eleutherii tornacensis episcopi et confessoris; MS. in Libro Sancti Martini Tornacensis.

FATAL ACCIDENT AT THE GREYFRIARS' CHURCH, EDINBURGH.

IT will be in the remembrance of our readers, that in January last, the old and new Greyfriars' churches were partially destroyed by fire. The authorities having resolved to restore the former building, its repair was undertaken by Messrs. Turnbull and Thompson, as contractors, in accordance with a plan submitted to, and approved of by the town council, by Mr. James Smith, architect. The works had been in progress for several weeks prior to the 14th instant, when at a few minutes before 9 o'clock A.M., two pillars and three arches of the church, together with a large quantity of mason-work, fell down with a tremendous crash, burying in the ruins four workmen, one of whom we regret to say lost his life. It is worthy of remark, that notwithstanding the melancholy and sudden occurrence of this catastrophe, it was not altogether unforeseen, for it appears that one of the workmen had noticed the impending position of the walls, and intimated to his employers that he would, in consequence, work no longer, and that the man took away his implements a few minutes before the event happened.

To convey a correct idea of the cause of the accident and the precarious position in which the workmen were placed, we may state, that the inside of the building is divided into three compartments, by two rows of pillars of the pointed style, the space between the two rows forming the main area of the church, while in the spaces between the pillars and the outer walls stood the galleries, north and south respectively, before the late fire. Not only had the wooden work been completely consumed by the conflagration, but the masonry was also much calcined and corroded by the flames, while the pillars in particular were so destroyed by the same devastating element, that they were completely pulverised, the stone and lime being dried up and quite friable. It was on one of the pillars of the northern row that the men were employed. The masons who were occupied in tombing or squaring down the wreck of the former pillar so as to give it a fair exterior by the aid of outward liming and other patch-work, were thus gradually depriving it of the little strength it retained, till the power of support having been destroyed, the frail fabric instantaneously gave way, carrying with it the adjoining pillar, the mason work of three arches, and a great mass of superincumbent material, and involving the unfortunate men in the ruins.

The *Edinburgh Advertiser* says, that much blame is attributable to the town council in this affair; and the public voice very generally condemns their injudicious and, as it has now turned out, fatal parsimony in adopting a plan on so limited a scale as not to admit of the secure and efficient restoration of the churches.

TESTIMONIAL TO MR. BRITTON.—The dinner is fixed to take place, at the "Castle," Richmond, on Monday, July 7th, the Right Hon. Thomas Wyse, M.P., in the chair, and we shall hope to see a numerous gathering of those who are interested in the architectural antiquities of the country.

NEW DOORS AND DETAILS FROM YORK MINSTER.



Head at Spring of Arch.



Ditto.

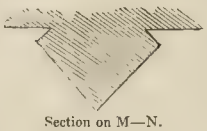




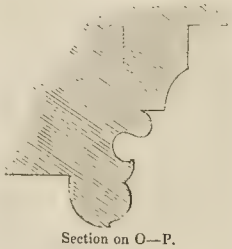
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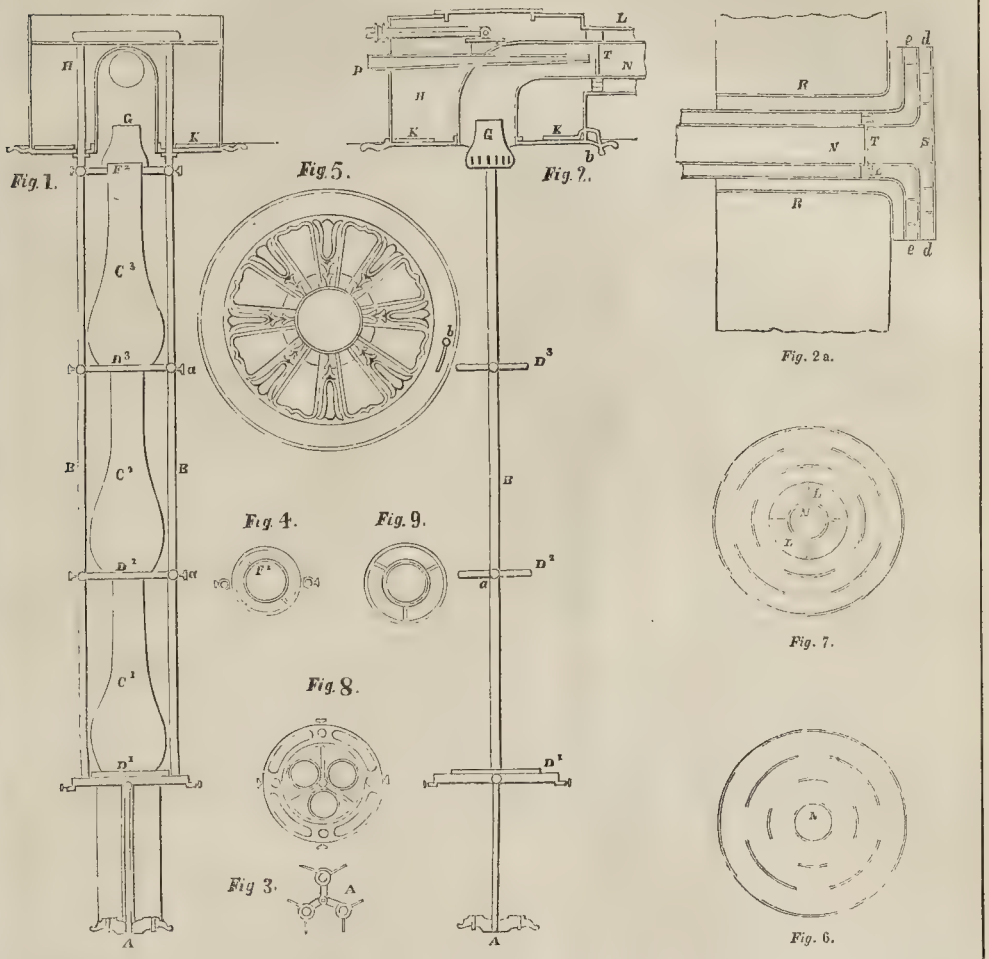
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Section on O—P.



PENDANT GAS LAMP.



NEW DOORS AND DETAILS FROM YORK MINISTER.*

Our engraving represents the new centre door in the west front of the minster, as recently executed from the design of Mr. S. Smirke. The details given last week with our view of the north (and south) door, as well as those now added, belong equally to all the doors and are drawn half the real size.

The dotted lines on section A—B (last week), shew the hood moulding and capitals.

PENDANT GAS LAMP.

We have received the following account from Mr. Jones, the inventor, and insert it as bearing on the subject of ventilation:—

This mode of burning gas, to which the inventor directs attention, is the subject of a registration, and presents a system of discharging the deleterious gases in many respects superior to ventilated gas lights, which have preceded it. It is peculiarly adapted for consuming gas highly carbonized by Mr. Lowe's patent process of naphthalizing, owing to its being raised to a high temperature previously to combustion at the burner. It is intended to use, in conjunction with this light, the earthenware pipe and conical glasses patented by Mr. Grant, for the purpose of causing a more rapid discharge of the vitiated air, and also to diminish the quantity of radiated heat attendant upon the use of metallic pipes. It will be observed from the accompanying diagrams, that not only are the products of combustion completely discharged, but the apartment in which the light is fixed is thoroughly ventilated and kept at any degree of temperature at pleasure. Back draught is avoided by the construction of the external wind-guards, thus ensuring an atmosphere at once healthy and under perfect control. It may be as well to state that this mode of lighting is equally applicable to a public building, or a private apartment, any quantity of light being obtainable from one focal point.

Fig. 1 is a front elevation, and fig. 2 a side elevation of this lamp and its appendages. A is a compound burner consisting of three burners on the Argand principle, arranged in one plane, so as to produce one strong column of light, as shewn in the separate plan of this part of the apparatus given in fig. 3. B B are two tubes, which conduct the gas from the supply-pipe downwards to the jets of the burner.

C^1 C^2 C^3 are three bulb-shaped glass chimneys, rising one above the other, and resting, just below their greatest diameters, on rings D^1 D^2 D^3, which is connected to the supply-pipe, E E, which are pendent from the roof, and common to all three. A plan of the lowest ring, D^1, is given in fig. 8. The top of each of the two lower chimneys, C^1 C^2, rises a little way within the chimney immediately above it; the height to which each is so raised being adjustable at pleasure by means of the thumb-screws *a a*. Within each of the rings, D^2 and D^3, there is an inner ring, F^1 (fig. 4), which encircles and serves to keep steady the tops of the chimneys C^1 and C^2. The top of the chimney C^3 is also encircled and steadied by a similar ring, F^2, which is attached by radial arms to the funnel G.

H is a ventilating head, or cap, which is inserted between the ceiling of the room in which the lamp is hung and the floor of the apartment above. It has openings on the under side which correspond with similar openings in the fly-plate K. The ornamental face-plate is represented in fig. 5. K is the fly-plate, by turning which round, by means of the knob *b*, the different apertures are opened or closed, and either wholly or partially, at pleasure. L is a pipe, which is carried from the head H in a lateral direction, through the wall M, to the external atmosphere.

The metal funnel G opens into a pipe N, which, passing up the centre of the head H, turns off at a right angle, and terminates in the wind-guard (fig. 2 *a*) on the outside of the building.

While the more immediate products of combustion pass away through the chimneys C, Funnel G, and pipe N, the heated and vitiated air of the apartment escapes through the openings in the ventilating head H, along the pipe L, to the wind-guard S.

P is a small conical draught-pipe, which is

* See p. 294. *ante.*

carried from the outside of the building, through the ventilating head H, into the funnel-pipe N, terminating just beyond the right angular bend of the latter. The cold air rushing through this pipe serves to impart a great increase of velocity to the column of heated air and vapours escaping through the tube.

R is an opening for the escape into the atmosphere of any heated air which may accumulate between the ceiling and floor.

T is a ring by which both the outer and inner pipes are joined; an edge view of it is given in fig. 9.

S (fig. 2 *a*) is an external cover or wind-guard, affixed to the mouth of the pipe L, by which any back draught is prevented. A section of this wind-guard on the line *d d*, is given separately in fig. 5, and a section of it on the line *e e*, in fig. 7.

EXAMINATION IN CONSTRUCTION AT UNIVERSITY COLLEGE, LONDON.

On the 24th instant, the students in architecture under Professor Donaldson were examined and received prizes. The examination took two shapes; first, in architecture as a fine art; secondly, as a science. As the questions put are very suggestive, and may serve to induce a self-examination on the part of some of our younger readers, which cannot fail to prove useful, we insert those which relate to the latter part of the subject, and shall next week give the course of examination in architecture as a fine art.

To those who had attended the first year only:—

Varieties and Qualities of Timber.

1. From which quarter of the globe do we chiefly derive our timber for construction? 2. Name the principal countries and ports in each respectively. 3. Sketch a section of the trunk of a tree, and affix the names to the several parts. 4. State the purposes and qualities of the several parts of the section. 5. How is the wood formed, and what general evidence does it afford of its age? 6. Which timber tree principally shews the medullary rays? In what direction do they radiate? 7. State the principal species and peculiarities of the oak, and the purposes to which it is applied. 8. What is the nature of the decay by dry rot in timber? 9. What portion is most probably the seat of the disease? 10. What is the substance that produces the rot, and how does it act? 11. What external causes promote dry rot? 12. What precautions may retard decay? 13. What application may effectually prevent decay? 14. Describe the three most recent processes proposed as applications for that purpose.

Application of Timber to Construction.

15. To the action of what forces is timber subject in construction? 16. Is the resistance of timber to these definite or indefinite? 17. Which are the proper measures of resistance for practical purposes? 18. Which are the principal modes of placing a piece of timber to carry or support a weight? 19. What proportion does a weight, placed in the centre of a piece of timber supported at both ends, bear to the same weight if distributed over the whole length? 20. To what force are the upper fibres of a loaded beam subject, and to what the lower? 21. What is the object in designing the frame of a roof? 22. What is the effect of superabundant material? 23. Sketch a king and a queen truss complete with the gutters and slating, and put the names to all the parts, and mark the straps and bolts. 24. What are the respective uses of the different parts? Draw the articulations of the junctions of the timbers. 25. What is a principal? 26. How far should principals be apart? 27. Sketch a Gothic collar roof, and put the names to the several timbers. 28. How many classes of floors are there? Sketch and describe them respectively. 29. How do you find the greatest point of pressure upon the centring for an arch or vaulting? 30. How do you determine the position of the straining-piece? 31. At what angle do voussoirs of an arch begin to slide or slip? 32. Sketch the centrings for a semicircular arch, scheme and elliptic arches. 33. Describe the scaffolding used for placing the statue of Napoleon on the Colonne Vendôme at Paris. 34. As also that for erecting the Luxor Obelisque in the same city.

Limes, Mortars, Cements.

35. What is the basis of all mortars? 36. In what division of stones does it prevail? Give the names of the classes of that division of stone. 37. In what proportion does it exist in those stones where most abundant? 38. What chemical test proves the presence of lime in a stone? 39. How is a stone converted into lime? 40. What does the process throw off? 41. What are the phenomena, and what the effect of the addition of water to quick lime? 42. Give the chemical analysis of hydrate of lime. 43. State the different modes of slaking lime. 44. How much weight does a stone lose by calcination? 45. Will lime alone produce a mortar that will set? State the reason. 46. State the names and number of classes of substances which combine with lime to produce mortar. 47. Describe Traas and Pozzolana; whence procured; how prepared and applied; and for what purpose used. 48. Under what general head may be classed the varieties of cement stone similar to that of Sheppey? 49. What is the distinctive difference of that class of stone? 50. By whom discovered, and when? Describe the varieties, and where found. 51. Describe the properties of this cement, and the purposes to which it is applicable. 52. Is the strength increased or diminished by addition of sand? wherefore? 53. What are the colours of the Sheppey and Harwich cements? 54. State the component parts and proportions of the cement stone. 55. How may the cement be tested? 56. In what time will it set? 57. Who made experimental brick beams with cement? 58. Was any bond used in these beams? 59. Describe the materials and process by which artificial cement is made. 60. Name the leading writers on the subject of mortars, and the dates when they flourished.

Second Year.

1. Of what does the crust of the globe consist? Give a section. 2. State the two leading formations into which geologists divide the crust. 3. Describe the constituent parts respectively of granite, statuary marble, sandstone, limestone, Portland, Bath. 4. State the parts whence they are derived, and the formations to which they belong. 5. Describe the chemical and mechanical causes which contribute to decay in each of these stones, and the parts most liable to decay and disintegrate. 6. Which are the best tests for limestones and sandstones? 7. What are the characteristics of good and bad Portland? 8. Which are stratified, and which are unstratified? 9. Should there be any relation between the position of a stone in the quarry and in the work? if so, why? and are all stones subject to the same law? 10. Will every stone once placed in construction be strong enough for all practical purposes, if so, what proof is there of that fact? 11. Which stones are generally the strongest and hardest?

Masonry.

12. If isolated supports have a great weight to bear, what must be the nature of the material? 13. Which are the most ancient edifices? those which are lightest, or those of heaviest construction? 14. What proportion does the crushing weight generally bear to the splitting weight? 15. Describe the various modes of construction used by the Greeks and Romans, as enumerated by Vitruvius. 16. What are the general precautions to be used in solid construction? 17. What is ashlar and what the precautions to be taken when it is used? 18. Describe the causes of settlement in the French Pantheon, Paris. 19. Should any precautions be taken as to quoin stones? 20. What is the greatest inclination at which a mass may be without falling? 21. In what direction do all bodies tend to fall? 22. How are bodies best upheld? 23. On what practical circumstances does the solidity of masonry mainly depend? 24. State the best proportions for cubical blocks of stone. 25. Give the particulars of some large stones used in ancient construction. 26. Sketch the forms and describe the use of cramps, plugs, and dowels. 27. Which are the best metals for such purposes? State the reasons. 28. Sketch and describe the instrument inserted into a block of stone for the purpose of raising it. 29. Describe the precautions used as t vertical joints and joggled joints. 30. Int how many classes may be divided the stabilit of edifices? 31. Is the greatest thrust in thos covered by a vault, or by a trussed timber roo and why? 32. Give a section of the treasur of Atreus, shewing the direction of the joint of the stone. 33. Give a plan and section c the cupola of S^{a} Maria dei Fiori at Florenc and state by whom and when built. 34. Wha is the principal substance of which bricks ar made, and what are the properties which ren der it fitted for the purpose? 35. State th earliest applications of brick for constructiv purposes. 36. Which nations used the sun-drie and which the burned bricks? 37. Enumerat the different sorts of bricks used in London and describe the purposes to which they ar applied. 38. Describe the various sorts o bonds used in brickwork. 39. Give example of hollow walls 9, 14, and 18 inches thick 40. Describe the different sorts of lead use on roofs, the purposes for which each is fitted and the proper weights under different circum stances. 41. Specify the best mode of con structing the gutters; and give sections thereo with dimensions of the fall and drips. 42. De scribe the various qualities of iron. 43. Fron what is iron extracted, and generally in wha proportion? 44. What is Tredgold's remar as to permanent alteration of form? 45. I resistance to flexure or to permanent alteration of form the safer criterion in construction and under what circumstances? 46. What i the best section for an iron beam or girder 47. Which is the best form for economy o material, which the best for stiffness? 48. Give the names and sizes of the slates gene rally used for roofing in London. 49. De scribe the process of zincing galvanized iron the object to be obtained thereby, and the ap plication to constructive purposes. 50. Specify the component elements of bronze, and name the most celebrated bronze monuments o modern times.

COST OF SEWERS IN THE HOLBORN AND FINSBURY DISTRICT.

The following tenders for sewers lately contracted for by the Commissioners of Holborn and Finsbury, and the Tower Hamlets, afford some useful data.

For sewer in Warner-place: 4 feet by 2 feet 6 inches; 2967 feet in length:—

Hill	£2,345
Ward	2,340
Munday	2,244
Blackburn	2,220
Stewart	2,210
Crook	2,197
Curtis	2,194

Wellington-street to Silver-street: 4 feet by 2 feet 6 inches; length 1915 feet.

Ward	£1,480
Curtis	1,447
Stewart	1,420
Munday	1,410
Blackburn	1,400
Crook	1,391
Hill	1,390

Wentworth-street: 4 feet by 2 feet 6 inches; length, 660 feet:—

Blackburn	£675
Hill	615
Curtis	584
Stewart	570
Crook	539
Livermore	538

Rhodeswell: 4 feet 6 inches, by 3 feet; length, 200 feet:—

Livermore	£167 0
Dicks	162 10
Crook	152 0

King's-road, St. Pancras: length, 250 feet.

Eldred	£249
Ward and Son	241
Cooper	205

The New Houses of Parliament.—Messrs. Foley, Marshall, and Bell have been selected by the Commissioners of the Fine Arts to execute the statues of Hampden, Falkland, and Clarendon, for the New Houses of Parliament.

ARCHITECTURAL PROGRESS AT HOME AND ABROAD.

The annual report of the council, about to be distributed to the members of the Royal Institute of Architects, contains the following interesting *resumé* of architectural proceedings during the past year:—

"On the Continent, our honorary and corresponding members have afforded striking evidences of their abilities by the completion of some fine works. The church of S. Vincent de Paul, at Paris, by M. Hittorff, has just been opened for divine worship.* He has, with much ingenuity, adopted various means of producing effects, by the introduction of coloured decorations in enamelled plates, and this example is rendered the more valuable by the publication by that gentleman, in a pamphlet, of the principles which have guided him in this conception. Our friend, Herr Zanth, of Stutgard (the colleague of M. Hittorff in the valuable work on the Monuments of Sicily), has just completed an edifice in the Moresque style for the King of Würtemburg, which has been noticed in the foreign journals as highly successful.

The French have also completed some remarkable works of architecture, which the energy, taste, and liberality of their ancestors had begun. The Hotel de Ville, at Paris, a work of the 16th century, has for many years been in a course of enlargement and completion. The exterior is now entire, and the interior is in progress with all the richness of embellishment of which the "*Re-naissance*" affords such splendid examples, and to the production of which the genius of its architect, M. Serrure, is fully equal. This edifice is now the worthy municipal palace of the French capital, little, if at all, inferior in grandeur of arrangement and decoration to that of the sovereign. The Prefect of the Department of the Seine, in carrying out this fine conception, has felt and acted as the chief of not merely a locality, but of a powerful, an enlightened, and an art-loving community. Our own metropolis has, also, within the last twelve months, been improved by various public works, of which some are completed, and some still in progress. The new Royal Exchange, with its accessories, forms an imposing feature of the city; the completion of Trafalgar-square, with its terraces, flight of steps, fountains, basins, and triumphal column, shews that a feeling has arisen in the public mind for rich and effective combinations of objects of a monumental character. The thoroughfare near Leicester-square, those from Oxford-street to Holborn, and from Long-acre, northward, and that near Whitechapel, with the lines of lofty houses in progress, already add considerably to the appearance of the Metropolis, and cannot but contribute essentially to its greater comfort and healthiness. The street architecture of Paris is on a scale of more grandeur than ours, and the facility of employing a cheap stone affords the French architect greater scope for his fancy and the opportunity of giving the houses a more imposing character than brick is capable of producing. It cannot, however, be denied that, notwithstanding the disadvantages imposed upon it, not only by the inferiority of our materials, but likewise by our domestic habits, the street architecture of London has of late years assumed a new and more important character.

Within a few days the Conservative Clubhouse, the production of two of our fellows, has been opened. It is another evidence of the increasing importance of architecture, and gains additional interest as a work of art, by the bold application of polychromatic embellishment judiciously and fearlessly introduced throughout its principal apartments, important as tending to improve the taste of many, who may, in their own residences, carry out the art of embellishment to its full devolopment.

The progress made in the arrangements for improving, at least partially, the banks of the river Thames, may lead us to hope that the construction of a line of public quays in the part of the metropolis, will, at no distant period, secure to us the advantages in the fundamental, which this ample stream already possesses in a commercial point of view, to a greater degree than that of any other capital in the world.

The important Act for regulating the buildings of the metropolis and its environs, passed during the last session of Parliament, came into operation at the beginning of the present year. The object of its framers has evidently been to guard against unsound construction, to prevent as much as possible danger from fire, and to insure a greater degree of healthiness in a class of dwellings hitherto too much neglected. It is to be hoped that similar benefits, modified to suit local exigencies, may be extended to other parts of the country, where too often the humbler classes become the victims of ill-drained and ill-ventilated habitations.

A great movement has lately been made, in regard to providing for the health and amusement of the humbler classes, whose physical and intellectual condition is now occupying a large share of sympathy and attention. In many of the principal manufacturing and commercial towns and cities, liberal subscriptions have been raised for the purchase of plots of ground, and for the formation of public gardens. A society has likewise been formed in London for the erection of public baths and lavatories. We can hardly expect to vie with the ancient Romans in the construction of their thermæ; but it is to be hoped that in the erection of the baths of the British metropolis, their frequenters will not be regarded as insensible to the beauties of architecture, and that the art will be employed in aid of utility. Why should not the million have the privilege, in their places of public resort, of refining their taste, and exciting their imagination? why should they be bound down to cold sentiments of mere utility? May they not also unite the agreeable with the useful, and feel that they have minds to be improved, tastes to be cultivated, and sensations to be excited by the contemplation of beauty and harmony, as carried out in the productions of the artist. Let us hope, then, that our public baths may be monuments of art, and an evidence of the taste and intelligence of the present day.

The propositions which have been urged for some time, on the propriety of establishing local museums of art throughout the empire, was made the subject of a paper read at a recent ordinary meeting of the Institute, by Mr. Wilson, director of the Government School of Design. Nothing could contribute more essentially than local museums to local improvement, as exciting attention, habituating the eye to fine form and correct detail, and promoting a comparison between objects good and bad. Thus, the mind, brought to think and to discuss comparative merits, and to investigate the sources of true intellectual enjoyment, must rise to a higher and healthier tone, and be satisfied only with the purer objects of refined taste.

In connection with this subject, it may be observed, that we possess, scattered throughout the country, numerous monuments and monumental effigies of the dynasties which have reigned in England, of the importance and beauty of which we may form some estimate from those in Westminster Abbey. It is to be regretted that they are allowed to fall into ruin, without any attempt on the part of our rulers to establish some general system for their preservation and maintenance. Never at any period have these styles of art been better understood, nor have our artisans ever been so able to restore these monuments faithfully to their ancient splendour.

It is to be remarked, that the Minister of the Interior, in France, has just applied to the Chambers for a grant of about 85,000*l.*, to be applied in the restoration of several historical monuments of that country.

Historical Painting — Premium One Thousand Pounds.—A notice with this heading has been put forth during the present week, and to it are affixed the names of Thomas Bell, Don Alkali Works, South Shields, and Charles Hill Roe, Hermitage, Aston-road, Birmingham. The competition is for an oil painting of the Baptism of Christ, to be not less than 12 feet by 10, nor larger than 15 feet by 12, and two years are allowed for the sending in of the paintings. We know nothing respecting the parties whose names are affixed to the notice, nor of the ultimate purpose for which it is issued, it will therefore be at least discreet on the part of artists to obtain further and more satisfactory information before they risk their time and substance.

NEW BUILDINGS AND IMPROVEMENTS IN EDINBURGH.

Since the building of the new town of Edinburgh, there has never been a time so rife in new buildings as within the last few years. The *Edinburgh Evening Post* gives the following particulars:—

The city, highly picturesque and beautiful before, has received several fine improvements in its appearance. Sir Walter Scott's monument, newly finished, is a grand object, and its great elevation overcomes the disadvantage arising from the somewhat low site on which it is erected. The spire of the Assembly Hall, a charming piece of architecture, is now one of the principal landmarks of the city. The only pity is, that the building is in a neighbourhood which does not at all harmonize with it in any thing, if we except some new edifices in the Elizabethan style, on which the old gloomy houses of other centuries seem to frown displeasure. It is nearly opposite, and down a close too—and that close the abode of poverty—that Mary of Lorraine, the mother of our beautiful but unhappy Mary had her palace and oratory. On the Calton Hill there is being erected a debtors' prison: the building is to be east of the gaol and bridewell, and will be included within the sweep of the same wall. Talking of this wall, we ought to observe that it is built exactly in the style of the battlements of an ancient fortress, and with its abutting watch-towers, harmonises well with the rocky elevation from which, on the south side, it rises. On witnessing the good taste indicated here, one cannot help contrasting it with the gross blockheadism which was unaccountably allowed to perpetrate the new barracks erected in Edinburgh Castle. They remind us of a manufactory or union workhouse, and one could almost wish they would tumble down when the inmates were engaged elsewhere. Additions are being made at the end to the north of the advocates' library. It strikes us that this building has been too much doctored—that it is spoiled and deteriorated by the patchwork addenda which are inflicted upon it. A new edifice would have been the preferable, perhaps the cheapest expedient of the learned faculty. The new Physicians' Hall, a fine building on the north of the New Town, is nearly finished. The front will be highly ornamented, and will form a choice acquisition to Queen-street, rather wanting in striking buildings. The Commercial Bank, erected on the site of the former Physicians' Hall, in George-street, is advancing. It will add another attraction to a street already one of the finest in Europe. It appears to be designed in the Italian palace style. Near it some striking improvements have been made in the buildings intended for public companies and banks. Nothing can be finer than the light, graceful, and ornamental fronts which we meet in this locality.

Donaldson's Hospital, to the west of the city, is progressing rapidly. It is a truly grand and noble structure, and nothing could have been more judiciously chosen than the fine elevation which forms its site. We understand that no less a sum than 100,000*l.* is to be expended in getting up the building, and adapting its internal economy to the purpose for which it is extended. A new Heriot's school, situated at the west end of Rose-street, is nearly finished. The "Political Martyrs'" monument in the Calton burying-ground is so far advanced, that it can be seen from the North Bridge. Additional erections—stations of railways, and other buildings are soon to be set agoing. And we believe that in addition to the commodious and elegant villas, and other buildings existing at Newington, a large number of houses are to be erected by one of our banks, which has recently obtained the greater part of the ground. A better site for building cannot be imagined, with its delightful southern exposure and salubrious air. It is a peculiar feature of the present era of improvement, that houses in streets occupied by the highest order of gentry who keep mansions in Edinburgh have been converted into shops and business establishments. This is particularly observable in George-street. The stream of rank has a tendency to flow northward in the direction of the back part of the New Town. The shops in several parts of Edinburgh have, in many cases been improved to a high degree of elegance, and, in some cases, decorated with very fine ornaments. One great evil has been removed from the

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* See Builder, p. 3.

city, in the covering up of that huge, unsightly stream of dirty water which passed to the sea through the Queen's Park. A sad infliction it was. The laying out of the splendid carriage road, and the excellent arrangement of the grounds, will form permanent attractions to this delightful promenade. A wall around a part of the royal domains is still wanting, and should be set about: miserable hedges of whinstone are out of keeping in such a place. It is the felicity of Edinburgh, that close at hand to its busy streets and closely-wedged buildings are solitudes such as Zimmerman might have envied. From the park under notice a very short walk conducts to scenes as still and picturesque as are to be found in the secluded spots of the Grampians, while, at some point suddenly attained, there bursts forth the full majestic spectacle of a great and sublime city, and the hum of voices falls upon the ear like soft and distant music.

THE IRON TRADE.

The evils resulting from the late inconsiderate rise in the price of iron are daily developing themselves; they are great and numerous. The unsettled state of the trade in South Staffordshire is attended with the most inconvenient, if not ruinous, consequences. The manufacturers, especially the makers of heavy goods, are suffering under the depression caused by the recent extraordinary advance on the raw material, although there is an abundance of orders from Canada, and the United States, in Wolverhampton, Birmingham, and Walsall, the completion of which cannot be longer delayed.

The home market suffers in the same degree from the same cause. Travellers for factors now on their journeys in all parts of the kingdom are in many instances unable to take, and their employers at home unable to execute, orders for manufactured iron goods, on account of the uncertainty, in the price of iron. But bad as this state of things is, the mischief does not end here. At the time of the advance, the iron-masters considerately raised the wages of the workmen, and now, as a matter of course, some of them are proceeding with the reduced price of the article to attempt a corresponding reduction of the price of labour. A partial turn-out in the districts of Bilston and Wednesbury has been the consequence, and one riot of rather a serious character has already occurred.

From Newport we learn that sales of bar-iron have been effected as low as 7*l.* 5*s.* per ton.

ELECTRIC TELEGRAPHS.

The recent thunder storms, both at home and on the continent, have elicited some interesting phenomena connected with electric telegraphs. One of the needles on the dial at the Southampton terminus became unfitted for use by its polarity being destroyed, and the attendant who was working the machine at the time received a smart shock from the handle. At Rouen, the atmospheric electricity, combining at times with the current conveyed along the wires, impeded or precipitated the movements of the needle, giving to the composition the effect of dropped letters and occasionally destroying the sense of the intended phrase. M. Masteucci of Pisa, who is well known for his experiments in galvanism and electricity, has announced his belief that the electric telegraph can be made use of between Dover and Calais, the wires being sunk deep into the sea. He has arrived at this conclusion, from having succeeded in passing the fluid along wires immersed in the waters of the Arno.

A similar idea, only on a grander scale, of course, has been started in America. The *New York Tribune* proposes to run a copper wire, well covered and as large as a pipe stem, from Nova Scotia to the coast of Ireland. The writer says, "Its gravity would sink it to the depth where water was so dense as to be of equal gravity, and consequently beyond the reach of any kind of collision." While on this subject we may mention an experiment that was tried last week at Brussels, in the presence of the Minister of Public Works, by which the dispatch was written with a pen by the mere action of the fluid; it is stated to have been entirely successful.

DEATH FROM THE USE OF LEADEN PIPES.

An inquest has been lately held at Malvern Wells, on the body of an agricultural labourer named Richard Wilkins, who came by his death it appears from having drunk a quantity of cider which had been conveyed in leaden pipes from the cider-house to the place where it was drawn for use. It appeared that the deceased, with several others of Mr. Benbow's farm servants, had, after partaking of this cider, been seized with illness resembling the painters' colic, which it is known arises from the constant use of lead in their business. Mr. West, surgeon, of Malvern, at first attended him, but Mr. Hamilton, of Malvern-wells, attended the deceased at the time of his death, which happened on Saturday last. Mr. West explained that the deceased died of apoplexy, brought on, he believed, by drinking the impregnated cider. Mr. Benbow, the deceased's employer, explained to the coroner the circumstances under which the pipes had been laid down. He had employed Mr. M'Cann to lay down pipes of the proper white metal, tin, or composition; but he (Mr. M'Cann) had substituted lead, saying it was superior for the purpose. On the discovery of the mischievous effects produced, the use of the pipes had been discontinued. The jury acquitted all parties of blame except Mr. M'Cann, and returned a verdict "that the deceased died of apoplexy, induced by congestion of the brain." The coroner intimated that, after an investigation like this, every farmer and publican using such pipes would be subject to a verdict of manslaughter or murder in the event of a similar catastrophe.

The fact is well known that leaden pipes and cisterns become dangerous when the water which fills them is soft and pure. The lead, however, which the water takes up may be removed by filtering the water through paper, a circumstance which has been explained by supposing that the oxide of lead is not really dissolved in the water, but merely suspended in it. At a recent meeting of the chemical society, Lieut.-Col. Philip Yorke stated that the oxide of lead is taken up by the substance of the paper and combines with it, from an affinity such as subsists between the same metallic oxide and cotton fibre; the last taking the oxide from solution in lime-water, and lead being often fixed as a mordant on cloth for dyeing in this way, according to the statement of Mr. Crum. He stated also, that the power of the filter may be exhausted, and that therefore it would be unsafe to trust to the action of a filter to separate oxide of lead from water for an unlimited time.

THE BURIAL GROUND NUISANCE.

The manner in which the action brought against the parties concerned in the Spafields burial ground has terminated has astonished all persons who are interested in the matter. Immense trouble had been taken by individuals, and much expense incurred, especially by Mr. G. A. Walker, and by Mr. Watt who lives near the ground; the former was in court prepared with evidence which would have frightened the country into some change in the system, but the whole was frustrated by the course pursued by the counsel for the crown, a course which we find it very difficult to account for. It is to be hoped that Mr. Walker, to whom the chief merit of laying bare the enormities of the system belongs, will not be discouraged in his praiseworthy efforts to abate one of the most serious evils existing in the metropolis.

SONNET ON LINCOLN MINSTER.

I've seen the *Lyncolne Mynster* and the hill
Which for long centuries it hath ycrowned,
And in beholding, such delight have found
As our forefathers' pious minds did fill
At the evolving from th' inspired will,
A work yet onward endlessly renowned.
Æthereal Fancy! thou art here unbound
Roving from human deeds of subtle skill,
(Pillar and lancet-arch, and tracery rare,
Proportion, whose perfection bears a spell!
The Votive Chapel, proofs of holy care,
With roof by worthy Willson carved well)
Unto the destination of my prayer,
Where our great God, beneficent, doth dwell.

J. Ellis.

THE ROUND TOWERS OF IRELAND.

Sir,—Now that the subject of the origin and uses of the ancient round towers of Ireland is again before the public, I shall deem it a favour (as an old correspondent) to be allowed to offer a few observations upon it through the columns of The Builder.

I may premise that some of our most learned antiquaries have promulgated opinions in regard to those towers quite inconsistent with an actual *inspection* of these interesting memorials, *connected as they are* with the adjoining ecclesiastical ruins,—for the ruined church and the old tower are invariably found near each other. Now the periods assigned to the erection of the old churches seem scarce a matter of dispute; in fact, their dates of construction are given with as much precision as of yesterday, whilst no notice appears to be taken of their "next door neighbour," the old tower.

On this omission on the part of early writers I shall hazard an opinion: it is simply this, that the date of the tower and that of the adjoining little church are one and the same, for reasons which I shall give before concluding. Should this assumption appear probable, for direct proof is out of the question, it follows that much of the obscurity connected with the earlier notice of our old ecclesiastical edifices may be cleared away, by considering the tower as a *part* or in direct connection with the church. Viewing the brief and simple notice of the old chroniclers, we find it seldom went beyond naming the founder of the church, the period of erection, and the name of the locality where erected, and passed over all architectural details as apparently unimportant. To the scanty materials thus supplied by early historians in respect to the towers, modern commentators have not hesitated to supply details; as many of the fanciful theories advanced by our antiquaries rest on the analogy between certain *Phœnician* and Egyptian antiquities and the round-towers; while others still more numerous draw all their resources from some antiquated glossary of the Irish language having reference to the derivation of *names* said to belong to the old towers.

Many of these learned inquiries were carried on *in the study or library* of the antiquary, and the result when before the public was attacked and instantly demolished by some contemporary, by precisely the same mode of reasoning as that adopted by his opponent, neither parties bestowing a *single* thought on the *stone and mortar* of the round-towers, beyond the undeniable fact of their being well built, a truth known to everybody. The old tower of Aghadoe, near Killarney, though apparently wanting in character from being what is denominated a "*Stump*," *or ruined tower*, is nevertheless not without interest, arising from a comparison of the quality of stone with which the outer casing of the tower is constructed (pale yellow sandstone), and the stone employed in the door and window-jambs of the ruined cathedral or church close by, the stones referred to in both buildings being precisely of a similar class of rock; and here I may observe that no yellow sandstone rock is nearer Aghadoe than 30 miles. Having had ample opportunities of comparing the stones in both ruins during a stay of seven months at Killarney, I found the angles or ornamented parts in the church shewed more signs of decay than the stones of the round-tower; but this is easily accounted for from the circular form of the tower; the ashlars having no exposed ends or joints, are less liable to be acted on by changes of the atmosphere than the stone used in the church.

To understand the matter fully, it is necessary to offer a suggestion not heretofore made. Whoever proposed to build a castle, abbey, church, &c., without first consulting the architect? That our ancestors had wisdom and sagacity enough to follow a similar course there cannot be a reasonable doubt. The object of such consultation would naturally be to look to the locality, the situation, water, and, in the *then* early days, the procuring of *efficient workmen* and materials. These preliminary steps settled, the architect, who in all probability was an ecclesiastic, would, as a matter of necessity, say how am I to protect my work-people, collected here with great difficulty, from the assaults of the marauding Dane, and the not less dangerous attacks of the turbulent natives? The project of the

round-tower was a noble idea, it affording odging for the architect and masons; here ie could at a glance have a bird's-eye view of iis little church as it progressed towards completion; here he kept his people under his eye n *a circle*, propounded his plans, and, "though ast not least," was safe from any *nightly* ttack, from the elevated position of the doorway. No doubt it afterwards formed a useful ppendage to the church as a depositary for ooks and other valuables of the church, s well as affording a certain landmark by its lofty proportions) in a country nearly overed with wood to the weary pilgrim and raveller. It is easy to make objections, as by sking "Where did the architect and workmen reside, or, how guard themselves from ttacks from hostile parties, while the tower vas in progress of building?" To such objections I will merely say, the zeal shewn by he people in every great undertaking, and hat for a religious purpose being best calculated to excite the feelings, might have the ffect of collecting a body of persons not only ble to assist in the work, but by their umbers to overawe any hostile parties daring o approach. That such laudable zeal *at last* nay have gradually died away it is but reasonble to conclude, but then one great object was ttained, the building of the tower.

Hence I conclude, the tower and the adoining church are of one and the same age nd period.

Gorey, June 7th, 1845. J. K.

Correspondence.

FIRE-PROOF STAIRCASES.

SIR,—The late fatal fires in Dover and Fenchurch-streets fully prove the absolute necessity of *especially* constructing staircases ireproof, by which the inmates could make safe retreat from a dreadful death. Although I am neither an architect nor builder, I really cannot see any great difficulty in following out this efficacious plan, it only requires any man of note in that profession to adopt it, and then all houses would quickly be rendered safe. Why could not the whole well of the staircase, its sides, ceiling, and flooring, be made of thin iron plates let into frames of the same metal; then again the stairs, balusters, hand-rails could be also constructed of that material, and here there would be great scope for ornamental castings. There is no doubt that the staircase forms the chief flue to a house when on fire, and as wood feeds the flame, so does the staircase the fire, allowing it to make its way into rooms leading on to the staircase, therefore I would suggest that all such doors should be of iron; they need not be heavy, the object being to keep the fire on one side only, and to prevent its spreading. I hope that some of your professional readers will take up this matter with spirit, for we must remember that the *staircase* is always the place first sought for when these accidents occur, and moreover we ought never to bear in mind, that fires may and do take place in houses in which every possible care is taken to avoid its presence. *Gas, sparks, flues*, often being the primary causes of destruction of life and property by fire.

I am, Sir, &c.

June 23rd, 1845. P. A. T. H.

COST OF LOCOMOTIVE ENGINE.

SIR,—I should be obliged if any of your correspondents could inform me, through the medium of your columns, the cost of a three or four-horse power locomotive engine. It is proposed to be used for drawing loaded carriages down, and empty ones up, a line 1¼ mile in length. I presume a tender would not be necessary, as sufficient fuel might be kept in depôt at each end of the road. Also, what quantity of water (rather a scarce article) would be necessary for the supply of the boiler for that distance,

I am, Sir, &c.,

21st June, 1845. J. F.

FIRE-PROOF COMPOSITION.

SIR,—Is there not a patent for some material which if used instead of plaster will prevent houses from burning?

I am, Sir, &c., A. B.

PASSAGE OF WATER THROUGH PIPES.

SIR,—I wish to know the quantity of water that would be discharged through a pipe of one-inch bore per minute, the head of water being kept level with the top of the pipe, with the least force possible; and also what would be the increased discharge per minute, the head being raised from one to twelve inches.

I am, Sir, &c., F. E. H.

Miscellanea.

WASTE OF STRAW IN THATCHING. — It would be impossible, after having entered so generally into all the various details connected with homesteads, to omit one most important consideration respecting them, I allude to the habit, too often in use, of thatching buildings. This cannot be too generally reprehended. The arguments against it are endless; it entails considerable expense, robs the land, creates danger from fire, is a harbour for vermin. Either of these objections is a sufficient reason for stopping this monstrous practice. If landlords reflect upon this, they will see that they ensure an injury to their land by compelling their tenants to repair with straw; whereas tiles or slates are preferable in every way. It is only the first outlay which is to be considered; by adopting which, robbery to the land and unceasing expense to the tenant are prevented. In the buildings lately pulled down at Peckham, there must have been nearly an acre of thatch, and they harboured vermin enough to stock a whole county. There are instances in the Weald of Kent, where nearly the whole straw of the tenant is used for his house and buildings, a fact lamentable in every view of the question. If straw is to be taken from the land, let it be sold, and the money laid out in artificial manure; but it is most desirable that it may soon cease to be used for such improper purposes.—*Lord Torrington.*

THE USE OF IRON.—A correspondent of the *Mining Journal* in writing on the general utility of Iron says, "The immense destruction of property occasioned by fire, in most of our large manufacturing towns and cities, would be rendered less disastrous if warehouses and other depositories for merchandise, were constructed of iron, formed in different compartments and made secure. How lamentable it is to hear of the almost daily occurrence of some conflagration by which property to an immense amount is destroyed in this kingdom, when all public buildings would be more safe, as well as more durable, if constructed of iron, whilst the architectural beauty need not be diminished: the pointed spire, however ornamental, on all newly-erected or repaired churches, would be placed there with iron cheaper than any other material. The fame of our great statesmen and England's unconquerable heroes, might be perpetuated to the latest posterity in the erection of monuments constructed with iron, indeed the whole transactions of the British nation, in all her great mercantile pursuits, might be *recorded on iron*. I myself *have written upon paper manufactured from iron*, and seen a book, with both leaves and binding of the same material.

THE RELATIVE FREQUENCY OF PHTHISIS IN CERTAIN TRADES AND PROFESSIONS.—Among those persons engaged in the different professions at Geneva, 114 fell victims to consumption out of 1,000. The average varies; in some professions it is higher than others; in the varnish painters it is as high as 37 in the 100, in the gardeners as low as 4. Among polishers, plasterers, sculptors, stone-cutters, watch-hand-makers, it reaches to 116 in the 1,000; and among the tailors, engravers, printers, clerks, &c. even to 141 in the 1,000. The average falls in carpenters, blacksmiths, slaters, and agriculturists, to 89 in the 1,000; in butchers, tanners, and candle-makers, to 73 in the 1,000; in weavers, dyers, bleachers, and watermen, to 53 in the 1,000; and in persons of easy circumstances it falls as low as 50 in 1,000. M. Lombard found that the age of the stone-cutter averaged 34 years, the sculptor 36, the miller 42, the painter 44, the joiner 49, the butcher 53, the lawyer 51, the surgeon 54, the mason 55, the gardener 60, the merchant 62, the Protestant clergyman 63, the magistrate 60.—*Hastings on Consumption.*

PRINTERS' ALMSHOUSES.—A meeting was held last Monday evening, in the theatre of the Mechanics' Institution, of the friends and subscribers towards the building of almshouses for decayed printers. The chair was taken by Luke James Hansard, Esq., who not only ably advocated the cause of the association, but was announced as a subscriber of the liberal sum of 50*l.* The report, which was read by the secretary, proved in the most satisfactory manner that the object which the committee have so assiduously prosecuted for the last four years will ere long be fully realised, and another of those benevolent institutions be erected which reflect so much honor upon the working-men of the present day. The amount of subscriptions, &c., received since the last report was announced to be 355*l.* 2*s.* This added to the sum previously in hand makes a total of nearly 1,500*l.*

SINGULAR DISCOVERY OF LEAD ORE IN AMERICA.—As Mr. Booth, who is an experienced miner, was sinking a shaft near Dubuque, through successive layers of hard sandstone, when about 25 feet from the surface he suddenly found himself in an immense cavern, which has since been ascertained to be 1000 feet in length, from 15 to 40 feet wide, and the height varying from 12 to 40 feet. In one place the roof almost reaches the floor, and divides the whole into two immense gloomy chambers, where, probably, Nature has been at work for an unimaginable series of ages. The strata is formed of stratified silicious limestone, with crystalisations and stalagmite hanging from the roof and sides. The principal portion of the lead ore contained in this cavern is found beneath the floor; small shafts have been sunk at intervals along its whole length, and the ore is found in detached masses, some probably weighing 1000 lbs., embedded in red silica, the total value of the deposit is said to be incalculable.—*Mining Journal.*

NEW CHURCHES.—At a meeting held last week of the Society for promoting the enlargement, building, and repairing of Churches, it was determined to erect seven new churches, namely, in the districts of Portland town; in the district parish of Christ church, Marylebone; at Waterhead in the parish of Oldham, Lancashire; at Middleton, in the parish of Rothwell, near Leeds; at Clydach, in the parish of Llangyfiach, near Swansea; at Failsworth, in the parish of Manchester; at Wick, in the parish of Wick, and Abson, near Bristol, and in the district around Peter-street in the parish of St. John, Westminster. The churches which are to be rebuilt, enlarged, or otherwise altered, are the parish churches of East Ardsley, near Wakefield; Nettlebed, near Henley-on-Thames; Beeford, near Driffield; Sandford, near Woodstock; Stert, near Devizes; and the Chapel of North End, Fulham.

FLOORING FOR PIGSTIES.—At a late meeting of the Agricultural Association, in answer to an inquiry as to the best mode of laying down an asphaltic or bituminous flooring in pigsties, Mr. Parkins informed the Council that he had found the following composition very useful for that purpose, namely, lime or pounded chalk mixed with so much coal-tar from gas-works as will leave the mixture in a state not too soft for ramming, adding a sufficient quantity of sand or fine gravel to bind the whole. Mr. Parkins stated that these materials not only formed a hard basis for pigsties, farm-yards, &c., but made good walks, on which weeds would not grow, and answered the purposes generally for which asphalte was commonly employed.

GERMAN HOSPITAL IN LONDON. — An attempt is being made to establish a German hospital in London, and from the patronage and support it has already received there appears to be no doubt of its success. A public meeting has been held, at which the Duke of Cambridge presided, supported by several of the foreign ministers, &c. The sum of 5,000*l.* will be required for the establishment of the institution, and the needful annual expenditure will amount to 1,200*l.* or 1,500*l.* Already upwards of 3,000*l.* have been subscribed.

PINE LOGS.—Dr. Bowring last week moved in the House of Commons that the duty on pine logs not exceeding 10 feet long and 11 inches square be reduced to 12*s.* 6*d.* a load. Sir G. Clerk opposed the motion, and it was withdrawn.

A NEW GLASS.—Styrole is a volatile oil, obtained by distilling the balsam styrax or storax, although only in small quantity, and has a general analogy to benzoin. In one property styrole is, perhaps, the most extraordinary of substances; a limpid fluid at ordinary temperatures, it becomes a transparent colourless glass when heated up to a certain point, and remains so when it again becomes cool—a circumstance which will draw the attention of optical inquirers to styrole. In distilling storax to obtain this liquid, 20 parts of storax are mixed with 7 parts of carbonate of soda and water put into the retort. In one experiment, 41 pounds of balsam yielded 12 ounces of styrole; in another, 27 pounds yielded 3 ounces. The fresher and softer the storax, the more productive is it of styrole.—*Mechanics' Magazine.*

THE ARCH KNOWN TO THE GREEKS.—Mr. Page has lately presented to the Institution of Civil Engineers sketches made by himself of two arches at Cape Crio (Cnidus, Rhodes). These arches are semicircular, built of large stones, regularly radiating from a centre, without any mortar in the joints, and stand among Cyclopæan remains, of which they apparently form a part. He is of opinion that the Greeks were aware of the properties of the arch. They evidently appreciated its form, for it must have been noticed by all travellers how frequently the flat lintels are cut out on the under side; several specimens of this exist in the sepulchral remains now in the British Museum. At Athens he has noticed a very considerable excavation of a regular arched form through solid marble.

PLANK ROADS IN CANADA.—The experiment of planking public roads has been successful in an eminent degree in Canada. One between London and Port Stanley, 30 miles long, is already finished, and another now constructing between Port Dover and Hamilton, 50 miles long, and a third between London and Hamilton, 80 miles in extent, are now under contract. They are laid for double and single tracks, the expense of the former being 4,000 dollars, and the latter at 3,000 dollars per mile. The roads already constructed are expected to last ten years.

VENTILATION OF COMMONS' COMMITTEE ROOMS.—It is surprising that members can be found to subject themselves to the evils resulting from the want of ventilation in the present committee rooms. As one honourable member observed to us lately, if a workhouse could be found as ill ventilated as these rooms are, the journals would blazon it all over England, and force an improvement.

THE ROYAL RESIDENCE AT COWES.—The first stone of the new building about to be erected at Osborne House was laid on Monday last by her Majesty and the Prince of Wales.

WORKS OF FINE ART IN WESTMINSTER HALL.—This exhibition will be opened to the public on Monday next. There is a private view to-day, Saturday.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the execution of a New Harbour at Greenock.

For the construction of Two Divisions of the Chester and Holyhead Railway, being Nos. 8 and 12. No. 8 contains a length of 7 miles and 54 chains. No. 12 contains a length of 5 miles and 26 chains.

For excavating and levelling Land, building Sewers, making a new Road, &c., on the Wheatley Estate, Erith, Kent.

For lowering and making certain Improvements at the Yeuston Hill, Henstridge, Somerset.

For the Removal of several Wrecks in the Thames.

For the Erection of a New Church in the parish of Whitechapel.

For the Erection of Schools and a Teacher's Residence in connection with the new church of St. Jude, Whitechapel.

For the Repairs to the South Aisle, Roof, &c., of St. James's Church, Bury, St. Edmunds.

For the Erection of New Schools at Great Chesterford, Essex.

For the supply of 2,500 Yards run of flat Granite Curbing for the Parish of St. John, Hackney.

For some additions to the House of Industry at Norwood.

For the supply and erection of a Steam Cooking Apparatus at the New Workhouse at Cuckfield. To be capable of cooking food for 450 inmates, and providing Hot and Cold Water in the Scullery, Bath-rooms, and Wash-house, with a Closet for drying linen.

For furnishing and fixing an Engine Pump at the Sevenoaks Union.

For Paving certain of the Foot-paths of the Parish of St. John, Hackney.

For Building the intended Somerset Lunatic Asylum. (Time extended).

For taking down and removing the House, Outbuilding, and Offices, erected by the Rev. W. H. Gorton, in a field at Portisham, Dorchester, and rebuilding the same on the glebe land adjoining the Church-yard there.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

In the parishes of Terling and Fairsted, Essex: 215 Capital Oak, and 11 Ash Timber Treses, many of them of large dimensions.

At Norton Hall, and Purleigh Round Bush Farms, Essex: an assortment of Oak, Ash, and Elm Timbers and Whips.

At the Crown and Anchor Inn, Ipswich: the Martello Tower, situated on the point of Bawdsey, Suffolk. The materials arising therefrom could at a trifling expense be conveyed to any part of the kingdom.

At Dinton Park, and Lutton Mandeville, Wilts: 93 capital Oak Trees, some of large dimensions, 250 Oak Flitterns, 200 Ash and other Poles, &c.

In Shirley Park, near Croydon: 2,000 straight Poles, and 8,000 Bavins, Fir, Oak, Elm, Chesnut, and Alder, but principally Larch of 35 years' growth.

At Sibley's Farm, Chinckney, Essex: 40 fine Oak, 47 large Elm, and 50 Ash Timber Trees. Most of the trees are of large dimensions and good quality.

At Blois Farm, Sible Hedingham: about 800 Oak Trees.

At Fyfield Farm, near Pewsey, Wilts: 60 Oaks, 111 Elms, and 103 Ash and Abeles. They are of extraordinary dimensions and fine quality.

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Volume I., containing upwards of THREE HUNDRED ILLUSTRATIONS, elegantly bound in cloth, price 15s., and Volume II. containing upwards of FOUR HUNDRED ILLUSTRATIONS, price 17s. 6d. can still be had of all booksellers.

TO CORRESPONDENTS.

"B. A."—*Mr. Eastlake's letter to Sir R. Peel, on National Gallery, may be obtained at Mr. Murray's, Albemarle-street.*

"A Constant Reader."—*As to river wall, we should use Roman cement.*

"B. Green."—*We have received the communication, but have not had time to examine it. We will give it most kindly consideration.*

"Bedroom Ventilation."—*In answer to our correspondent last week, "A Mason," we beg to direct his attention to an advertisement of "Baillie's Patent Slide Ventilator;" recommended by Mr. Reid, brother to Dr. Reid, as the one for which probably he was making inquiry.*

"W. J. S."—*We are not disposed to publish the sketches sent. They are left at the office, with our thanks.*

"A. B."—*Bernan's History and Art of Ventilating gives much valuable information.*

"Mon. F."—*We are fully disposed to entertain the proposition, and will write shortly.*

"Philo-Alpha."—*Received.*

"F. T."—*Received, but not yet read. Our correspondent shall hear from us.*

"Inexperience."—*Renew the weather-boarding a piece at a time. An external enclosure may be at all times* repaired *with materials of the same sort as those of which the enclosure has been built—schedule D, part II.*

Received: "B. B." "H. T." "*Humanitas,*" "*A Constant Reader,*" "*W. G. Pinkey,*" "*Bunnett and Corpe.*"

ADVERTISEMENTS.

Just published, price 5s., neatly bound in roan, with tuck, gilt edges, and lettered, a Pocket Edition of

A CYCLOPÆDIA of the NEW METROPOLITAN BUILDINGS ACT, together with the Act itself, a Folio Table of the Metropolitan Districts (old and new), a List of the Surveyors, with their Residences and Offices, and a Table of Fees to be paid to the Registrar for services performed.

In the Cyclopædia all the details of the Statute are arranged Alphabetically, so as to be instantly found, and accompanied by extensive references and counter-references to the sections of the Act itself and its minute provisions. By the late A. BARTHOLOMEW, Esq., F.S.A., Architect, Surveyor of the Hornsey District.

Published at the Office of "The Builder," 2, York-street, Covent-garden; and to be had of all Booksellers.

ROYAL POLYTECHNIC INSTITUTION.—A WORKING MODEL of the ATMOSPHERIC RAILWAY, capable of carrying visitors, is lectured on and exhibited daily, and also in the evenings. During the week Dr. Ryan will lecture daily at a quarter past Three, and on the Evenings of Monday, Wednesday, and Friday at Nine, on the causes of STEAM-BOILER EXPLOSIONS; and especially those arising from incrustation, with the means of prevention. Among the Novelties recently introduced is a full-sized Cast from the CENOTAPH of GALEN, in which the PORTLAND VASE was found; a curious MECHANICAL HAND; new and beautiful Objects in the Chromatrope, Phisioscope, Proteoscope, &c. New Dissolving Views; Submarine Experiments by the Diver and Diving-Bell; Working Models described daily. Admission, One Shilling; Schools, half-price. A Class for instruction in Mathematics is about to be formed under the direction of Mr. A. W. Hobson, B.A., of St. John's College, Cambridge.

NOTICE TO INVENTORS.

OFFICE FOR PATENTS OF INVENTIONS and REGISTRATIONS of DESIGNS, 14, Lincoln's-inn-fields.—The printed INSTRUCTIONS gratis, and every information upon the subject of PROTECTION for INVENTIONS, either by Letters Patent or the Design Acts, may be had by applying personally, or by letter, prepaid, to Mr. ALEXANDER PRINCE, at the office, 14, Lincoln's-inn-fields.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

VARNISH.—It has long been a desideratum amongst the consumers of Varnish to obtain a good and genuine article; brilliancy, facility of drying, hardness, and durability are the qualifications necessary, but these are seldom if ever found united. The experience of a life-time devoted exclusively to the manufacture of this article, the great and important discoveries of modern chemistry, and the daily improvements in machinery, have enabled Messrs. George and Thomas Wallis to produce Varnishes (both oil and spirit) unrivalled in every respect, and they confidently recommend them to the trade, as deserving of notice both in price and quality.

Builders, Coachmakers, Painters, and others may depend on being supplied with a genuine and unadulterated article. Fine Oil Varnish, from 10*s.* per gallon; best White Spirit Varnish, 21*s.* ditto; Best Spirit French Polish, 20*s.* ditto; White Lead, Oil, Turps, and Colours of every description at the very lowest prices.—WALLIS'S Varnish, Japan, and Colour Manufactory, 64, Long-acre, one door from Bow-street. Established 1750.

WALLIS'S PATENT LIQUID WOOD KNOTTING.—This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; a boy can use it as well and effectually as the best workmen; it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20*s.* per gallon.

STUCCO FRONTED HOUSES THAT WANT PAINTING.—The only Paint expressly invented and adapted for this purpose is—JOHNS and Co.'s PATENT STONE COLOUR STUCCO PAINT: it is far better for Stucco Work than White Lead—is much more durable and less costly—its colour is that of pure Bath Stone. MANN and Co., Agents for the Patentees, 5, Maiden-lane, Queen-street, Cheapside.

THE PROJECTED RAILWAYS.

ANALYSIS of the PATENT METALLIC SAND, or English Pozzolano, used in the foundations of the New Houses of Parliament, the great Tunnels on the Birmingham Railway, Sea-wall on the Great Western Railway in Devonshire, and other important works referred to more particularly in the prospectus.

Silica	49	Lime	6
Oxide of Iron	32	Magnesia	2
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Price in Swansea, free on board, 6*d* per bushel, or supplied in London at 1*s.* per bushel.

Used as an external Stucco the Metallic Sand Cement is unaffected by frost or wet; in appearance it resembles the best Portland Stone, requires neither colour nor paint, and is entirely free from vegetative cracks and blisters.—Further Particulars on application to Mr. C. K. DYER, 4, New Broad-street, London; and at the Metallic Sand Wharf, King's-road (opposite Pratt-street), Camden Town.

The Builder.

No. CXXVI.

SATURDAY, JULY 5, 1845.

E stated in the middle of last April, when speaking of the necessity which existed for a museum illustrative of our national architecture, that Mr. Wyse was about to ng the subject before Parliament, and we ed all those who felt how valuable such a lection would be, to petition the legislature l otherwise assist the endeavour as far as y might be able.*

The attempt has since been made, and we sorry to say has failed. Following these narks, our readers will find a report of the ceedings in the House of Commons on the asion, and will see that a proposal of an ad- ss to her Majesty, that she would be ased to establish a museum of national an- ities, and appoint a commission for the servation of national monuments, was NE- TIVED WITHOUT A DIVISION.

Mr. Wyse introduced the motion eloquently, he always does, but we think the honour- e gentleman did not display his usual tact electing the mode and moment in which it brought forward. It came upon the ar- ical public unexpectedly; no evidence was ght, no opportunity was given for the ex- ssion of opinion upon it. Mr. Wyse feel- , and justly, that his case was a strong one, ed solely upon it, and asked no aid. He ms even to have neglected recognized dence that was before him, and to have en up a foundation already prepared on ich the new structure might have been ed. We refer to the report from Mr. me's Committee on National Monuments Works of Art, appointed in 1841, which tains important evidence on the value of ient monuments, the injuries to which they exposed, and the necessity that exists for tection.

The Chancellor of the Exchequer's ob- tion to the general question was singularly k. He said it should be remembered that oad matters of this sort were the object of care of the government, but that in gland custom left them to the tender rcies of private individuals: in other words, ause the English Government never had en any sort of attention to our national ictures or to works of art, they never re to do so, although the result of this non- erference was seen to be most disastrous unwise.

n France, ten years ago, M. Guizot urged his sovereign that the history of the arts ht to occupy a place in the minds of those o regulated the social and political state of ation,—and why is it less true here than re? "Perhaps," continued he, "no study eals to us more clearly the social state and e spirit of past centuries than that of ir monuments, religious, civil, public, and nestic:—than that of the varied ideas and s which presided at their construction; the ly, in short, of all the works, and all the ieties, of architecture, which is at once the mmencement and the *resumé* of all the arts." We hope that Mr. Wyse will renew his tion next session, and that in the meantime the architectural and artistical public will express their views on the subject. Before leaving the House of Commons, we are led to mention briefly a conversation which took place there a few nights since, on the grant for repairs and other expenses connected with public buildings being proposed. Dr. Bowring wished to know if there were any hope of improving the external appearance of the National Gallery. If any proposition were made for that purpose, he was sure that all parties would cordially concur in supporting it. (Cheers.) Mr. Warburton trusted that the right hon. baronet would be prepared in the course of next year, as the cheapest mode of obtaining a good collection of pictures, to recommend the erection of a suitable building to contain the great national collection. (Hear.)

Sir R. Peel was quite willing to admit that we had thrown away the most magnificent site in Europe. No one could tell until he stood on the steps of the National Gallery what a magnificent site it possessed. He thought they would do little good, however, in now laying out money in ornamenting the exterior of that building. They might, it was true, make some improvement in the cupola, and they might make the little turrets somewhat more beautiful than at present; but still, that would not contribute to what was, after all, the main point in the construction of a gallery,—the mode of lighting the pictures. It was, no doubt, a matter of great consideration. (Hear, hear.)

Mr. Hawes wished to put in one word for the modern school of painting by our own countrymen. Their works, he believed, if wisely selected, might form a collection which would compare with any gallery that had ever existed. Lord Mahon suggested the propriety of procuring a collection of portraits of eminent men distinguished in the history of this country. Such a collection might exercise a most beneficial influence upon the rising generation, whilst it could be procured probably at little expense.

It is so seldom that our legislators talk about art, as legislators, that we must not omit reference to it when they do.

* See page 181, *ante*.

MUSEUM OF NATIONAL ANTIQUITIES.

On Friday, the 27th ult., Mr. Wyse, pursuant to notice, rose to "move an address to her Majesty, that she will be graciously pleased to give directions for the establishment and maintenance of a Museum of National Antiquities, in conjunction with a commission for the conservation of national monuments." He did not complain either of the application or results of the expenditure dedicated to the purchase of Grecian or Roman works of art; what he wanted was, the foundation and maintenance of a gallery for the preservation of those monuments and specimens, either of skill or feeling, which characterized the arts and history of this country. It was only by a juxtaposition of the monuments of art connected with the different epochs, from the earliest to the latest, that they could either duly estimate the past or produce for the future. It was a cardinal mistake to call on artists to produce historical works, without the means of cultivating their powers, and ascertaining the spirit of the age they had to represent. These means ought to be afforded in a liberal and ample manner, worthy of so great a nation. Hitherto our artists had but small means; although their enthusiasm had been great, their education had been limited. Much labour had therefore been misapplied, and a large expenditure of time and money forced upon them; and thus not only individuals but the nation had been deprived of opportunities of excellence which a little previous arrangement might have secured. There was no place provided for the reception of British antiquities. Throughout the country a gradual dilapidation of public monuments was going on. In their architecture alone many of the finest old buildings were injured by neglect or injudicious repairs; many specimens of their best artists no longer existed; and, where they had been repaired, they had too often witnessed the destructive results of the "beautifying" of churchwardens and others who had no knowledge or feeling of art, and whose labours exhibited a spirit of Vandalism existing in the midst of a Christian and civilized community. He mentioned the neglect with which many specimens of old church architecture had been treated, among them St. Saviour's Southwark, and the Cathedral of Durham; and in Ireland, Glendalough and Cashel. He quoted an extract from the essay of Mr. Petrie, on the Round Towers of Ireland, in which that gentleman states, that he was induced to undertake his researches solely from an ardent desire to rescue the antiquities of his native country from unmerited oblivion, and from a hope that, by making them generally known, some stop might be put to the wanton destruction of those remains, which threatened to lead to their total annihilation. The same efforts should be made to preserve the ecclesiastical and historical monuments of the kingdom, and he was sure there was no one who would not co-operate with the government for the purpose, if the government was disposed to assist them. He adverted to the destruction that fell on the monuments and antiquities of France during the tempest of the revolution; but the nation had at last become conscious of the misfortune. Like ourselves, the people could complain of seeing their old buildings dilapidated, or injudiciously repaired. Many of the monuments of the country were disappearing from the soil, and remains of great value, in the precious metals, or in painted glass, were being transferred to the stranger. In a memoir of the Committee of arts and mouuments it was stated that the Cathedral of Nôtre Dame, at Paris, was sadly shattered, that in very recent times some of its beautiful imagery and carvings had been broken or taken away, even the ancient inscription which recorded the date of its erection was almost effaced; and that it was made the place where the children of the neighbourhood assembled to amuse themselves, to the great injury of the fabric. To remedy these evils a provisionary school was instituted for the purpose of awakening attention to the subject of ancient art; the plan became more developed, and, to the honour of France, it was not long before the Government exerted themselves in the matter. The present minister of that country took up the question zealously, and the committee of historical monuments and arts was appointed. The church of St. Martin des Champs, one of the oldest in Paris, was selected as a repository for monuments and specimens of ancient art. In consequence of the exertions of this committee a new spirit had been aroused in France for the illustration of every period of the progress of Christianity both in that country and throughout Europe; and there was a general desire among the people to give the fullest effect to the intentions of the Government. He hoped that not only would the historical remains of France be preserved from further injury by this committee, but that all Europe would be benefited by the liberality with which their museum was thrown open to every class of strangers. These exertions were not confined to France alone; similar efforts were making in Belgium and Germany. He reminded the House that for the decoration of the new Houses of Parliament they were going to resort to Christian art, dealing with the poetry and history, not of the pagans, but of a Christian people. Was he not justified, then, in calling on them to imitate the example of France, and to found a museum of national art, combined with a commission for preventing the further decay and destruction of national monuments? He was confident the public would assist them, nay, that public liberality would outstrip their own. He knew more than one gentleman who would willingly present their collections to the public if the Government would make them accessible, by providing a place in which they might be deposited. These collections were of great value, as they were not acquired at auctions, but by a long life of research and

labour. Such were the collections of Mr. Britton, and those in the studios of many other artists and antiquaries. He believed that in founding such a museum they would be supported by a general feeling out of doors that it would not be a lavish expenditure of public money, but one in harmony with their past and present efforts, one they were called on to make by the present position of the arts in this country, one to which they were invited by the general voice of Europe. The hon. gentleman concluded by moving an address to her Majesty to appoint a commission to inquire into the best means of preserving the national monuments and antiquities.

Mr. Hawes seconded the motion. Mr. Bernal said the inquiry called for by the hon. member was absolutely necessary. There was, unfortunately, too great an apathy in this country with regard to such subjects as these, because they had not the interest of personality and strong political feeling. If the state of the Treasury did not allow the right hon. baronet to give the public money for the promotion of these objects, a public subscription ought to be opened for the purpose. We were the only country in the world which left these matters to private enterprise and taste. At the Louvre there was a large collection of middle-age relics, but we had no such public collection. He thought that the motion of his hon. friend was somewhat too confined—that it ought to extend to antiquities generally, which were analogous to and coeval with the antiquities of this country,—for instance, those which were to be found in Brittany. There ought to be an institution where the student could see the dresses, weapons, costumes, and antiquities of past ages. It was true that there was the Geological Museum, but it was confined in its objects. And at the British Museum there were vast collections of most interesting objects, which, however, either from want of room, or want of good will on the part of the conductors of the institution, were not properly accessible. He was satisfied that if a national museum were once established, private individuals would immediately contribute to it. Such an institution would have the best effect on the manners and morals of the people.

The Chancellor of the Exchequer said, of course it was out of the question to expect any co-operation from the Government in the course of the present session, after the supplies had been voted. With regard to the general question, it should be remembered that abroad these public institutions were the object of the care of the Government, while in England custom left the advancement of such objects to private individuals. He believed that a greater number of works of art and of antiquity could be found in this country than were to be seen in foreign countries, and he doubted very much whether the collection of all these into one institution would be so advantageous as to leave them as they were. With reference to the appointment of a commission, he thought that for such a purpose it was open to considerable objection; at all events until after very great consideration.—Mr. Borthwick thought it extremely desirable that increased care should be bestowed upon the preservation of the religious and ecclesiastical monuments of this country, even to the comparative neglect of those of pagan and profane antiquity. The state of our ecclesiastical architecture was such as to call for much greater attention, though greater expense should thus be incurred than had hitherto been devoted to it. The hon. gentleman adverted at some length to the exaction of fees from persons visiting cathedral structures, and strongly expressed his disapproval of the practice.

Mr. Ewart said it was a mistake to suppose that the right hon. gentleman (Mr. Wyse) wished to have existing monuments despoiled; he only desired to have them concentrated in one establishment, instead of mouldering in various public edifices. He entirely concurred in the view which had just been taken in reference to cathedrals. Forming, as cathedrals did, part of the history and religion of the country, it was the duty of the Government to do all in its power to secure their being open to the public without any charge whatever.

Mr. Wyse having replied, the motion was put and negatived without a division.

THE FUTURE DEVELOPMENT OF STYLE IN ECCLESIASTICAL ARCHITECTURE.

As the history of former nations is being illumined by the labours of their successors, much that we were priding ourselves upon as new, is proved to have originated in time, more or less gone by. The wisdom of the Egyptians is placed on evidence, more convincing than assertions of the classics, and the learning which did exist in Europe during the middle ages is made manifest, shewing that that period was not entirely one of darkness and ignorance. Indeed, we are gradually discovering, how unsafe it is to form general opinions supported on the evidence of only isolated facts; and may shortly be compelled to allow, that the standard of knowledge has been placed, in this century, at too great an elevation. But it is not the less obvious, that the discoveries at this epoch are of such a nature, as would at one time have seemed too wonderful for mortal agency, and subjected their authors to terrors of the dungeon and the inquisition. Still, the age is essentially a matter of fact age, one more inclined to forget that "the race is not always to the swift," than to pursue the path, which is laborious but certain. It is an age of anomalies, feverishly excitable as to the future, and probing into the records of the past; an age in which advancing science, and the study of its former state find equal votaries. The Anglo-Saxon scholar, and the learned in modern languages, the archæologist, and the professor of science, meet in every circle, and excite a like interest in their labours. But the future object is pursued with too slight knowledge of previous attempts, and too little consideration as to the best course; whilst the antiquarian pursuit is still one of mere observation and curiosity, less than reasoning and deduction from examples, towards their bearing upon present time. To such or other singularities, we must attribute the peculiar state, in which the art of architecture finds itself, for perhaps the first time in the history of the world, a state alike irreconcilable with the desire for progressive improvement, and with any useful application of previous discovery, a state often commented upon, but yet unaltered. It is still held to be an axiom, that architecture is the only art, which has reached its perfection, and is now no longer progressive. The works of the ancients we must admire and study, but not deviate from. Our Gothic architecture must be the architecture of former centuries, when the style is said to have been in unceasing search of novelty, yet never attaining the desired excellence, and to have expired from mere inanition.

It is assumed, that our churches should be, if not copies, at least such as might have been erected at a particular period, and might be mistaken for works of that date. But why should we say that the intellectual vigour in architecture is dead? Did Shakspeare and Milton exhaust all the fountains of a sister art, and are not the stars of heaven, and the flowers of earth as pregnant with associations which conduce to poetry, as before Dryden, Pope, or Byron wrote? And though art has known, in many countries, its bright and glorious days,—can this century, before all others, deem that architecture has no future being, a century, in which the whole range of architectural history is beheld, and understood with a clearness before unknown, which possesses all the powers of investigation, yet deems a good result beyond attainment, and in which the resources of science are not wanting to produce, as the works of architecture were never executed before. And in gothic architure, which had the power to conceive, and the principles, but sometimes lacked the means to carry out, we have, in the study of ancient models, and in inherent resources, the latent skill to produce works, in design more wonderful than the cathedrals of Cologne or Beauvais, and in stability far surpassing those structures. The means for studying the principles of the mediæval architects are around us, the knowledge of the chemist, and the geologist, with that in every other department of science and art is, for almost the first time, open to us, and shall architecture remain insensible to these advantages? With so many inventions, available for the construction and decoration of buildings, it would appear that the art is rather about to commence, than to have reached the height, from which there no advancement.

But there are some who, without broachi an opinion as to the future progress of oth styles, feel certain that gothic architecture least is not to be improved upon, yet prescri that style for imitation. The writer in a l number of this journal, who has done us t honour to notice some of our previous marks, seems inclined to such opinions, a we can only wish that his pen could be enlist in what we deem a sounder line of argume Doubtless, existing examples convey more struction, and excite a larger amount of pleas in the beholder, when constructed in a m ture of styles, harmoniously blended, th when they are in the style of one particul date; but we cannot consider, that a mode work should shew any such discrepancy, a more than we advocate the present system exclusive imitation. It seems to us, that t value of an example is to be estimated, first in reference to its utility as a model, whil along with other examples may suggest entirely new combination, and secondly, to interest as an object of antiquarian analysis, illu trative of the time in which it was erected, a the people from whom it originated. T first object is the pursuit of the artist, t second that of the antiquary. The antiquari object is not to be neglected by the archite but in estimating the value of a model, it necessary to guard against an assumption, th because the rust of ages has invested the fab with an interest, which we do not take trouble to examine to its source, it is possib by an imitation to create a like interest. omit the consideration, that the modern p will no longer be an exponent of its age, a will therefore be deficient in precisely th value, which the original possessed, whilst, general rank as a work of art, the original m be inferior. The universal principles of hold the highest place, to which the investig tions of antiquity are but the stepping-stone and in aiming at the wrong goal we miss bot The heads of Edward III. and Queen Philip when used in a modern church (vide *an* p. 183) serve to mark the imitation of a pa ticular period, but seem to us illustrations the improper application of mediæval art. the fleur-de-lis of the Tudor period, no long a national badge, and the letters, which even Gothic architect cannot always read, may equally reprehensible.

With all the interest, which we feel in t antiquarian and historical part of architectu and all our admiration of Gothic architecture its former state, our desire is not lessened f a style of art, which we can truly call "o own." If modern be as fertile in invention ancient days, the barrier, which excludes th invention from our art, should be insurmoun able. That excellence is not to be attained a neglect of existing examples, as some wou argue, but is to be gained by careful examin tion of those remains, and from full concepti of the principles which guided their erectio An opposite opinion would be founded on illogical basis, assuming that all execut works, whether good or bad, could give no struction, and that the art must recommen a long and experimental course. The ma reason of the present imitative state of ta is, that the purely antiquarian possesses an und influence over the art, to which in the purs of architecture, it should be entirely s servient.

The infusion of new and beautiful featu into Italian architecture, which, consiste with the *animus* of the art, should yet give entirely new character to that style, wo give the name of the architect a place, amon the greatest in its days of splendour. W should invention in modern Gothic archit ture not be deemed an equal merit? must guard against the possible mistake, t the study of ancient models is unnecessa Whether it be, that the principles of art difficult of discovery, or that we acquire a l of certain forms, and desire their reproducti or that, without the chain of rules, our fan would be apt to draw us in search of nove into the singular and ridiculous, it is true t rules, deduced from the examination of amples, are never so necessary as in infancy of the art, or the pupilage of its p fessors. We deem this the infancy of a n style of art; and that Gothic architecture not exhausted in the sixteenth century; th

rough the combined exertions of individuals the systematic examination of ancient models, new style of Gothic architecture may arise, aracteristic of this age, and not inferior to y preceding. As the Gothic architecture of ngland at the Reformation, so the architec- re of Italy declined at the establishment of the ristian religion, and at last appeared to be tinct. (Vide Review of d'Agincourt's His- ire de l'Art, &c. p. 290 *ante*). With the Lom- rd style prevailing in the north, Byzantine the east, a distinct style at Pisa, and the in- sion of Arabian, and of pointed architecture m Germany, there would be many to ubt the re-birth of a national style, and to irm, that the Grecian stock had been ex- usted in "the eternal city." But, from that generate taste in the decline of the empire, rang the marvels of the thirteenth and rteenth centuries in the north of Europe, ilst the architects of Italy, applying principles of the recently discovered rks of Vitruvius, exhibited in the models of cient art in Rome, to the wants of their own y, succeeded in producing an original style, which the remaining examples appear to er very slight suggestion. If the Italian chitects could succeed in producing a style dissimilar, but still of great beauty, con- cive to their wants, and yet susceptible of provement, is it not reasonable to sup- se, that with such abundant materials, and h resources of science as we possess, we re the power, from a style like the Roman parently exhausted, to produce another con- cive to the wants of this age. The ours of individuals can do little to alter the sent condition, very little, whilst they are cited in all directions, and in none con- uously. It is by combined exertions, by systematic examination and classification details, that we may hope to perfect our owledge of Gothic Architecture, to gain an ight into the principles of our ancestors, and applying them, or varying them according modern wants, produce a style, which, like architecture of Italy, shall be national, tinct, and characteristic of the times.

The means of escaping from present errors difficult to suggest, but as a conviction of evil is one step towards the remedy, we uld esteem ourselves fortunate in reaching t much of the progress. E. H.

REVOLVING IRON SHUTTERS.

BUNNETT AND CORPE *v.* SMITH.

AN action brought by the plaintiffs Messrs. nnett and Corpe, manufacturers of the ent revolving iron safety shutters, against defendant, Andrew Smith, of Princes-street, cester-square, for an infringement of the ent granted to the plaintiff Bunnett in 1836, tried on the 23rd and 24th ult., in the Court Exchequer, before the Lord Chief Baron, F. Pollock, Knt., and a special jury.

From the evidence, it appeared that the ption of iron blinds or curtains to the dows of Apsley House, by his Grace the ke of Wellington, in the troubled times of 1-2, directed the attention of several inge- us men to the fitness of shutters of a similar erial to the purposes of general security. the year 1833, Messrs. Turner and Barron up several revolving iron shutters at the se of Lord Brownlow, in Belgrave-square; e shutters were composed of narrow strips laths of iron, connected by hinges of copper uch a way that a series of interstices were arent between the laths, while the hinges e both visible and easily accessible on the ide of the building. The raising of these tters was effected by a catgut band which nd off from a roller at the top of the win- on to a small windlass placed below. tters of a similar description were also put by the same parties at the banking house of ssrs. Glynn and Co., and of Esdaile and , in Lombard-street; at the Conservative b-house, Pall Mall; the Turk's Head rn, in the Strand; and some other places. June, 1836, Mr. Bunnett obtained letters nt for his improvements in revolving iron tters, which consisted in the adoption of s of iron connected together by hinges of in such a manner as to avoid the necessity cutting away the edges of the strips to ive the knuckles of the hinges. Mr. Bun- likewise adopted the endless screw and worm-wheel, as peculiarly adapted for raising or lowering all such shutters. In Mr. Bunnett's improved shutter each lath or strip of iron overlaps and lies in close contact with the one below it, so as to form a firm sheet of iron, which not only concealed the joints or hinges, but also effectually secured them from external violence.

The utility of Mr. Bunnett's invention was duly appreciated by the public, and his revolving shutters came at once into most extensive use, being adopted by nearly all the bankers and insurance companies, as well as by numerous tradesmen and others in the metropolis, and in the principal towns throughout the kingdom. The demand had gone on progressively increasing, and for a period of eight years the patentees were allowed the undisputed monopoly of their patent right. In 1844, however, the defendant Smith made and put up eight shutters in a building in George-street, Mansion-house, belonging to Messrs. Smith, Payne, and Co., which were considered to be a direct infringement of the plaintiff's patent; and an application was made for an injunction to restrain the defendant from proceeding with his infringement. The Vice-Chancellor, Sir L. Shadwell, deferred granting the injunction, making the usual order, and directing the plaintiff to establish the validity of his patent in an action at law.

The evidence of Mr. Carpmael, Mr. Farey, Mr. Laxton, Mr. Cottam, and Mr. Baddeley went to shew the novelty and usefulness of the plaintiffs' invention as well as the sufficiency of the specification.

The defendant's record contained the usual pleas of want of novelty, utility, &c. An attempt was made to prove the former by reference to two patents granted to Mr. Michel and Mr. Whiting in the years 1818 and 1819 (both for wood shutters); and that the defendant's shutter was an improvement upon, and not an infringement of, the plaintiffs' patent. The trial lasted nearly two whole days, and after a deliberation of upwards of two hours, the jury returned a verdict for the plaintiffs upon all the issues, with damages, and his lordship certified that the right to a patent came in question, and that it was a proper cause for a special jury.

THE LATE CONFLAGRATIONS IN EUROPE AND AMERICA.*

BY J. L——Y.

"Prevention is the *best* remedy."

ALTHOUGH every thing gets now-a-days drowned and engulphed by the overflooding of an exuberant (and in many cases useless and unmeaning) public press—yet, the late awful calamities have been *able* making *some* impression on the public mind; a reason why we resume this subject, to bring it to a final close. Having in our preceding paper urged "the *regeneration* of architecture," as the surest and soundest remedy for the preventing of calamitous fires—a *moral* agency withal, at least in its leading principle; we have to state now, that notwithstanding the fragile and futile (main) buildings, in which people condescend, or are compelled to live—we are most anxious to fill such frail receptacles with every sort of equally futile and combustible tawdriness; such as huge bed and window curtains, table covers, carpets and rugs, and drapery and trappery of every kind. But *we* do not wage war against comfort and ornament, but against its abuse and illegitimacy. In this respect also our forefathers were the *better men*—their furniture was made for centuries, like their buildings for ages. But as such most futile lumber is *often* acquired by very heavy sacrifice (aye, *even* of principle), we say, let us not go too far that way; let us somewhat retrograde to the noble and stern and pure simplicity of our forefathers; and, we are sure every loving parent will approve of our suggestion, "let your children sleep in a *safe* house, even if their bed be without curtains."

Another *cause* of fires (it comes always to *principle*) is the careless—atheistic—way, in which fire is handled and managed by, not alone servants, but even by masters, who *ought* to know better. The criterion of atheistic belief is to consider *ourselves* as the centre and sole aim of every thing around us. "We have heard of Hamburg and Pittsburg and this street and the other in our neighbourhood—but such accidents happen only to insignificant vermin around us—they never will or can reach *me*." If other means have been found unavailing to check such belief and acting upon it, the legislature ought to step in; as it is really too *naïve*, gentleman or lady going to a hotel in which their bill may amount to 5*l.* or 10*l.*; while they will set the bed-curtains on fire, and cause the loss of property hundredfold that amount, with a few human lives into the bargain. As there ought not to be even an accidental homicide without a judicial procedure, no more ought there to be an accidental arson (!) without it—and if persons were to know, that they will be subjected to, at least, annoying proceedings by setting the bed-curtains or any part of a hotel or other place on fire, they will be more careful than hitherto. Moreover, we think, where the least negligence or carelessness can be proved, such party ought to be subjected to either heavy fine or other punishment—and if malice (on the part of servants or others) can be traced, then, certainly the party should be indicted for either misdemeanour or even felony. The too far extension, and lax organization of fire insurances has had that disadvantage, that fires are only considered as *material* accidents; but the moment that the public would be made aware that they (in most cases) entail *moral* evils, the thing would be different.—It is, after all, again our favourite *seven and a half per cent.* Capitalists *get* their dividend, and the uninsured poor is assigned over to the poorhouse or other "*public*" charity, which, to say it *again*, has to pay (in all cases) part of any excessive dividends.

An unpleasant (!) secret has lately come out at Hamburg, which will lead us to another phase of our subject. It has been observed, that a certain merchant had burnt down his premises *twice* even since the great fire, for which he obtained his *premium*—and it was first considered a strange coincidence (!) that it was the same *gentleman*, on whose premises the great fire originated. Similar hints have been thrown out in this country in one or two instances. What punishment ought to be awarded to a *brute, which*, for the sake of a mean and pitiful lucre of a few thousand pounds—will distress a whole city—human imagination (or human philanthropy) can scarcely desire. Still, such awful cases exist—Hamburg and Pittsburg *have* followed each other, at any rate, *too close*, and we say boldly and unreservedly: "let us be prepared for, or rather guarded against, similar occurrences—at London, at Birmingham, &c." But this is neither the time nor place to write (a book) on "public establishments for preventing conflagrations." We *may* throw out some broad hints, and must leave it to the "discretion and conscience of the people" to carry them out if they are found deserving. London, certainly (and other cities) have a *fire brigade*, but it lacks proper organization. Any body of men, who are called upon to act promptly, energetically, *concentratedly*, cannot do so without military organization; amongst which the hierarchy of privates, corporals, sergeants—up to the commander (in chief), for every city or district is included. The man who was drunk when he had to use the fire-escape in Dover-street, has been dismissed, and very properly—nay, we say, he ought to have been *tried* for homicide. But do our respected readers know how these fire-escape men are now situated? They have to attend, night after night, to their engine—*alone*, with the only resort of a little hut left to them. Is it to be wondered that they are seized with *ennui*—tired out in fact? and then the resorting to a near public-house, and all the other *et ceteras* are the consequence. The first, therefore, would be to place the fire-escapes *at*, or very near, the stations of the fire brigade, where the men attending them would have not only company, but be under the eyes of the corporal, sergeant, and the inspecting officers. This leads us to another important item without which no body of men will ever be efficient. This is "the *surprising system*," as we boldly call it. This system has been resorted to by men like Sultan, Omar, Joseph II., Frederic the Great—albeit in greater concerns than that of fire-escapes. It, however, holds good everywhere. Let the

* See pp. 266 and 280.

(fire) commander-in-chief, or any fire-major or captain get up occasionally and unpreparedly, and surprise and visit some or other posts of the fire-brigade or the escapes, and he'll see (I'm sure of it) strange things going forward — but this only for a very short time. Because these gentry would soon find out, that the eyes of their superiors are ubiquitous, and that they cannot *gammon* them. The public may have forgotten it—but *history* has not, that when the large conflagration of the Tower took place, there was *no* water, for which, certainly, something might have been said to the constable....on duty. If such destruction of (public—national) property ought to have had any result, it ought to have, at least, that of teaching mankind a lesson. But it seems, it does not. Even since *the fire*, other property has been consumed on account of the deficiency of water—and none seems to think, that a stop *ought* or *could* be put to such scandal. Our suggestion on this score—the *practicale* of the surprising system is, that the fire-commander-in-chief or other superior should appear *ex tempore* one fine night in a certain locality, and give an *artificial* alarum to the fire and water men. If, then, any defect should be discovered, say in the most *essential* —the supply of water, the company, or whosesoever fault it is, should be made to *smart* for it. Oh! but where *is the seven and a half* per cent. then—may some of our readers exclaim. To which we merely reply, "Beware of a *repetition* of Pittsburg or Hamburg!" The complaints, in fine, on our present social condition from *the throne* (here and elsewhere), the constant talk—large and *small*—in the legislatures, the thousand philanthropic and charitable societies, the tons and shiploads of *paper* stained therewith, are becoming nigh disgusting, if not acted upon by *every one* in *his* sphere. Otherwise, it would be preferable, to at once and openly declare ourselves Atheists—consider human (aye and cosmic) affairs as something adventitious and futile; continue barefacedly the hitherto *gambling* of life, where every sort of *craft* has a good chance of success, and leave the large mass of fools (*the people*) to shift as they best may, and to have no more *fuss* about it.

EXHIBITION AT WESTMINSTER HALL.

In addition to six artists who were deputed to execute a cartoon, coloured sketch, and a specimen of fresco-painting, for subjects which were given, her Majesty's commissioners on the fine arts threw open the same subjects for general competition, and offered three premiums of 200*l.* each for the most worthy specimens. The commissioned pictures, as well as those specimens sent in competition, are now open to the public. Some of the newspapers have fallen into the error of expressing their surprise that none of the six artists selected last year have obtained prizes on this occasion, overlooking the circumstance that they are each to receive definitely the sum of 400*l.* for their work. As regards the assignment of the fresh prizes, we do not hesitate to say the judges have performed their duty fairly and ably. It must be gratifying, in a high degree, to the committee of the Art-Union of London again to find two out of the three premiums most worthily borne off by young artists whom they by honorary rewards for outline drawings have in some degree led forth, namely—Mr. J. Noel Paton and Mr. John Tenniel, jun. The third is awarded to Mr. E. Armitage, who distinguished himself in a former competition.

Considering that England is an infant in the art of cartoon making, and still more so in fresco painting, she must certainly be allowed to be a precocious and apt scholar. The exhibition as a whole is deserving of the highest commendation, and must equal the hopes of the most sanguine.

No. 5. by Mr. A. Aglio. The subject "Religion," is clever, more particularly in the upper part, but Faith, Hope, and Charity, want refinement. In the fresco this artist has shewn considerable ability.

11. "The Spirit of Religion," by J. Noel Paton. The idea is remarkably fine and is carried out with great energy and executive power. It will amply repay careful examination. The specimen of fresco, which the artist informs us is "the first experiment," plainly shews ability to do better next time; this is one of the deservedly rewarded.

23. "An Allegory of Justice," E. H. Wehnert. An excellent cartoon, the grouping and drawing are successful; the whole, though pervaded by Germanism, is true to nature, and in parts unexceptionable.

Mr. Buss's cartoon (29) is barely redeemed by the figure of Gascoigne, which has considerable dignity; the rest is weak and unmeaning.

32. "The Baptism of King Ethelbert," J. Severn, is a falling off from his "Queen Eleanor!" The fresco is more happy.

Mr. John Callcott Horsley, one of the commissioned artists, has produced a work of pure unaffected truth and refined sentiment in his cartoon of "Religion," of beautiful breadth and drawing. This work is a masterpiece. The fresco and coloured sketch are alike excellent.

38. "Justice," by William Cave Thomas, another of the commissioned. This artist aims at the style of the earliest German masters. It is a grand work of time, labour, and much study; in parts strongly reminding the spectator of Albert Durer's works. The fresco shews knowledge of the material.

If excellence consisted in finish, Mr. Maclise's cartoon (41) is the acmé of perfection. Never was finish carried to such an extent before in cartoon drawing. Each head, hand, and leaf, is a picture in itself. The shine of the armour, and strong light and shade which pervade it, render it somewhat confused, but the general drawing is truly beautiful, and the coloured sketch is as good a picture as he has painted for some years. The fresco is disagreeably coloured, particularly the flesh. Mr. Maclise is another of the commissioned.

A sketch by Edward Corbould (44) is excellent in colour, but does not tell the story. The fresco of Ethelbert's head is well executed.

"The Spirit of Religion," Edward Armitage, is broad, grand, and well-drawn; and characterized by high and religious feelings. The fresco and coloured sketch are much inferior. The cartoon has been most deservedly rewarded.

Mr. Cope, A.R.A., has produced an excellent cartoon of "Edward the Black Prince receiving the order of the Garter from Edward III." (57), finely drawn, and effectively shaded, but the figure of Edward is rather exaggerated in action. The sketch and fresco are both excellent, especially the former.

"Prince Henry acknowledging the authority of Chief Justice Gascoigne," by R. Redgrave, A.R.A. This is not satisfactory, the drawing faulty, and the fresco unworthy the painter of "Catherine Douglas." This is another of the commissioned works.

"The Baptism of Ethelbert" (63), William Dyce. An extraordinary performance, full of feeling and pure truth unalloyed by prettiness. This is one of the commissioned cartoons, and has high pretensions to perfection. To say more of the sketch and fresco than that they are worthy attendants of the drawing would be superfluous.

Mr. Bendixen's "Religion," is a mistake. The figure meant to represent the New Testament seems toasting some absent swain.

Mr. John Bridges exhibits a graceful and clever cartoon from the subject of "Prince Henry acknowledging the authority of Chief-Justice Gascoigne." It is accompanied by a most careful oil sketch, and an able production of fresco.

"An Allegory of Justice," (85) by John Tenniel, jun. This young artist promises to excel in the grand art of cartoon drawing; in this work he exhibits extraordinary talent for design, and power in the use of the crayon. Although but an outline, the parts are made out with astonishing boldness. One of the premiums has been awarded it most justly. The fresco and sketch in colour abate nothing in excellence.

A good idea is brought forward by Mr. Brown in the cartoon of "Justice" (98): well-studied and carefully executed; it deserves considerable commendation.

"Sketches of the Spirit of Chivalry, Religion, and Justice, to shew the relation between the three subjects," (104) by Frank Howard, are clever ideas, well executed.

"Justice" (which by-the-bye seems the favourite subject) is ably illustrated by Jo... G. Waller in cartoon 108, the effect of wh... is broad and clear.

And again, by T. Y. Hurlstone: the figu... allegorical of Mercy is well expressed, althoug... in rather an awkward position.

The sculpture, which forms an accident... feature in the exhibition, is in many i... stances remarkably beautiful; the works th... chiefly excited our attention are "A Hunt... returning Home" (117), by Frederick Thrup... "The afflicted Mother" (122), by John Eva... Thomas; "The Dying Briton," and "The O... phans" (123 and 124), by Felix M. Mille... "William Shakspeare" (127), John Bel... "Pastoral Apollo," and "The Wanderer... Home" (128 and 129), by Edward B. St... phens; "Abel and Thirga" (130), by Thom... Earle; "David" (131), E. Richardson; M... Mac Dowell's group of "Love Triumphant" (139); and "A Girl Reading," by the sam... excellent artist (140).

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The fifteenth meeting of the Association h... passed very pleasantly and very usefully, no... withstanding what may be said by its opp... nents, and will, there is every reason to believ... continue to pursue its course for many years... come. Sir John Herschel, in his address... president, eloquently observed:—

"True science, like true religion, is wid... embracing in its extent and aim. Let interes... divide the worldly, and jealousies torment th... envious! We breathe, or long to breathe, ... purer empyrean. The common pursuit of tru... is of itself a brotherhood. In these our annu... meetings, to which every corner of Britain... almost every nation of Europe sends forth ... its representative some distinguished cultivat... of some separate branch of knowledge: wher... I would ask, in so vast a variety of pursui... which seem to have hardly any thing in com... mon, are we to look for that acknowledg... source of delight which draws us together an... inspires us with a sense of unity? That astr... nomers should congregate to talk of stars an... planets — chemists of atoms — geologists ... strata — is natural enough; but what is the... of *equal* mutual interest, *equally* connected wi... and *equally* pervading all they are engag... upon, which causes their hearts to burn with... them for mutual communication and unbosom... ing? Surely, were each of us to give utte... ance to all he feels, we should hear the chemis... the astronomer, the physiologist, the electr... cian, the botanist, the geologist, all with o... accord, and each in the language of his ow... science, declaring not only the wonderful work... of God disclosed by it, but the delight whi... their disclosure affords him, and the privileg... he feels it to be to have aided in it. This i... indeed, a magnificent induction—a consilienc... there is no refusing. It leads us to look o... ward, through the long vista of time, wit... chastened but confident assurance that scienc... has still other and nobler work to do than an... she has yet attempted; work, which befo... she is prepared to attempt, the minds of me... must be prepared to *receive* the attempt,—pr... pared, I mean, by an entire conviction of th... wisdom of her views, the purity of her object... and the faithfulness of her disciples."

Of papers which relate to subjects esp... cially treated of in our journal, there was... dearth; in the mechanical section, for exam... ple, little or nothing was done. We ha... selected, however, a few items of informatio... which will interest our readers.

Strength of Stone Columns.—A paper on th... subject was read by Mr. Eton Hodgkinso... He had experimented on columns from 1 in... to 40 inches long, and 1 inch and 1¼ inch... broad. Care was taken that they were cut fro... the same block, and in the same direction... the strata. They were crushed between ha... dened steel plates, by means of leverage, a... a specimen of 1 in. square required a pressu... of 10,000 lbs. to crush it; in the crushing, ... was invariably the case that the piece operate... upon split into wedges, with keen edges. ... column forty times longer than wide or thic... was one-third weaker than a cubic piece, a... in these long pieces the splitting always beg... at the ends; the practical utility of this know... ledge was, that stone pillars for building... which were of great weight, should be broad... at the ends than at the middle, to make th...

trength uniform throughout. The stone operated upon in these experiments was a very ard kind, found in the vicinity of Manchester.

The sum of 60*l.* was afterwards voted to Mr. lodgkinson for the prosecution of further experiments.

Coloured Glass.—Prof. Playfair, in the absence of Prof. Graham, communicated the results of some experiments on coloured glass, y Mr. Splitgerber, and exhibited some specimens of white glass, containing gold, which oloured a deep red on the application of a ertain heat, and loses this colour, though not ntirely, on being heated to a point approaching fusion.

Production of Iron in Scotland.—Dr. Watt end a paper on the production of iron in Scotand. This paper shewed the improved state f the iron trade in Scotland, the increase of ew works and additional furnaces, with every robability of continued prosperity. Dr. Watt ated that it required a million tons of coals produce 400,000 tons of iron.

Mr. Porter said that in the iron works in reat Britain, for one year, 1,396,400 tons of on were made from 4,877,000 tons of coals; his shewed a discrepancy according to the tatement of Dr. Watt.

Prof. Pryme thought the discrepancy might rise in part from the impurity of the ore; pon the purity of which a good deal depended as to the quantity of coals required.

A member said the introduction of hot blast ad made considerable alteration in the iron orks in Scotland. It once took seven tons f coals to make one of iron; consequently, he iron works were regarded as hardly profitble; but by the hot blast, the average of coal about 2½ tons to the ton of iron; and the rofits of iron works have risen in proportion. The refuse of coal, or small dust, which cost othing, was used for hot blasting, and was not ounted in the weight.

Mr. Porter, in adverting to the requirements pon the iron works, said there was one disrict of railway now before the House which as calculated to require 851,000 tons of iron. ur export trade in iron had also become of nmense magnitude. In 1843, there was exorted 460,000 tons of iron, and the use of this etal would be greatly on the increase if its rice were kept moderate, as it was much used the building of steamers, and found to anver well. One person had forty-five iron eamers in England, and another gentleman ad informed him that he had had an iron eamer in constant use twenty-five years, and hat it had not cost 50*l.* for repairs the whole eriod, nor had it been laid up a week.

Railway Gradients.—Mr. Fairbairn read a aper on the improvement which had been ffected in railway gradients, from which we ike the following tables:—

TABLE OF ATMOSPHERIC RESISTANCE.

20 miles an hour	107
22	130
24	155
26	182
30	211

ESISTANCES AT THIRTY-THREE MILES AN HOUR.

Gradients.	Force of friction in per ton.	Gravity in per ton.
1 in 20	25	11,206
1 in 30	25	7,466
1 in 40	25	5,600
1 in 60	25	3,733

The President said that, by these improvements, railroad companies would be enabled o lay out their money more economically on ngines of greater power, and the stationary nes might be done away with.

A member stated that the single lines were ow coming into use (as in the Peterborough ailroad), with the electic telegraph, protected y which they were safer than the double nes. Looking at the saving of human life, his was a question of the deepest interest; nd if, as on the Great Western, the electric elegraph were destroyed by the collision, here might be a second telegraph on the other de, to be worked in case of such accident aking place. In a pecuniary point of view, t this moment, when millions were about to e laid out on new lines, the improvements rought before the section were of the greatest mportance.

Steam Pile-driving Machine.—Dr. Greene ead an interesting paper on the Steam Pile-riving Machine, recently invented by Mr. Nasmyth, of Plymouth. At the last meeting of the association the steam hammer, invented by the same gentleman, was brought before the consideration of the mechanical section, and received its approval. The new instrument, which had only been put together within the last few days, depended much upon the steam hammer. It consisted of two uprights, each 80 feet high, such height being necessary, in consequence of the immense piles it had to take up and drive into the sea. These uprights were parellel to each other. There was a cap in the middle, through which the pile went, and the piston moved in the cylinder upwards by the force of high-pressure steam. It was self-propelling, and moved on a railway. Dr. Greene was happy to be enabled to state to the section, that he had received a letter, a day or two back, from Mr. Nasmyth, stating that he had just completed the instrument, and tried it, with the most signal success. The first pile driven down by it—and this into a bed of hard yellow clay—was 14 inches square, and 18 feet in length, and was done so in the space of 17 seconds. "It was truly laughable," said Mr. Nasmyth in his letter, "to see this gigantic machine running along, picking one monstrous pile after another, and driving them into the earth with as much ease, and almost as quickly, as a lady would stick pins into a pincushion." Dr. Greene exhibited the drawing of two piles—one bent, crookened, and split, after having been driven into the earth by the old method, with 20 hours' labour—and the other perfectly whole, after having been sent down by the new instrument in the incredibly short space of 4½ minutes. The advantages of such an enormous power, he said, were incalculable in the saving of time, labour, and capital; and we should reap the benefit of them in all directions where great national works were going on, and especially in the formation of the harbours of refuge along our coast, and recovering land from the sea. The enbankment at Devonport had a stubborn sea to contend against; and it was calculated that it required even yet 30,000 piles to be driven down to complete it, in which case the power and advantage of Mr. Nasmyth's invention would be at once felt and acknowledged. One of the Lords of the Treasury had been very recently in his neighbourhood and having seen the instrument tried, expressed his approval of it; and he (Dr. Greene) was happy to add, the inventor received an excellent Government appointment. Mr. Nasmyth, when his principle of the steam hammer was primarily developed, never anticipated that he should ever be enabled to carry it out to such a wonderful extent as he had succeeded in doing in the space of twelve months. The weight had been at first about from four to five tons; but it was subsequently found that this was a great waste of power, and that one-fourth of it was all that was required. The face of the hammer was parallel with the face of the anvil, and its power of sustension was wonderful. When tried the other day, Mr. Nasmyth, to prove this feature the more satisfactorily to some persons who went to see the instrument tried in all respects, said it should crack a walnut without crushing the kernel; but the walnut not being at hand, one of the workmen offered a small tin snuff-box, which being placed open under the hammer, the lid was delicately shut down, without dinge or injury.

Mr. Fairbairn testified to the powers of this wonderful hammer, having seen it tried. The velocity was in the ratio of the force of the steam; it might be made to strike from four to five hundred blows a minute.

The President said that he had had some experience in pile-driving at Sheerness and the London bridges, and he could safely say that it took more hours to drive down a pile by the old method than minutes by the proposed one. He congratulated the section on what they had just heard; and he thought the lovers of science, and the country in general, were much indebted to Mr. Nasmyth.

The next meeting of the Association will be held in Southampton; Mr. Murchison is elected president.

IMPROVEMENT AT DARWEN.—Mr. Eccles Shorrocks intends to build, at his own expense, a spacious covered market-house, and Mechanics' Institution, at Darwen.

DECORATIVE ART SOCIETY.

ON Wednesday, 25th ult., the consideration of "Geometrical figures as the foundation of graceful outline," was resumed with more especial reference to the "properties of the oval."

From observations of the works of the Ancient Egyptians and Greeks, it was considered that those nations were acquainted with a practical method of producing continuous curves which is not apparent in either Roman or modern art. The elliptical lines on which the beautiful outlines of the Etruscan vases were founded were supposed to have been selected from a series produced by some simple and convenient system, and are not to be altogether ascribed to the greater perfection of their skill in design.

An approximation to the forms of the ancient vases may be undoubtedly produced by mathematical arrangements of straight lines and segments of circles, as was shewn, but such systems were considered to be necessarily complex and unattended with that practical accuracy and freedom observable in the originals. The defects of our practice were instanced in the Tudor-arched heading of the windows to the new Palace of Westminster, where an approximation only to the beauty of a curved line is attained.

It was also argued that curves based on hexagonal proportions were the most graceful, and Mr. Jopling partially explained the "septenary system of generating curves by continued motion" through combinations of rotatory movements with those of an ordinary trammel as invented by himself, and he exhibited drawings that certainly appeared to possess a variety, precision, and accuracy, much to be desired; he also affirmed, that for practical purposes, the expense of a couple of shillings would supply a workman with means to produce correctly any curve that might be required.

The discussion of this subject will be resumed on the 30th July, when the merits of Mr. Jopling's septenary system and the principles of spiral or serpentine lines will be considered.

ART-UNIONS.

A BILL has been introduced into the House of Commons, by Messrs. Wyse and Ewart, for revoking so much of the laws against distribution by lottery as may legalize the proceedings of Art-Unions. Reciting the recent circumstances in the history of these institutions, the bill enacts that all such voluntary associations for the purchase of paintings, drawings, &c., to be afterwards allotted by chance, now constituted, or which may hereafter be so, shall be deemed and taken to be lawful associations, —provided always "that a royal charter of charters shall have been first obtained for the incorporation of such associations, or, provided that the deed of partnership or other instrument or instruments constituting such associations, and the rules and regulations relating to the proceedings of such associations for such purposes as aforesaid, shall have first been submitted to the consideration, and be approved of, by a committee of her Majesty's most honourable Privy Council, and a copy thereof deposited with such committee; and provided such proceedings for such purposes as aforesaid shall have been conducted in strict conformity with the royal charter or charters which may have been granted, or the deed of partnership, or other instrument or instruments constituting such association, and the rules and regulations which may have been approved of, as hereinbefore set forth."

The newspapers, in mentioning this provision in the bill, have all stopped short at the royal charter, and omitted the alternative, which is of considerable importance.

FALL OF A WALL, AND FATAL RESULT.—Last Saturday afternoon about 30 feet in length of a wall, bounding the premises of Mr. Davies, an emery manufacturer, in Richardson street, Bermondsey, was thrown down, in consequence of 100 tons of emery stones being piled against it. The wall was 10 feet in height, and 9 inches in thickness. Several children were playing near the spot, and one was crushed to death, while three others received severe injury.



VIEW OF OLD LONDON BRIDGE.

OLD LONDON BRIDGE.

The annexed engraving is a view of Old London Bridge, taken near St. Olave's Stairs, about the year 1757, shortly before it underwent very extensive repairs and improvements, including the removal of the houses which for several centuries encumbered and disfigured it from one end to the other. The date of this bridge is much better authenticated than that of most buildings possessing claims to a remote origin, for we find in the "Annals of Waverley" (an abbey in the county of Surrey) the following entry:—"1176. In this year the stone bridge, at London, is begun, by Peter, the chaplain of Colechurch."*

It was finished in 1209, having occupied thirty-three years in building. It consisted of a stone platform, erected on elm piles, driven into the bed of the river, and was 926 feet long, 15 feet wide, and 60 feet high. It had a draw-bridge, and twenty pointed arches, from 15 to 32 feet span, with massive piers from 17 to 30 feet thick, and of various lengths, from 26 to 115 feet. The longest pier stood in the middle of the river, and served as well for the bridge as for a chapel which was erected on it, and dedicated to St. Thomas-à-Becket. This chapel was a very elegant structure, and consisted of two chambers, an upper and an under one, or crypt, immediately on the starling; the communication between the upper and under chapel was by a spiral flight of stone steps. The upper chapel was lofty, and elegant, being supported by fourteen groups of clustered columns, and lighted by eight pointed windows. The crypt below was even superior, for, although it was not so lofty, the intersections of the pointed arches and windows were more beautiful. The length and breadth of each were the same, nearly 60 feet long and 20 feet broad; the height of the upper chapel was 40 feet, and that of the lower was 20 feet. This was the first building erected *on* the bridge and was coeval with the structure†. At what period the other buildings were erected is uncertain, but it is generally supposed that the towers were built soon after the bridge was finished. In the year 1426 the tower at the north end of the drawbridge, over which traitors' heads were usually exposed, was erected, but in 1577 it had become so decayed as to require removal. A new building was commenced, and the traitors' heads, amongst which were those of Fisher, Bishop of Rochester, and the celebrated Sir Thomas More, were placed over the gate on the Southwark side, afterwards called the Traitors' Gate. But the most splendid building that adorned old London Bridge was the famous Nonesuch House; so called from its having been constructed in Holland, entirely of wood, and brought over to this country in pieces, and erected on the bridge with wooden pegs only, not a single nail having been used in the edifice. It stood by the seventh and eighth arches from the Southwark end, projected considerably over each side of the bridge, and presented a very striking appearance from its varied and highly-decorated architecture.

In the year 1582 the first water-works were erected by one Peter Morris, for the purpose of supplying the City with water, and six years afterwards three other water-wheels were erected at the Southwark end of the bridge for grinding corn. How long the latter mills remained is uncertain, the former existed until 1822, when an Act was passed for their entire removal, and the proprietors received 10,000*l.* for transferring their rights to the New River Company.

In 1754, the bridge requiring very extensive repairs, a wooden bridge was erected on the starlings, on the west side; the houses were removed, the centre pier and two arches adjoining taken down, and replaced by one large arch, the bridge widened several feet, and finally opened to the public in 1759. These alterations are said to have cost 100,000*l.*

The annual loss of life and property that

* This church stood, until the great fire of London, on the north side of the Poultry, at the south end of a turning denominated Conyhoop-lane, and was famous as the place where St. Edmund and St. Thomas-à-Becket were presented at the baptismal font.

† From the same authority we have already quoted, namely, the "Annals of Waverley," we learn that the remains of the pious architect of the bridge were entombed in the chapel. The passage runs thus:—"In 1205 died Peter, the Chaplain of Colechurch, who began the stone bridge; and he is sepultured in the chapel upon the bridge."

occurred through the dangerous state of the navigation under the arches, the fall being at times as much as five feet, and the perpetually recurring expense of keeping the bridge in repair, added to the rude appearance of the structure itself when contrasted with the fine bridges which had been recently erected over the Thames, suggested, about the beginning of the present century, its entire demolition, and the construction of one more in accordance with the taste and skill of the times, as well as with the princely character of the Corporation of London. Accordingly, surveys, reports, and estimates were made, various plans proposed, some for once more repairing the old bridge, and others for constructing a new one. The most eminent architects and engineers had their attention directed to the subject for upwards of twenty years. At last, in the year 1822, the corporation advertised for plans, and premiums were awarded to three of those sent in. After much discussion both in the city councils as well as in the House of Commons, Mr. Rennie's design was adopted and carried out.

On the 4th of March, 1824, Messrs. Jolliffe and Banks, the contractors for building the new bridge, commenced their operations: on the 15th of June, 1825, the first foundation stone was laid by the late Duke of York: and on the 1st of August, 1831, his late Majesty William the Fourth, and the present Queen Dowager, were pleased to honour the opening ceremony with their presence. Shortly after this event took place, the work of destruction commenced on the old bridge, and within a few months, not a vestige was to be seen of a structure which had been very famous in its day, and the Chronicles* of which illustrate most vividly the manners, customs, and events of London, during a period of six centuries and a half. J. H.

BAILLIE'S SLIDE-VALVE TRANSPARENT VENTILATOR.

THIS ventilator consists first of a series of louvres of glass, which are permanently fixed at a certain inclination, so that the currents of air may be directed upwards and dispersed; and secondly, of a sliding valve, likewise of glass, which regulates the quantity of air admitted, and which when closed, renders the openings perfectly air-tight: the whole is contained in a neat thin frame, which may be readily adapted by a common glazier to any of the panes of a window; the frame itself, when thus fixed, seems to coincide with the sash bars, and the rest of the ventilator being quite transparent, the general appearance is by no means displeasing.

Several advantages arise from having the louvres stationary, instead of being moveable, for example:—First, the draught of cold air is avoided, which in the case of moveable louvres enters through the interval that is required to be left between their ends and the sides of the frame. Secondly, this apparatus has no joints, nor other working parts where the dust can accumulate and become hardened so as to obstruct their action; but it may be closed in a perfectly air-tight manner, even in the most dusty situations. Thirdly, its construction is so simple, that nothing but rough usage could injure it; and if out of order, it may be repaired by any ordinary workman.

The annexed diagrams will serve to shew its appearance and action.

Figure 1 gives an elevation and a vertical section of a sash-window with the ventilator fixed in the position which is thought to be the best for avoiding draughts; *a a*, the fixed inclined glass-louvres; *b c*, the slide-valve for regulating the quantity of air admitted, which is moved by the cords (*d e*), coinciding with, and hidden by the sash-bars, and passing over pullies (as at *f*, *g*, *h*, *j*), to any required position; in the sketch the cord is finally passed over a rack-pully (*n*), in the same way as in ordinary roller-blinds; but, when it is required frequently to pull down the top sash itself, the cord had better be furnished at its lower end with a balance weight instead of passing over a rack pully; *k*, an eye screwed into the sash-bead through which the cord runs; *l*, connecting socket which serves both to unite the cords (as shewn in the sketch), and also to stop (by means of the eye *k*) the slide-valve

* "The Chronicles of London Bridge," 8vo. 1827.

BAILLIE'S SLIDE-VALVE TRANSPARENT VENTILATOR.

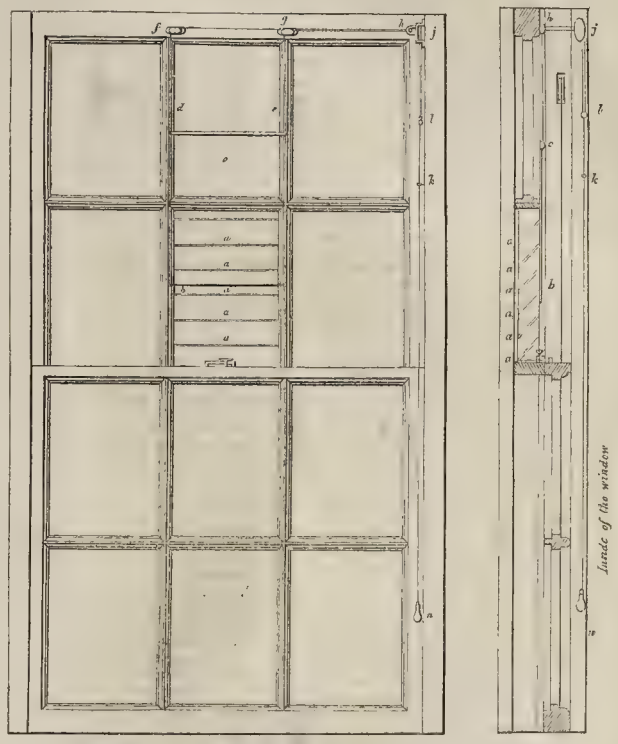


Fig. 1.

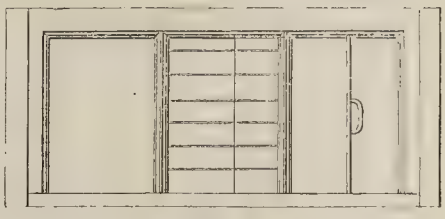


Fig. 2.

from being drawn out too far or let down too violently. The slide-valve may, however, be lifted out by hand, for cleaning or any other purpose.

Figure 2 shews the mode of adapting the slide-valve to the sashes of basement, attic, or other windows, where the top panes can be easily reached by the hand.

We have had one of these ventilators in operation under our own eye for some time past, and find that it answers the purpose exceedingly well. The cost of them is comparatively trifling.

HITCH'S PATENT DRAIN.

SIR,—With the remarks contained in a letter on the subject of house drains in the last number of THE BUILDER I fully agree, but as drain-pipes are liable to fracture, permit me to call your attention, and through your paper, that of your readers, to a description of drain which I have used for some years, and have always found to answer admirably, and at the same time at less cost than drains of common brickwork.

I allude to Hitch's Drain bricks, for which a patent has been obtained. They have been in use some years, but are not so well known as they deserve to be.

Each brick is 13 inches long, segmental and wedge shaped, and is rebated at the ends, so that they may fit into each other. For a 9-inch drain, four bricks form a complete circle or gun-barrel-drain; they fit quite closely together, a very small quantity of mortar or cement being necessary, and the labour is very little. There are two sinkings in the back of each for the workmen to handle them by; these also permit a better action of the fire in burning, and the inside is quite smooth. Four of the bricks form a 9-inch drain, at a cost of 11d. per foot. Six of the bricks form a 12-inch drain, at a cost of 1s. 4d. per foot.

The maker is Mr. Hitch, of Ware, Herts, who has had for some time past a depôt for their sale at Lindsey Wharf, Chelsea. I think it only an act of justice to the ingenious manufacturer to mention them, as I consider them the best drains ever invented, and shall ever use them.—I am, Sir, &c.

A BUILDER OF THIRTY YEARS' STANDING.
Lambeth, July 1st, 1845.

*** We have ourselves had a long experience of the drain-bricks, and can bear witness to their great excellence.

EXAMINATION IN ARCHITECTURE AT UNIVERSITY COLLEGE, LONDON.

Last week we gave the course of examination in architecture as a science: we now add the series of questions as relates to architecture as a fine art.

First Year.

Greek and Roman Architecture.

1. What analogy has the column and its entablature with any object of early invention? 2. In what respects do its various parts correspond with those of its prototype? 3. What is the use of the capital? the architrave? the cornice? 4. In which orders does a base form an essential feature? in which not? 5. State the general proportions of the Greek orders of architecture. 6. Which is the essentially distinctive feature of an order? 7. How many orders were there in Roman architecture? 8. In what respects does the Greek or Roman division of the orders approach nearest to the obvious classification of physical distinctions, or to the relative proportions generally admitted to exist in all objects throughout nature? 9. Should the axis of the column according to the Greek canons be vertical or not? 10. Quote the authorities, whether in writers or examples. 11. Sketch a profile of the Doric capital and the several varieties of anulets. 12. Sketch the varieties of triglyph heads. 13. Sketch and describe the essential differences in the entablatures of the Greek orders. 14. In what examples of Greek Doric buildings are the tryglyphs omitted? How are the guttæ of the frieze then arranged? 15. Sketch various forms of guttæ. 16. What do the antæ of Greek architecture represent, and where are they introduced, and what proportions? 17. Sketch the capitals of the antæ of the Greek orders. 18. Did any and what difference exist in those of Græcia propria and Asiatic Greece? 19. State the reasons for considering whether sculpture be or be not an essential element of Greek edifices. 20. To whom does Vitruvius attribute the invention of the Corinthian capital, and on what occasion? 21. Is there any complete example of Greek Corinthian, and where? 22. Was the Corinthian, Ionic, or the Doric introduced or adopted as the leading order of any principal monuments in Græcia propria? 23. Which was the prevailing order in Asiatic Greece? 24. Give the names and state the orders of the most distinguished temples of European and Asiatic Greece. 25. Into how many classes may mouldings be divided? State the names of the divisions. 26. Draw the profiles of the first class with the names attached. 27. What is the purpose of the crowning mouldings in cornices? 28. What is their usual angle of inclination in Greek buildings? 29. Draw combinations of mouldings. 30. Which were the usual crowning mouldings of the cornice of the Greek orders? 31. Was there any moulding peculiar to the Greek Doric and never used in any other order? 32. Give the name and varieties of profile. 33. Under which class does it come? 34. In which periods of the art were mouldings sparingly and profusely used? 35. Should mouldings or plain faces predominate, and why? 36. Draw some of the sculptured decorations of mouldings with the names attached. 37. Sketch a plan of a Greek decastyle hypethral pseudo-dipteral temple, with the names of the parts attached.

Egyptian Architecture.

38. Which are the earliest specimens of Egyptian architecture? 39. What are the general characteristics of Egyptian architecture? 40. Whence is their general impress derived? 41. Is it varied or uniform? 42. State the reasons. 43. Sketch a plan of one of the temples at Thebes. 44. Give a general description of the parts, and describe its chief accompaniments. 45. Into how many divisions may be classified the capitals of their columns? 46. Give a sketch of two columns of different characters. 47. State the proportions. 48. Sketch and describe the proportions of an obelisk and its pyramidion; its material. 49. Illustrate the value in which obelisks were held by the anecdote related by Herodotus. 50. Describe the influences exercised by the conquerors of Egypt upon its architecture. 51. State the nations by whom Egypt was subjugated, and the periods of conquest. 52. Enumerate the leading works on Egyptian architecture.

Second Year.

Medieval Architecture.

1. At what period and by what Emperor was the Christian faith adopted as the religion of the Roman state? 2. What religious edifices did he construct for divine worship? 3 When were they erected? In what form? 4. Give a general plan of one of the primitive Christian churches, with the names of the several parts attached. 5. Describe the purpose or destination of each part. 6. Had the position of these early churches originally any reference to the cardinal points? 7. State the origin of the term Byzantine, and describe the characteristics of that style of architecture. 8. Give a plan of certain ancient Byzantine churches at Constantinople and Ravenna. 9. Give a plan and section of a Greek church at Athens. 10. Sketch the varieties in the cruciform plan adopted in the Christian churches. 11. By whom were baptistries first built? Enumerate the most celebrated ones. 12. Give plans of some, and state their relative position in regard to the church to which they belonged. 13. Give a plan of the baptistery and Church at Parenzo in Istria. 14. With what previous style is Norman identical, and in what respects? 15. What is the distinctly different feature which prevailed in the Norman and preceding style, as contrasted with that of the subsequent styles of mediæval art? 16. Sketch the varieties of the Norman arch. 17. Give the profiles of the mouldings, plans of columns, elevations of caps and bases. 18. Sketch windows with single or double lights. 19. Sketch an elevation and section of a Norman buttress. 20. What was the general form of the altar end of a Norman church, and how called? 21. Sketch the primitive form of a Norman church generally prevalent in England. 22. Give the names of succeeding Gothic styles in this country, and dates of duration. 23. Sketch the forms of arch prevalent in each style, and the varieties in the arch of each epoch. 24. Whence may it be supposed that we derive the pointed arch? why? and at what period? 25. State some of the theories of the origin of the pointed arch. 26. Were the caps and bases of the lancet circular or polygonal in plan? 27. Of what material were the columns? and why? 28. Sketch elevation and section of buttresses; and in what particular did the lancet buttress present a character essentially different from that of the preceding style? 29. When did the succeeding style commence and finish? and state the origin of the name given to it by Rickman. 30. What is the peculiarity of the door at this period? Sketch one. 31. What peculiarity in the tracery of the windows? 32. Name the different parts of the tracery, and notice any peculiarities in the transoms of the windows. 33. What crowning enrichment exists in the cornice of the later periods, and in what respects does it correspond with a like feature in classic architecture? 34. In what parts were heraldic embellishments introduced, and when? 35. State instances of heraldic punning in gothic architecture. 36. Sketch different forms of shields in the order of their respective epochs. 37. Give a plan of a gothic cathedral, with the names of the parts attached. 38. Sketch plans and sections of gothic vaultings. 39. Define the different features and parts of arch-vaultings, and the classes of ribs. 40. What is the difference between a groin and a rib? 41. Name distinguished instances of vaultings. 42. Give a brief notice of mediæval architecture in Italy, and compare it in its progress and results with the architecture of northern Europe during the same period. 43. Lay down the general principles of composition as taught by Durand. 44. Name the most eminent authors on architecture, classified according to the subjects on which they treated. 45. State the qualifications and studies to be acquired by the architect. 46. Give a tabular view of the history of architecture from the earliest periods.

New Surveyor of the District of St. James's.—Mr. Charles Mayhew has been unanimously elected to the above appointment, rendered vacant by the death of his father. We feel much pleasure in being able to congratulate him not only upon his success, but also upon the good feeling displayed on this occasion by his professional brethren in not offering an opposition.

STIR IN THE SCHOOL OF DESIGN.

The disorganized state of the School of Design, to which we have been forced to direct attention on several occasions, has been recently mentioned in the House of Commons.

Mr. Ewart, a few nights since, referring to the dispute which occurred in the School of Design, and which had resulted, he said, in the dismissal of the second master, and the withdrawal of the pupils almost without exception, wished to know whether the discord still continued, or whether there was any hope of its being settled?

Sir G. Clerk said, "a difference of opinion unfortunately arose in the early part of this year between the director of the school and some of the masters regarding the principles upon which the education of the pupils should be conducted. Several of the students joined warmly on the side of the master, and expressed themselves disrespectfully of the character and attainments of the director. The council, considering this to be a gross act of insubordination, felt it to be their painful duty to interfere, by suspending the pupils who had so erred until they made an apology. The disagreement still continuing, the council felt themselves under the necessity of changing the second master; who had accordingly been he would not say dismissed, but removed."

The question now is, how will this step operate as regards the state of things between the pupils and the director, and between the public and the school? Will it restore to this gentleman the confidence of the pupils which unfortunately he seems by some means or other to have lost? We are afraid not, any more than it will make a bad system a good one. The school as at present conducted does not produce such results as are looked for, and some alteration is unquestionably necessary. We have received a number of letters on the subject, mostly, it must be observed, from the students who objected to Mr. Wilson's system. Although *ex parte*, we insert two of them, in order that the complainants, and as it has proved, the sufferers, may state their own views:—

Sir,—Seeing in your columns a short time since, comments on the "School of Design," I beg to offer a few remarks, tending to shew, if, indeed, it can be more clearly shewn, the total inadequacy of the system pursued there to produce any thing above an humble class of copyists.

A defect which, in my opinion, lies at the root of the plan is, that no instruction whatever is given in the characteristics of the different styles. When the student enters, he is set to copy indiscriminately a number of casts and other examples, and having, I suppose, obtained a stock of ideas by this means, without any other preparation, he proceeds to "design," or, in other words, to produce a hotch-potch, having a portion of the forms of every, without the spirit of any, style.

This is what we should be led to expect, and this really is the exact character of the tawdry and frigid *soi disant* designs that are the only productions of the school. But what else could we expect of an institution where nature, the great storehouse of the beautiful, is entirely neglected; where the study of the human figure is suspended and interrupted; where the art of perspective is unknown; where the different styles of art and their respective characters are unexplained, and where even the library is fettered by such restrictions, that very few students can have access to it?

The difference between us and foreign designers is essentially this,—that while they produce real artists, we produce nothing more than partially instructed, half-formed draughtsmen. In fact, now that the only students of promise that the school could boast have been expelled, there is none at present designing or even attempting to design. The School of Design at present is nothing more than a cheap drawing school.

Casts and examples are certainly copied, but as the only end of this copying is to acquire mechanical dexterity, and as the peculiar beauties or defects of none are pointed out, Government might as well have provided bad casts as fine ones at such an expense.

Copies of Raphael's performances are to be found there, and give a pretty appearance to the room, but the grand principles of colouring upon which Raphael laboured are neither

explained nor exemplified: his peculiarities, his manner, his beauties, the student is left in ignorance of.—I am, Sir, &c., H. J. L.

The other writer says:—

Sir,—In your paper of the 21st inst. is inserted a letter upon the School of Design, many of the views contained in which are so thoroughly sound and practical, and much of the criticism so perfectly just, that I trust you will allow me to correct a few mistakes into which the writer has been led, by his being perhaps but a casual visitor at the school.

Your correspondent says very justly, that the conducting such a school would be a fit task for an artist of some twenty or thirty years standing, an assertion the truth of which no one can doubt. As a proof that the council really are of opinion that "with the various examples in the school any man may play the master," allow me to state, that the gentleman whom they have appointed director with a salary of 400*l.* per annum, is practically ignorant of design.

The writer's *ironical* praise is very just, but it is too bad to place the faults of others upon the back of the council, particularly as they have been recently filling up the measure of their mismanagement themselves; how can any persons, for instance, doubt their just appreciation of the talents necessary for a teacher, when they are told that the council have just dismissed Mr. Herbert, A.R.A., the late master of the figure class, and sub-director, under the plea that he is *too efficient*, and have lowered the salary attaching to that office, in order to insure a less efficient successor? Yet such is the case. In speaking of the students in the last portion of his letter, he is mistaken in calling the paintings, from which they are in the habit of copying, frescoes; they are copies in tempera from the arabesques of Raphael in the Loggia of the Vatican.

Now, Sir, such is the state of dissatisfaction on the part of the students, and of mismanagement on the part of the council, that three months since, all the students in the upper classes of the school felt it necessary to petition the council for a redress of their grievances; that the system laid down by the council in their report might be carried out, and that the instruction there promised might be given: for doing this the students were immediately suspended, and although they laid before the council a series of depositions proving their grievances, still no notice was taken of their complaints; until at last, without any inquiry into the truth or falsehood of the statements advanced by the students, the council issued a notice stating that they would not be re-admitted to the school without individually apologizing to the director for their conduct: thus placing their necks under the feet of the individual of whom they complain.—I am, Sir, &c., Philo-Alpha.

An inquiry into the results of the system pursued should at once be made, or we may go on spending money and have nothing but disappointment for our pains.

THE PATENT FIRE-PREVENTIVE PLASTER.

In reply to an inquiry made by a correspondent last week, for an incombustible substance to be used instead of common plaster, we have received a description of the "fire-preventive plaster," for which patents have been obtained for England, Ireland, Scotland, and the colonies. It is asserted that perfect security from fire may be attained at a moderate cost by coating the timbers and floors with a thin stratum of the composition, in place of the ordinary lime plaster on the lathing of the ceilings and partitions. The composition is susceptible of all the ornamental forms of cornices and mouldings to which plaster, stucco, or carved wood-work are usually applied, and is capable of a fine polish, and may be painted. The works are in Upper Ground-street, Blackfriars Bridge.

A correspondent, who dates from Kensington, suggests that slate fixed to the underside of the joists to form a ceiling, would tend to prevent the spread of fire.

The New Paddington Hospital.—The first stone of the new hospital (near the Great Western Railway Station) was laid on Saturday last by his Royal Highness Prince Albert.

OSMASTON CHURCH, DERBYSHIRE.

The newly-erected church at Osmaston, near Ashborne, was consecrated, agreeably to public announcement, by the Lord Bishop of Lichfield, on Friday, the 27th ult. This edifice, of which the first stone was laid on the 8th June, 1843, has been built at the expense of Francis Wright, Esq. (of Lenton, near Nottingham), and will cost, when completed, eight or nine thousand pounds. Mr. H. J. Stevens, of Derby, was the architect; Mr. William Evans, of Ellastone, was the builder.

We obtain the following account of the old and new structure from the *Derby Mercury*:—

"To satisfy the archæologist and antiquarian, it may be as well to preface our description of the new church by stating that the ancient structure, which was dedicated to St. Martin, and stood a few yards to the southward of the present building, did not contain any interesting features, either in form or detail; a very early date may be assigned to the original foundation of the church, and if the name of the village denotes clearly its Saxon origin, we may venture to imagine that a church might even have existed in that remote period. The old walls, however, exhibited no peculiar construction, or style of ornament, and the greater part were evidently of a comparatively recent date; some very unsightly modern addition had been made some years since for the purpose of increasing the accommodation, but it was found to be still insufficient, and thoroughly inconvenient in arrangement. It was much out of repair, and therefore beyond its doubtful antiquity (which was much more than counterbalanced by its want of beauty), no good cause could be shewn why the liberal intentions of the founders of the new church should not be carried into effect—and the work of demolition commenced, and was carried on without regret; but, on the contrary, with confident expectation on the part of the parishioners that the latter house would greatly exceed the former house in convenience and beauty.

The old font, which is still preserved in the churchyard, as a memorial of the past, is so much decayed that little more than its octagonal form can be ascertained, and that it was probably of late perpendicular character.

The new building is situated nearly in the centre of the ancient and unusually picturesque churchyard, in which some venerable yews and Scotch firs contribute largely to the general effect. The churchyard has been inclosed by a low lime-stone wall, which, from being only slightly raised above the level of the ground within the inclosure, and just affording a sufficient protection from the road, has the appearance of a substantial broad base to the church.

It is evident, from a general view of the structure, that the prevailing idea which the founders and their architect sought to carry out, were the principles adopted by our forefathers in the construction of the numerous village churches which form so many bright spots in this our beautiful country. It consists of a nave, ailses, chancel, west tower, south porch, and vestry; the material employed for the main portion of the external walls is the mountain lime-stone, from the property of Sir Henry Fitz Herbert, near Tissington, and free-stone from the quarries at Stanton, near Ashbourn, is used for the windows, doors, buttresses, and all moulded and ornamental portions of the building. The fine dark grey of the former is agreeably contrasted with the light tint of the latter, and is in excellent harmony with the grassy carpet of the churchyard, and the deep tones of the old trees. Black Westmoreland slates are used for the covering of the nave, chancel, porch, and vestry, the roofs of which are high pitched, with free-stone ridges. The aisles and tower are covered with lead. The general architectural character of the building and detail is the late decorated, or that style as it prevailed in this country during the middle of the fourteenth century. The whole building stands upon a bold, double-weathered base, with the addition of an extra base moulding in the tower. The aisles are divided by strong buttresses into four compartments. The principal entrance door occupies the westernmost division on the south side; the other three, the two central ones on the north side, and the east end of the south aisle, are pierced by three-light windows, the west ends of both aisles by two lights, the heads of which are filled by elaborate tracery of varied design. The walls of the aisles are not more than 16 feet high, and are crowned by a low parapet. In the cornice immediately over each buttress, which are double at the angles, carved heads have been introduced, in some of which we recognize likenesses of the reigning sovereign, Prince Albert, the Archbishop of Canterbury, &c.

The quadripartite arrangement of the aisles is continued through the nave, which has a low clerestory, pierced on each side by square-headed windows of two lights and trifoliated heads. Instead of a parapet to the nave, a bold cornice is introduced, with carved pateræ at close intervals in the hollow of the same, and the spout is formed in the upper member.

The walls of the chancel are 18 feet high with cornice and spout of similar character to that of the nave; the east end is pierced by a large four-light window, with flowing tracery in the head; the south front is divided into three compartments by bold buttresses, sloped at the first stages, and terminated at the line of the eaves cornice by weathered hoods, with crockets and finials, and deeply sunk trefoil in the face; each division and that nearest the east end on the north front, is pierced by two-light windows, the mouldings and design of which as well as the east window, being of a more elaborate character than other parts of the church.

The tower is entirely disengaged from the nave and aisles, and is in three stages, and 69 feet high to the top of parapet; there is a low door on the west front for access to belfry, a three-lighted window over the same in the lowest stage, a circular dial carved in stone, on the south side—in the second—and a double two-lighted window, on each face of the upper stage; these windows are bold in character, and the slopes of the sills acute: the divisions of the stages are marked by free stone strings, and weatherings, which reduce the width of the tower at the upper part; there are double rectangular buttresses at the angles, and a partially engaged octangular stair turret at the north-west angle; the former are terminated by crocketted pinnacles, the latter by piercings on four of its faces, which rise slightly above the tower—crocketted gables on each face, and a conical roof, crocketted on each angle, and crowned by a bold gilt vane. The parapet of the tower is pierced, and the panoramic view from the top is very extensive and comprises scenery of no ordinary beauty.

The porch has a bold doorway with shafts, carved capitals and the hollows filled with ball-flower ornament; angular buttresses with considerable projection, terminated above the coping by crocketted hoods; a cornice and eaves with carved pateræ, and an enriched finial at the apex of gable.

The vestry is octangular and connected with the north side of the chancel, and the east end of the north aisle by a porch, covered with lead, in which the door for the minister is fixed. There are two light windows in two of the faces and buttresses at each angle, terminated by sloped weatherings; the walls are crowned by a plain moulded cornice, and each angle of the conical roof is finished by a graduated moulding with large carved ornament at the apex.

Having completed our survey of the exterior, we will enter by the south porch, which is 10 feet long by 8 feet wide in the clear; each side is occupied by a stone seat, with four arched recesses over the same. The roof is entirely open, and consists of three main and two wall ribs of bold dimensions, springing from stone carved corbels in the spandrils of the arches. The entrance door is of oak, and derives its principal ornament from a pair of elaborately wrought-iron hinges, which nearly cover the door; lock, latches, handles, escutcheons, being all of massy and similar character.

On entering the church we are immediately struck by the substantial and durable character of the whole, not a bit of plaster or paint except what is necessary to preserve the iron work, can be seen—everything is real: the walls, windows, doors, piers, arches, are all dressed free stone—the ceiling of the tower is a stone groin, the roofs of the nave, aisles, and chancel are of the best picked pitch pine and boarded, the seats and fittings are all Norway oak, the floors of the aisles, the steps to the chancel, and other parts of the church

which are unoccupied by sittings, are laid with the best free stone, and by these circumstances and the unusual strength of material, a pleasing impression of solidity and stability is conveyed to the mind. As we have before described the windows in our external view, it will be unnecessary to add more than that a string course is continued under them throughout, that all angles of splays are finished by shafts, with bases and capitals or continuous mouldings, that as much variety of detail is introduced as possible, and that the tracery is filled with ornamental glazing. The nave is connected with the north and south aisles by clustered piers, each of a single stone, with elaborately moulded bases and capitals, from which and two attached piers at the east and west ends spring the arches supporting the clerestory walls. The roof of the aisles is flat pitched, divided into compartments, every part of which is accurately wrought and moulded, with characteristic stoppings. The roof of the nave has three main trusses, with arched and moulded springers, supported by corbels, carved with cherubim holding scrolls with the following inscription divided on the four of them:—Glory..to God..on earth..peace—the remainder bearing shields, with monogrammatic devices. Between each of the main trusses are two others, without the carved ribs, and wind braces are introduced between them and under the spars. The roof of the chancel is composed of a series of strong rafters, with carved braces under them, springing from wood corbels, on a continuous stone cornice, carved with the oak leaf, and continued over the head of the east window; every part of the roofs are wrought and moulded.

The east arch is supported on clustered engaged piers, of a similar character to those of the nave; the bold capitals are carved with delicate foliage, and the ball flower ornament is introduced within the hollow of the arch. The whole of the sittings in the nave and aisles are open, and are fixed level with the floor of the church. The ends of the seats are panelled with tracery heads, and have a very strong cap moulding, which is continued on the top of the backs of sittings.

The font, which is of Roche Abbey stone, is a large circular bowl, with a continuous lotus ornament on the upper part, standing on a single shaft, with a moulded base and capital, carved, with a similar ornament; it is placed immediately opposite the south entrance door.

The pulpit and desk are of oak, and are fixed together in the north-east angle of the nave; the desk has an open traceried front with double rectangular buttresses at the angles, terminated by carved canopies; the pulpit is arranged so as to be accessible either from the desk or the vestry, and is merely five faces of an octagon, the other faces being omitted for entrance; the whole is filled with panelled tracery, and the cornice under the book-board is carved with the vine leaf. The chancel is approached from the nave by two broad steps, an arcade with cinque foliated heads within the arches is formed in the wall under the windows; one compartment is returned on each side at the east end; the string course then rises to the underside of east window-sill, and inclosed two loftier arches, in which stone seats with plain elbows are fixed for the officiating ministers; the lower member forming the connection between the two seats is foliated, and a plain scroll with the words "This do in remembrance of me," carved upon it, is the only ornament behind the communion table, which is of solid oak carved with cherubs' heads at the angles, and is the gift of Mr. Johnson, one of the resident proprietors in the village. The floor of that part of the chancel in which the communion service is administered is laid down with oak framed in parquetry, and a massive kneeling rail of open tracery occupies a portion only of the front, allowing free access at the ends.

The entrance to the vestry is by a deeply recessed doorway, about the centre of the north side of the chancel; it is octangular, with a roof of strong moulded wood ribs springing from corbels in each angle, on which armorial bearings are extremely well carved in Caen stone—they consist of the arms of Edward III. the reigning sovereign, Archbishop, Bishop, Archdeacon Shirley, and the families of Beresford, Fitzherbert, and Wright. The fittings are all of oak, and the doors, both external and internal, are of the same material, and hung with floriated strap hinges, with other iron-work to correspond. Returning to the west end, we find the lower part of the tower open to the church, in which the west window has a very good effect. The accommodation for the children is provided in low oak seats, of similar character to the remainder; behind which, and under the tower, the choristers' seats are placed, the extreme back rising considerably higher than the remainder, forms a screen, and conceals the entrances to the belfry, &c. There were one or two small old bells in the former tower; they have been substituted by a fine peal of five, cast and fixed by Mears, of Whitechapel; a clock also is ordered, and there does not appear to be any thing forgotten which can conduce to the comfort and good feeling of the parishioners. We should state in conclusion, that the church is capable of accommodating the whole parish, and that its internal dimensions are as follows:—Nave, 46 feet long, 18 feet wide, 38 feet 6 inches high, to the point of roof; each aisle 46 feet long, 11 feet 10 inches wide, 16 feet 9 inches high to the highest part of roof; chancel, 28 feet long, 15 feet wide, 30 feet 3 inches high; tower, 14 feet square within, 26 feet high to the point of groin; vestry, 11 feet diameter, 22 feet 6 inches high to apex of roof; extreme length of church from east to west, 94 feet; extreme width of church from north to south, 45 feet 2 inches.

NEW CHURCH AT CLIFTON IN ASHBOURN.

The consecration of this church by the bishop of the diocese took place on the 25th ultimo. No time has been lost in its erection, for the first stone was only laid on the 4th of September last. The *Derby Mercury*, in describing the structure, says "It is exceedingly simple in plan, and the design evinces throughout a studious attention to economy. It consists of a nave 58 feet 6 inches long, 25 feet wide, south porch, and a vestry opposite the same on the north side, corresponding therewith. The style of the building is a transition from early English to decorated, and is built of Stanton stone. The external face is not worked with a tool, and has a substantial effect. The roof is high pitched, and covered with Newcastle tiles; there is an octangular bell turret constructed on the west gable with a conical roof and vane. The east gable has a floriated cross. There are two single-light windows in the west end, and the flanks are pierced by windows divided into two lights, by a bold mullion, the spandrils being filled in with trefoils and quatrefoils; the east window has three lights of bold character, similar to those on the sides. The jambs of the porch doorway have shafts with capitals and bases. There is nothing worthy peculiar notice in the interior, the limited funds not allowing much scope for architectural display. The roof is open, and has four main trusses of arched form, springing from stone corbels in the walls; the seats are low, open, and, as well as the roof, stained and varnished. The arrangement of the pulpit, reading desk, and communion rails, at the east end, is novel and satisfactory. The pulpit is of stone semi-hexagonal in form, and rests upon a low inverted pyramid. The faces are sunk, with shafts and trefoil heads. The ascent to the pulpit is by stone steps, constructed in a recess, the face of which next the church is formed by two pointed arches resting upon slender shafts. The font is of stone, and good dimensions, and all the other furniture of the church has been designed in a consistent style. An ancient chapel stood on the site of the present building, parts of its foundations are now remaining. The churchyard is well situated, and inclosed in a substantial manner by a stone wall."

The architect was Mr. Henry J. Stevens, the same gentleman who designed the church described in the preceding article. The works were executed by Messrs. John Wood and Edwin Thompson, of Derby.

Harris's Peridoneus.—Under this title is registered an admirable arrangement for binding temporarily the current numbers of periodical works, loose music, or MSS. The buyers of The Builder will find a *peridoneus* specially prepared for it at Kennett's in York-street.

SMOKE PROHIBITION BILL.

This bill has at length passed through the committee, but not without very considerable opposition. Mr. Vivian moved as an amendment that it should not comprehend the "furnace of any steam-engine employed in connection with any mine of coal, lime, ores, or minerals of any description whatsoever, or with any works for the smelting, refining, or manufacturing of any iron, copper, tin, lead, spelter, brass, or any other metal, or compound metal whatsoever, or with any coke or glass works."

The motion was lost by a large majority. Mr. Villiers then suggested that the amendment be restricted to steam-engines employed in mines of ores, leaving out the latter part of Mr. Vivian's amendment. This was also lost.

Mr. Ricardo then attempted to stay further progress for the present, but in this he was supported by only seven votes in a house consisting of sixty members.

Sir J. Graham said he had understood that the committee, after full consideration of the whole question, had come to the determination that stationary engines were only to be included in the bill. It was under this impression that he had voted against the amendment. Mr. Hawes said the bill in question was almost unanimously agreed to by the committee. Mr. Williams said experiments had been tried in Leeds and various places, and the full consumption of smoke had been ascertained to be completely practicable. The experiment had also been tried at the dockyards, and had been attended with complete success. With these facts in existence, he was astonished at the opposition which the hon. member had made.

Mr. Hawes moved an exemption in favour of buildings under the survey of the excise, but without effect.

On the motion to bring up the report, Alderman Copeland stated that if the bill passed into a law, he must shut up works, and and turn 1,000 men out of employment.

PROTECTION OF LIFE FROM FIRE.

Mr. D. W. Wire, in presenting a petition a few days since to the Court of Common Council from the Royal Society for the Protection of Life from Fire, took occasion to state, that the plans upon which their fire-escapes were constructed had proved more efficacious than any hitherto acted upon or suggested, and that within the last year the lives of ten of our fellow-creatures had been saved by the use of the machines of the society.

Mr. Lott was desirous to know why the three machines which were constructed upon one of those plans, and which were deposited in the Guildhall to be used by the police, were not now in operation?

Alderman Wood said, that of all the plans of fire-escape, there was but one of practical utility, and that was the canvas escape, one of which description of machine had been sent to almost every station-house in the city. But there was no established body appointed to apply them in cases of emergency, or to keep them in a state of preparation. It would be most desirable that they should be in the hands and under the control of the police, but the commissioner could not apply the public money, under the Act of Parliament, to such a purpose.

Mr. R. Taylor could not very clearly see how the court were justified in placing implicit reliance upon the conduct of the Voluntary Society which had thus petitioned the court. They designated themselves a royal society, but he could not see what reliance was to be placed upon their stability. He was convinced that the care and management should be in the power of the police, or a body constituted as the police were.

THE DRESDEN GALLERY.

Treasure of atoms of great souls translated,
Sparks of an inextinguishable fire
Erst in the upward struggle scintillated;
Relicts bequeathed to comfort and inspire
The future earth-worm straining to be higher,
Beautiful emblemations of high thought
Prisoned for centuries in dense attire,
Glimpses in heavenward flight by genius caught,
To thousands aye unknown, if not to vision brought.

J. Ellis.

NOTES FROM THE PROVINCES.

The first stone of the Manchester Collegiate School was laid on the 19th ultimo by J. C. Harter, Esq., in the presence of a very large number of the clergy of the established church, at the head of whom was the Rev. C. D. Wray, the vice dean. The direct object in view is to provide classical education for the sons of small tradesmen at a cheap rate.——During the past week, the last great blast of the cliffs for the purposes of the South Devon Railway took place at the end of the long tunnel, near the Parson and Clerk rock, Dawlish. It was arranged in two series of blasts, consisting of eight and eleven charges of powder respectively, and was intended to displace the large mass of rocky cliff immediately before the entrance of the tunnel. The enormous quantity of 42 cwt. of gunpowder was used, and the two largest charges contained 1000 lbs. of powder in each. The whole was under the direction of Mr. W. Glennie, the surveyor, assisted by Mr. Dawson, and proved eminently successful.——The Duke of Norfolk's patrimonial seat, Arundel Castle, is undergoing great improvements and embellishments, by direction of his grace, who is negotiating with the town council for the exchange of Brooklands, which the noble duke is understood to be desirous of adding to the Arundel estate.——Stevenstone, the ancient seat of Lord Rolle, is now undergoing considerable repairs by order of the trustees of the late lord. The interior of this fine old mansion, and the noble stabling, are to be put in order and painted, as well as new stabling erected—it is to be thoroughly restored to its best state and appearance, and the outlay will be considerable.——Thirlstane House is undergoing a further enlargement, by the addition of a second wing, corresponding in every respect with that erected by Lord Northwick some three or four years ago, and forming the present picture-gallery, to which purpose the new building, when complete, will also be appropriated. So extensive has the Thirlestane House collection of paintings become, that the present apartments, though forming one of the noblest suite of rooms devoted to the fine arts of which the country can boast, are found wholly inadequate to the reception of the many valuable additions which their noble owner is constantly making, and which, for want of wall-room whereon to hang them, are obliged to be ranged on the floors, or on temporary frames constructed for their reception. The new gallery will, however, in a great measure, remedy this inconvenience, by placing at his lordship's disposal a space equal to the exhibition of at least 300 or 400 pictures.——Mrs. and Miss Saunders are spoken of as likely to have the honour of laying the foundation stones of two new churches, to be erected at Morton and East Stockwith. The ceremony it is understood, will be performed in a few days. ——The new Custom House, at Ipswich, being finished, the local authorities have determined upon commemorating the ceremony of the opening by a public dinner, to take place early in July. The suggestion eminated from the architect, Mr. J. M. Clark, and was instantly adopted by the mayor and town council. ——The Weston-super-Mare Pier Company having recently purchased the island of Birnbeck, they propose annexing it to the main land by means of a suspension bridge, to be constructed on Mr. Dredge's principle. It has also been proposed to approach the island by means of a roadway, formed of loose stones at the base, with a crown on top of solid masonry. Mr. Dredge has furnished the committee with several designs for the suspension-bridge. The first represents the elevations and sections of the bridge; the second the details of construction; and the third, a perspective view as seen from the cliff. The whole length to be crossed is about 1,400 feet; of this he proposes that about 1,100 feet should be accomplished by means of the bridge, to be composed of iron, the central span of which would be 545 feet, and the outside openings 272 feet. The remaining 300 feet he proposes should be of solid masonry. The height of the towers above the roadway is intended to be 42 feet.——Upwards of 4,000*l.* has been subscribed in Burnley in less than two days for the erection of a Mechanics' Institution, including library, reading-room, museum, news-room, and lecture-hall.

COUNTY OF SOMERSET LUNATIC ASYLUM.

The following are the tenders which were delivered at Bridgwater on the 30th ult. for the erection of the new asylum at Wells :—

Lock and Nesham, London....	£39,989
Winsland, do.	37,447
Stockholm, Bridgwater	34,050
Browne, Frome	33,786
Davis, Longport	33,600
Lewis, Bath	32,990
Davis, Frome	32,932
Stent, Warminster	32,740
Sissons, Hull	32,480
Kirk, Sleaford	30,800

The lowest was accepted.

Correspondence.

SUSPENSION BRIDGES.

Sir,—Mr. Dredge seems to be labouring under some error in his communication to your journal of last week relative to the nature of the accidents at Derby and Ashton-under-Lyne, which were not occasioned by erroneous principles of construction. The former, I believe, originated in consequence of the centres having been struck too early as from the extreme wetness of the season the mortar had not become sufficiently indurated, the latter from defective workmanship in the piers. In the event of a failure, from defective workmanship or other causes, in the piers or towers of a suspension bridge, even on Mr. Dredge's principles, I am inclined to think it would be fatal to the structure. Notwithstanding the beautiful aerial appearance of suspension bridges suitable for some situations, I am very much in favour of bridges of fixed principles for heavy, general traffic, where great strength and durability are required. If suspension bridges are so "*perfectly quiescent*," as Mr. Dredge would wish us to suppose, why are they not adapted on railways, where lightness and economy of construction are considered so essential?

I am, Sir, &c.,

Brecon, South Wales, B. B.
June 25, 1845.

Miscellanea.

Fall of Houses in Wellclose-square. —On Sunday morning last about 3 o'clock, the premises in the possession of the Rev. Mr. Smith, 17, Wellclose-square, and which were occupied as a Mariners' Church and Sailors' Orphan Asylum, together with a public-house known as the Mahogany Bar, and the upper part of the adjoining premises, fell with a tremendous crash. It is stated that some months since, when a saloon at the rear of the public-house was being built, an excavation was made for a cesspool, and that several alterations affecting the stability of the same premises were also made. These facts, together with the dilapidated state of the buildings, afford a reasonable solution of the cause of the accident, although the immediate cause is stated to be the removal of the floor of the church. Most fortunately, all the inmates escaped unhurt.

Enlargement of Newgate Market.— A long discussion took place last week in the Court of Common Council on the enlargement of Newgate Market, as recommended by the Markets Committee in their report then presented. Mr. W. Jones, the chairman of the committee, informed the court, in calling their attention to the report, that the limit of the amount which might be required to enlarge the market was 60,000*l.* The report was ultimately referred back to the committee with instructions to report the present area of Newgate Market, the space proposed to be added, the sum estimated to be expended, and the plan of the building intended to be erected.

Light for all Nations.—A few days since Admiral Dundas presented a petition to the House of Commons from Mr. Bush, stating that he had constructed a column on the Godwin Sands, and praying that the work might be inspected by a scientific engineer, with the view of erecting a light-house and fortifications for the protection of the trade in the Downs. It was referred to the committee on light-houses,

Statue of James II. in Whitehall Gardens.—The doubt which has long prevailed respecting the artist of this statue has recently been cleared up by the appearance of a work entitled "The Autobiography of Sir John Bramston," printed by the Camden Society. The passage is as follows:—"On New Year's day, 1686, a statue in brass was to be seen (placed the day before), in the yard at Whitehall, made by Gibbons, at the charge of Toby Rustick, of the present King, James II." It thus turns out that Walpole had a correct impression of the truth when he wrote "I am the rather inclined to attribute the statue at Whitehall to Gibbons, because I know no other artist of that time capable of it."

Bristol Academy of Fine Arts.—The works of art now exhibiting at the institution in Park-street consist for the most part of pictures known to London eyes. Uwins, Hart, E. Landseer, Martin, Severn, and Pyne, have contributed some of their productions, and although not so striking a collection as might be desired, is nevertheless tolerably satisfactory. Among the local artists we must mention especially, Mr. Hewitt, whose landscapes are exceedingly beautiful, and Mr. J. Fisher, who exhibits some excellent minatures. An Art-Union has been formed in connection with the exhibition.

Antiquity of Chimneys and Smoke-Jacks. — Mr. Jopling, in a letter to the editor of the *Mechanics' Magazine*, says, "when I wrote the description of 'Smith's metallic lining for chimneys,' fifteen years ago, I made research as to the antiquity of chimneys. The oldest certain act I found to be 1347, and it is conjectured they were invented in Italy. 'Smoke jacks,' which must have been invented subsequently to chimneys, are supposed to be of German origin, and from a painting which is known to be older than 1350, it is supposed they were in use before that period."

Institute of the Fine Arts.—On Saturday last the first general meeting and conversazione of the institute was held at Willis's Rooms, St. James's, and was well attended. There was an admirable collection of pictures, bronzes, and other works of art. It is gratifying to observe, that the institute is advancing very favourably notwithstanding the shyness with which it was at first regarded by the chiefs of the profession, and that it promises to aid materially in advancing the social position of artists.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the Removal of several Wrecks in the Thames.

For the supply and erection of a Steam Cooking Apparatus at the New Workhouse at Cuckfield. To be capable of cooking food for 450 inmates, and providing Hot and Cold Water in the Scullery, Bath-rooms, and Wash-house, with a Closet for drying linen.

For furnishing and fixing an Engine Pump at the Sevenoaks Union.

For Building Sewers from Bloomsbury-street, Holborn, the length being about 3,400 feet; also in Gray's-Inn Lane, the length being about 800 feet.

For Building a New Farm-house at Swavesey, Cambridgeshire.

For 500 Tons of Guernsey Granite Lumps for breaking, and also for such further quantities as may be required previous to the 29th of September next, by the Guardians of the Poplar Union.

For 1,000 Tons of Scotch Pig Iron, and 500 Tons of Finers' Metal, to be delivered at Rotterdam in the months of July, August, and September.

For Building a New Church of Kentish Rag Stone and Caen Stone at Homerton (time extended).

For the execution of the Works necessary in the Extension of the Towing-path of the Regent's Canal, near the Hampstead Road Lock, St. Pancras.

For the Construction of a Shed at the Dock at Ratcliffe, for the Regent's Canal Company.

For the Erection of Two Cast Iron Bridges, one of 80 feet span, the other of 45 feet span, near the Hampstead Road Lock of the Regent's Canal Company.

For the pulling down the present School House and erecting a new one at Chesterfield, Derbyshire.

For Supplying the East-India Company with British Iron.

For Lighting the town of Devonport with Gas for a term of fourteen years, to commence from the 1st day of October next.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At the Crown and Anchor Inn, Ipswich: the Martello Tower, situated on the point of Bawdsey, Suffolk. The materials arising therefrom could at a trifling expense be conveyed to any part of the kingdom.

In Shirley Park, near Croydon: 2,000 straight Poles, and 8,000 Bavins, Fir, Oak, Elm, Chesnut, and Alder, but principally Larch of 35 years' growth.

At Cottered Warren, Hertfordshire: 500 Prime Oak Timber Trees, and a few very large Oak Pollards, &c.

At Mrs. Wragg's Navigation Inn, Osmaston: a quantity of Timber, of good size and quality, consisting of Oak, Ash, Elm, &c.

At the Windmill Inn, South Hanningfield: 144 Oak, 60 Ash, and 20 Elm Timber Trees; also 20 Whips.

At Dockhead, Bermondsey: a valuable and extensive assortment of Yellow Battens, Spruce Deals and Planks, Yellow White Pine, and Geffle Deals and Ends, from 6 feet to 21 feet.

TO CORRESPONDENTS.

"G. R. F." *has our best thanks, although we were unable to avail ourselves of the MS.*

"D. M." (Exeter). — *We shall be glad to receive the account offered, but cannot undertake the expense of an engraving.*

"F. T."—*We regret that we cannot avail ourselves of the MS. sent. It shall be returned by post on receiving a request to that effect. Even as a voluntary contribution we could not insert the whole of it. As regards Maude's cement, obligingly named in second letter, we have not had sufficient experience of it to warrant unqualified praise.*

"J. S."—*We should probably mislead our correspondent by replying to his inquiry without seeing the premises. He can reinstate the boarding a piece at a time without difficulty.*

"Querente," *suggests that we should publish the answers to the two series of questions which formed the architectural examination at University College. This would be to write a large book. There are many points in them on which we should be glad to receive communications.*

"H. T." Plasterer. — *We regret that our arrangements will not permit us at this time to give the diagram he requires.*

"W. G. P." (Blackheath.) — *The district surveyor named seems bent on rendering himself and his office unpopular. We do not wish, however, to appear too severe.*

"A. D." "Amateur." "P. P." "Strict." — *Our kind correspondents should bear in mind that, as we have before said, we have more than one class of readers to consider. They would be satisfied of this if they were to see each other's letters even in the present case.*

"W. A." (Yorkshire.) — *The importance of a good school cannot be over-rated. Such an education as our correspondent wisely proposes for his son would fit him to take a good place in the profession and the world. We are unable conscientiously to name a school at this moment, but will inquire.*

"Mr. Wood."—*A parcel is left at the office: it shall be forwarded if Mr. W. will oblige us with his address. Many apologies are due to him.*

"T. L."—*Cooper and Son, founders, of Drury-lane, may be depended on for the iron girders required, and will afford every information.*

"A. R." (Pimlico.)—*If we mistake not, an engraving has already appeared elsewhere of the column sent.*

"E. S."—*We should be glad to insert a representation of the new front, but think that the drawing sent is hardly effective enough. It is left at the office with many thanks.*

"J. C." *complains with justice that few recent architectural works are to be found at the British Museum. By sending a list, as he proposes to Sir Henry Ellis, the principal officer, attention will be drawn to the circumstance in the proper quarter. It cannot be denied that the regulations in force press heavily on architectural authors, nor wondered at that they are evaded where evasion is possible.*

"J. E. G."—*We have several fonts in hand at this moment, and cannot promise immediate attention to the specimen sent. With our correspondent's leave, we will retain it a short time.*

"B. Green."—*We are disposed to engrave the diagram sent, but cannot speak positively at present.*

"Veritas," "B. B.," *and* "C. Mallet" *next week.*

ADVERTISEMENTS.

ATMOSPHERIC RAILWAY, Daily at Work, carrying visiters, at the ROYAL POLYTECHNIC INSTITUTION. This interesting Model is lectured on by Professor Bachhoffner at One o'clock daily; also on the evenings of Tuesdays and Thursdays at Nine o'clock. The working of the Model always follows the Lecture. It is also worked at Four o'clock, and at other convenient times. All the other interesting Works and popular Lectures as usual. Admission, 1s.; Schools, half-price.

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E. E. C. and Co.'s Patent granted them for Fourteen Years, dated 17th October, 1834. Those who may illegally Manufacture, Use, or Vend, any imitative Asphalte, without E. E. C. & Co.'s License or Authority, will be liable to Legal Process, as will be shewn by documents given by the highest legal and scientific authorities,—the Attorney General, Sir J. Campbell, David Pollock, Esq., Barrister-at-Law, and the late J. F. Daniell, Esq., Professor of Chemistry, &c. &c.
N.B.—Asphalte supplied to Railway Contractors and Builders in ½ cwt. Blocks, for convenient conveyance to all parts of the United Kingdom, at 45s. per ton.

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TO ARCHITECTS.

IN consequence of many complaints having been made to the Company, by Architects, of a spurious material having been used in the execution of Works where the SEYSSEL ASPHALTE had been specified for, the Directors, with a view to ensure the fulfilment of any such specification, have authorized CERTIFICATES to be granted to Builders where the

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Stangate, near Westminster Seyssel Asphalte Company.
Bridge, Jan., 1845.
Books of Instructions for Use may be had at the Office of "The Builder," and of all Booksellers in Town and Country, price 1s.
*** In proof of the necessity of the above advertisement, it may be mentioned, that it has come to the knowledge of the Directors, that in certain works which have been executed by Messrs. Curtis, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

The Builder.

No. CXXVII.

SATURDAY, JULY 12, 1845.

ARRANGEMENTS are being made, under the direction of Mr. Decimus Burton, preparatory to raising the colossal equestrian statue of the Duke of Wellington, now nearly completed by Wyatt, to its ill-chosen destination,—the top of the triumphal archway leading into St. James's Park. A strong inverted arch is about to be formed under the opening, and other precautions are to be taken to prevent unequal subsidence.

We fear it is too late to strive against the unwise determination to place the group on the structure in question; the press, as representatives of public opinion, were loud in their batteries against it at the time (1839) when a wooden model of the statue was set up, to the great alarm of wondering nursemaids and the crows; and, as their remarks were not then listened to, it is hardly likely, now that the arrangements are more forward, that the ruling powers will be induced to abandon their intention. Still we cannot avoid making one effort to that effect. The top of a triumphal arch, complete in itself, is not a proper place for a commemorative figure. One of two evils is certain to result: either the archway must be degraded to a mere pedestal, or the figure must lose its individuality and purpose, and become simply an adornment of the arch.

It was urged at the time we refer to, by those who wished to place the statue on the archway, that Mr. Burton, long before the Wellington statue was proposed, had suggested that a group of figures was essential to the completeness of his design; and it is very likely he did: but he will undertake to say he never desired a figure so large as entirely to destroy the importance of the structure, or, in fact, that it could be any thing more than an ornamental accessory. If they had made the structure the "Wellington Archway," and placed a quadriga, or figures, of a moderate size upon it, it would have been complete in itself and unobjectionable, excepting on the ground of *situation*; but by placing one monument on another, as they are about to do, degrading one without advantaging the other, they are, to speak in the mildest way, depriving the metropolis of one additional adornment, and committing a grievous mistake.

We referred to the *situation* of the archway. When it was first proposed to place the figure there, the writer of the present notice urged that it was objectionable as regarded the duke's own feelings. Behind Apsley House stands "Achilles," to the occasional embarrassment of him whom it honours; and now that his face may have no means of escape by turning into the Piccadilly side of it, this second memorial is to be placed there to stare him and his guests out of countenance.

Observe, too, the position in which the group must stand; crossways, presenting the flank of the horse to all who pass beneath it,—as unprecedented as its effect will be unpleasant. Surely we have not so many public monuments in London that we can afford to sacrifice two at once? Let us leave the archway as it is, adapting it perfect, if you please, with accessory figures, and form a proper pedestal for the colossal statue in some of the many fine sites in London which require adornment.

Look at it in which way you will, the present intention is full of objections, and, if carried out, will prove a great reproach.

HONOUR TO ARCHITECTURAL LITERATURE.

THE Castle Hotel, Richmond, was on Monday last the scene of the most gratifying meeting we have had to record, namely, a public dinner given to Mr. John Britton, the indefatigable antiquary and topographer. The numerous fine works which that gentleman has produced, illustrating the architectural triumphs of England, have led to a well-merited expression of gratitude and admiration, not only from professors and students of architecture and engineering, but from literati, artists, and others.

To present Mr. Britton with a permanent testimonial of the high estimation in which his labours are held, a subscription has recently been opened, which already amounts to above 300*l.* The meeting on Monday was a supplementary feature of the project.

Owing to the unavoidable absence of Mr. Wyse, M.P., in consequence of the debate in the House of Commons on the Irish Colleges Bill, the chair was taken by the treasurer, N. GOULD, Esq., who conducted the business of the evening very efficiently. Near to him were seated Mr. Britton, the Dean of Hereford, the Rev. Dr. Ingram (President of the Trinity College, Oxford), Professor Hosking, W. Tite, V.P. of the Architects' Institute, Capt. Smyth, Lieut. Stratford, Mr. J. D. Harding, Dr. Conolly, Dr. R. Dickson, Mr. D. Roberts, R.A., J. B. Nichols, F.S.A., Mr. Lewis Pocock, F.S.A., Mr. Gaskoin, Mr. Wansey, F.S.A., and Mr. Rainy. Mr. Wm. Tooke, F.R.S., and Mr. Wm. Jerdan, the veteran editor of the *Literary Gazette*, acted as vice-presidents, and were supported by the Rev. Dr. Rees, the Rev. E. Tagart, Mr. Brayley, Mr. Maugham, Mr. S. C. Hall, F.S.A., Mr. B. H. Smart, Mr. Ingram, Mr. Corner, F.S.A., Mr. J. Timbs, and Mr. C. F. Whiting. There were also present, Mr. Fowler, Mr. Booth, Mr. Mair, Mr. Douthorne, Mr. Chapman, Mr. Herbert, Mr. W. Cubitt, Mr. Grissell, Mr. Dunnage, Mr. E. Hall, Mr. Crew, Mr. Sealy, and many others.

After the usual loyal toasts had been given, the CHAIRMAN, in proposing the health of Mr. Britton, expressed his regret that Mr. Wyse was prevented attending, as he would have been much better qualified to do justice to the subject. He, however, could speak of Mr. Britton from long acquaintance, having associated with him at a Board of Commissioners, to which for upwards of thirty years that gentlemen had been attached in the discharge of onerous duties, with their entire satisfaction and with honour to himself. Mr. Britton was not ashamed to have it known that he was of humble origin, and that he had not had the advantages of education in his youth; but he had been both the builder and the architect of his own fortunes, and by unwearied industry and perseverance he had succeeded, in spite of every disadvantage, in producing those works which had placed him in his present position. (*Great cheering.*) By a paper which he then held in his hand, he found that the number of those volumes was 66; besides numerous,—almost innumerable, essays; that they comprised no less than 17,122 pages; and such of them as had ever attempted to write even twenty pages would be able to appreciate the labour. The engravings in Mr. Britton's works were 1,866, and their beauty and accuracy were well known; and to come to a matter which he, as a commercial man, might be supposed to know more about, the money expended in these productions amounted to the enormous sum of 50,328*l.* (*Renewed cheering*). And all of these, it should be remembered, were essentially useful and instructive. That day was Mr. Britton's birth-day; on that day he entered upon his seventy-fifth year; and his whole life had been actively and industriously spent. He rejoiced to see amongst them on that occasion a gentleman whose name, in conjunction with Mr. Britton's, was well-known. He alluded to Mr. Brayley. (*Cheers.*) It was unnecessary for him to enlarge further on these topics. Whatever the testimonial to be hereafter given to Mr. Britton might be, he was sure the committee would give it with the same sincerity as he then proposed his health and happiness. He only regretted that he had no son to whom his virtues might descend, and who in pointing to his many works, and to the record of the measures then in progress, might say with pride, "that was my father."

The toast was drank with the greatest enthusiasm; the cheering lasted for many minutes.

MR. BRITTON, with much feeling, addressed the meeting as his "kind friends;" and said it had been his intention to have given them some lengthened account of his struggles and his exertions; but he found old age creep upon him, and having been suffering for a week past from indisposition, he felt that such an effort would be imprudent. He had never had the advantages of a collegiate or academical education; indeed, when he was about to commence his publications he was absolutely ignorant either of a grammar or a dictionary; but he was thereby induced to procure and study both books. He alluded to his confinement, in his youth, to the cellar of a wine-merchant, for six years, where he contrived by great industry to do as much work in six hours as his fellow-apprentice did in ten, enabling him to devote four hours so gained to mental improvement. Throughout his life his works had been received with much kind commendation; unkind remarks (which no man could escape), although he felt them at the time, only stimulated him to further exertions. He had consequently been able to publish the many works referred to by the chairman, and which he might say without arrogance were of utility and importance. Only one or two of them could be considered as of an ephemeral nature; yet although he had always made every effort to ensure the strictest accuracy, none of them had completely satisfied his own judgment. With reference to the testimonial proposed to be offered in kind approval of his works and his exertions, he had at once refused to accept a piece of plate, or any compliment of a pecuniary kind. He had confided the decision on that point to a committee, who he was convinced would adopt some plan which while it would be gratifying to himself would combine some benefit to art and literature. He thanked them for the cordiality with which they had received the toast, and trusted that the younger of them would be led by these proceedings to acts of emulation, and that they would all feel, like him, delighted, honoured, and gratified in the last hours of life. (*Great applause.*)

MR. W. TOOKE proposed the "Society of Antiquaries" in a short but able speech, which was replied to by DR. INGRAM.

THE DEAN OF HEREFORD, in proposing the health of the chairman, commented at considerable length on the works of Mr. Britton.

THE REV. DR. REES then gave the health of the honorary secretaries, Mr. Godwin and Mr. P. Cunningham, and took occasion to offer his testimony to the worth of Mr. Britton, and the value of his labours.

MR. GODWIN said, before he thanked them for the kind manner in which they had acknowledged the small services of his colleague and himself, he would, in pursuance of his duty as secretary, read a letter from Mr. Wyse, to shew that his absence had not proceeded from want of desire to be present. The letter was as follows:—

"House of Commons, July 4th, 1845.

MY DEAR SIR,—I have just learned from Sir James Graham, in answer to my question in the House this evening, that it is the intention of the Government to take the *Colleges Bill* (Ireland), the *first* of the orders of the day, on Monday. The bill being still in committee, demands the close and uninterrupted attendance of every Irish member, and I especially, from the long solicitude I have felt on the subject, feel myself more particularly *bound* to watch over its progress. This will compel me *most reluctantly* to sacrifice the honour and gratification I had anticipated in presiding over the dinner intended to be given to my friend, Mr. Britton. I cannot tell you or him how much I feel this disappointment; I had hoped it would have afforded the opportunity I have so long desired, of expressing my own sense of the many obligations which our

national antiquities owe to his zeal and intelligence, and have been the organ in so doing, of what I believe to be the sentiment of every one acquainted with his long and most meritorious and useful labours.

I also desire to be afforded an occasion, and none could present itself more favourable to the purpose, of calling the attention of the supporters and appreciators of our early arts to the want of which we all feel and deplore, of institutions for their preservation. The issue of my late motion in the House of Commons is proof of how much remains to be done, to place us in this respect in the position which we ought to occupy. The interest which the public takes is not, I trust, to be measured by the apathy of public men, and I cannot but believe I should have found an echo amongst the gentlemen whom I had hoped to meet, to my strong feelings on the subject.

Though compelled by this *mal apropos* to give up the pleasure to which I had looked, I hope you will not less believe I most warmly sympathize in the object of your meeting, and hope I may be afforded, on some future occasion, the means of enlarging these expressions of regard and respect to the object of these honours—Mr. Britton.—I am, dear Sir, yours very truly. THOMAS WYSE.

The same cause, continued Mr. Godwin, had kept Mr. Hume away, who had stated in a letter that he "was desirous to shew that respect to Mr. Britton, which his long and valuable services merit." He had also received letters regretting inability to attend from Lord Northampton, Lord de Grey, Mr. Cockerell, R.A., Mr. Barry, R.A., Mr. Uwins, R.A., Mr. Pickersgill, R.A., Mr. Neeld, M.P., Mr. Donaldson, Mr. Ludlow Bruges, M.P., Mr. Baily, R.A., and fifty others. The first-mentioned distinguished and amiable nobleman said in a letter to Mr. Britton: "I must conclude by wishing that you may long live to remember it as a satisfactory proof of the sense of your countrymen of your important services to the knowledge of medieval architecture." As regarded the office of secretary, he (Mr. Godwin) had accepted it as a duty,—as a slight acknowledgment of the advantage he, in common with other architects, had derived from Mr. Britton's works. Every lover of our ancient architectural glories, every man studying to acquire the power humbly to imitate them, was much indebted to him. By placing faithful representations of these buildings before the public, and rendering topographical literature agreeable as well as instructive, he had led them to appreciate these structures, and had mainly induced the present improved state of feeling on the subject. What should we know of many buildings now destroyed, if they had not been faithfully depicted and described, and how many more would have been destroyed but for the preservative spirit inculcated.

Out upon time, who for ever will leave,
But enough of the past for the future to grieve,
O'er that which hath been and that which must be:
What we have seen our sons shall see;
Remnants of things that have passed away,
Fragments of stone reared by creatures of clay!

How much then we owed to those who had ravished these noble works from the grasp of time, and induced a general desire to preserve them. He should have felt gratitude for this even as a stranger, but having had the gratification of a long connection with Mr. Britton, and having always found him a warm friend and a good man, there was still stronger reason why he should give all the aid in his power to the present endeavour to gratify him. This was but the beginning of the end,—which end was to present to Mr. Britton some permanent testimonial of respect and esteem, and until that was effected, they might still command his services.

DR. CONOLLY proposed "The Royal Institute of Architects," and connected with it the name of Mr. Tite. In the course of an eloquent speech, the doctor mentioned amongst other services for which thanks and praise were due to Mr. Britton, was the restoration of the church at Stratford-upon-Avon, the burial place of Shakspeare, mainly brought about by his remonstrances and advice.

As regarded the Institute, he was glad to learn that it had served to bring the members of the profession more closely together, and to induce kind feeling.

MR. TITE in replying to the toast (which he did very ably), acknowledged, on the part of the architects of the country, the lasting debt of obligation due from them to Mr. Britton, strongly contrasting the present state of general information on the subject of ecclesiastical architecture with its position before his works were published.

MR. GODWIN said he was deputed to propose a toast which could not fail to interest a meeting like that present, although from the lateness of the hour he feared to address them at any length. The toast was "the ancient fraternity of Free-Masons." The freemasons of to-day were known only in connection with good dinners and very great charity, but in former times, as they well knew, the freemasons occupied a different position. It seemed clear that the greater number of the magnificent works produced in the middle ages were erected by bands of men having in some degree a religious character, and protected by certain enactments, who were in fact the freemasons, progenitors of the present lodges. Without going into a long story, this fact accounted for several phenomena observable in tracing the history of architecture, and which might have interested them if there had been time for comment. There were at the table (continued the speaker) several of the largest builders of the day, Mr. Cubitt, Mr. Grissell, Mr. Herbert, Mr. Elger and many others, who each in themselves represented large bands of freemasons, — men who had built miles of sewers, covered new London with squares and terraces, and old England with interminable railways; and this made the toast more fitting still, especially as several of them were high in the mysteries. He did not know that they could still sing—

"High honour to masons the craft daily brings;
We're brothers of princes and fellows of kings:"

but he did know that they practised charity and the virtues, and if they did not teach Euclid, they still inculcated morality. In order that he might bear witness to this, in at least one case, he would couple with the toast the name of Mr. William Cubitt, not simply because he was a distinguished member of the craft, but because he was an old and warm friend of Mr. Britton.

MR. WILLIAM CUBITT made one of the best speeches of the evening in return, but the hour was then so late, that to take notes was out of the question.

"The Royal Academy" proposed by the chairman, called up Mr. DAVID ROBERTS in reply, and Mr. S. C. HALL appropriately terminated the proceedings with some excellent remarks full of feeling, on the value of a kindly demonstration in favour of one who still lived, as compared with posthumous honours.

THE ARCHITECTURE OF VENICE

ILLUSTRATED IN THE WORK OF CICOGNARA.*

WITHIN the memory of persons yet living, a republic which had passed through many centuries unchanged, though often menaced by foreign and internal commotion, has ceased to exist. Its city was the centre of much enterprise and traffic, and its children imprinted signs of their presence on the shores of distant lands. The Venetian masonry is found added to that of older date in every Grecian acropolis; and one of their castles is seen on the Red Sea in Arabia. The fugitives from the ravages of Attila in the fifth century, and from the invasion of the Lombards in the seventh, were the ancestors of those, who contested with Genoa more from mere motives of rivalry than the attainment of a definite object. The same "hundred isles," which are formed from only the slime of neighbouring rivers, were the seat of that people whose merchants were princes, and of the most brilliant school of painting, that the world has known.—

"The Rialto, where merchants most do congregate"

became the centre of a government, whose policy was the riddle and admiration of Europe, but was stained by the records of crime. From circumstances apparently adverse, the most important results are sometimes deducible, and in the midst of the islands in the *Lagune*—a surface of water from twenty to thirty miles across, but which, except where intersected by the deeper channels of the river is seldom more than one or two feet in depth arose a state, whose dominion extended over half the empire of ancient Rome and whose palaces, though shewing a peculiar style of architecture, are hardly surpassed in that city. The fall of Venice at the close of the last century, before the arm of that revolution, whose influence penetrated into every part of the world, exploded the mystery of centuries, and revealed the internal policy and condition of the state. In the works of Sismondi and the Count Daru, Venetian history has been ably treated: and from the works now before us we gain an accurate conception of the several styles of architecture, and of the order of their influence. This elaborate work was undertaken by members of the academy of fine arts at Venice, under the presidency of Count Cicognara, and gives representations of all the buildings of any importance. The work is throughout of the most elaborate character, and, like many others appearing from the academies of Italy, suggests a slight contrast to the spiritless existence of similar bodies at home. Two thick folio volumes of plates, carefully engraved in outline, and interspersed with letterpress, are devoted to the subject. They consist of plans, elevations, and sections, but have not the advantage of perspective views, in which particular the book is inferior to the companion work on Genoa,* which we shall shortly take occasion to notice.

The earliest remaining architecture of Venice had that Byzantine character, which prevailed on the continent of Italy. The church in the island of Torcello has stilted arches, springing immediately from capitals of Byzantine taste. The cathedral of St. Mark generally held to be the work of Greek artists shews a still greater tendency to the Gothic style, in the crocketed and ogee canopies in the exterior and interior. It has the plan adopted in the Greek church, occupying a space of ground nearly square, at the end of the piazza of St. Marc, where the piazetta joins it at a right angle. At one end of the latter is the detached Campanile, immediately opposite the cathedral, and at the other end next the grand canal are the Red Columns, the elevating of which gained so great honour for a Venetian architect. Immediately contiguous to the cathedral, is the Ducal Palace, having one front in the piazetta, and the other looking to the grand canal. "The Bridge of Sighs" joins the palace and the prison, an embodiment of that contrast between festive pomp and the unrelenting vengeance in the name of justice, which every page in the annals of Venetian history discloses. Nearly opposite the palace, at the entrance to the grand canal are the Dogana and the church of St. Maria della Salute. The cathedral of St. Marc is most remarkable for its numerous domes, but which are not of the best form and arrangement. They shew some knowledge of centry, being entirely of timber construction elevated above the lower dome. The latter has the proportions and construction observable in Sta. Sophia, at Constantinople, and as well as the whole building, profusely decorated. The timber dome was entirely a feature of effect, far more space being lost in the cavity than in St. Paul's cathedral, where this has been deemed a fault, or in any other cathedral in existence. The front is highly enriched but still is unsatisfactory, much of the ornament being disproportionate to the façade. The micircular *pediment*, if we may so call it, which was so often used in later buildings over doorways, is often repeated. The winged lion of St. Marc is displayed, as on all the public buildings, and here are the celebrated bronze horses, at length "bridled."† Much of the internal decoration displays considerable beauty, particularly about the great altar where there is the gothic character above alluded to. The Campanile is square in plan plainer than some in other parts of Italy it has a staircase in the thickness of the wall The upper story, and pyramidal termination were not parts of the original structure.

* "Le Fabbriche più cospicue di Venezia misurate illustrate ed intagliate dai membri della Veneta Reale Accademia di belle arti.—Venezia, 1815-20." In two vols. folio.

* P. Gauthier les plus beaux edifices de la Ville de Gen folio, Paris, 1824—30.

† "Before St. Mark still glow his steeds of brass,
Their gilded collars glittering in the sun;
But is not Doria's menace come to pass?
Are they not *bridled!*"
BYRON—Childe Harold, Canto 4.

he church of St. John and St. Paul, the nave as greater length, but the plan is still Greek. Subsequently, we find that the Gothic style, which prevailed in Italy during the 13th and 4th centuries, had considerable influence in Venice, but it must be confessed that the buildings in which it was used display little of that elegance observable in other parts of Europe, or even in other cities of Italy. The "Casa d'Oro" has gothic forms and arches, but has horizontal lines. The external elevations of the Ducal Palace were in the main gothic, but had many peculiarities assimilating them to the buildings of Lombardy. Much beautiful carving is observable about the capitals of the columns. The Porta della Carta, the gate of entrance to the Ducal Palace, belongs to the 15th century; it is still gothic, but has a square-headed door, apparently of the same date. The arch in front of the Giant's Stairs, in the same building, has some curious pinnacles. In the Palazzo Foscari, horizontal lines prevail along with gothic features; and in the Palazzo Pisani there is the same character, with the addition of quoins, and rusticated basement. The influence of gothic taste did not last longer in Venice than in other parts of Italy, and before the close of the 15th century, Italian architecture was the only style in use. In the 16th century, the talents of some of the most celebrated architects were called into play during a temporary state of tranquillity, and Sammicheli, Palladio, Antonio da Ponte, and Scamozzi, left the most remarkable buildings of Venice; whilst in painting we find the names of Titian, Giorgione, Paolo Veronese, and Tintoretto. The Florentine Sansovino erected the mint, the library of St. Marc, and the *Procuratie Nuove*, and sculptured the statues of Mars and Neptune, emblems of the military and naval power of Venice, which still stand at the Giant's stairs.

The style of this period, though corresponding with that of the most important buildings in Rome, Vicenza, and elsewhere, had some local peculiarities, even in the hands of architects, who had practised in other cities.

One of these was the extraordinary proportion, which windows and clear openings bore to the general front. Indeed, it might seem that much more light was sought than would be desirable, even where the front was towards some narrow canal or street, but the peculiar nature is equally observable in palaces upon the grand canal, where light would be attainable in abundance. It has been suggested, that this quantity of light was necessary to the effective arrangement of the numerous private festivals in this city of gaiety and wealth, but we cannot understand the force of the argument. We would venture the opinion, that the preponderance of voids over solids was a precaution suggested by the questionable nature of the foundation; or perhaps it may be suggested, that as locomotion had its difficulties and drawbacks, it was necessary to provide a good view of the scene without, from the apartments. The Palazzo Grimani was the work of Sammicheli, and displays the features alluded to. The arrangement of the cornice, by which height was given to the frieze, that member having windows and decorations, first practised by Peruzzi, was employed in the library at Venice by Sansovino. That beautiful building is of two orders in height, the columns being coupled transversely in the thickness of the wall, and the upper entablature proportioned to the whole building. In the intercolumns we find the Venetian window. The art of sculpture—at this period contributed to the perfection of architecture, and to render the buildings of Venice especially remarkable amongst those of Italy. The extent of window-opening noticeable in places is not found in churches, which is an argument for the propriety of the view, first-mentioned above. Most of the churches were of a date, earlier than the palaces, and in their details are many singular points for notice. Sometimes the fascia was inclined in an exaggerated degree, and the patera of the Doric order was often mitred at the angle. The fronts had often no other opening but the door, and had frequently inscriptions and projecting panelling. The church of Santa Maria della Salute has the circular plan often employed at Venice, and a larger and smaller dome giving a fine effect from all points of view. The thrust of the dome is resisted by a number of large scroll buttresses, upon each of which is a statue, giving the building a peculiar but pleasing effect. In the gate of the arsenal, the singular use of an angular modillion is found.

We cannot do better than advise all, who are interested in the history of Italian architecture not to confine their attention to the graphic part of this fine work. The future state of Venice promises to be more prosperous than her late history, and the junction of the city to the mainland, by the viaduct of a railway, will probably effect a great change in her condition. Let us hope, however, that such change will not obliterate the records of the past, records which have prompted the poetry of Byron, and afforded materials for the dramas of Shakspeare. E. H.

CUTTING INTO CHIMNEYS.

AWARD UNDER BUILDINGS ACT, AND MODIFICATION OF A CLAUSE.

The following clause in schedule F. has occasioned some embarrassment.

"*Cuttings into Chimneys.*—And as to every chimney-shaft, jamb, breast, or flue already built, or which shall be hereafter built, in reference to cutting the same, no such erection shall be cut into for any other purpose than the repair thereof, or for the formation of soot-doors, or for letting in, removing, or altering stove-pipes or smoke-jacks, except as directed for building an external wall against an old sound party-wall."

This has been held to prevent an owner from enlarging his room by the *removal* of a chimney-breast against an internal wall even, unless he also took down the breast above, although the latter could have been securely supported without difficulty. The referees, by the following award, recognize the hardship of the enactment, and shew the considerate view which they propose to take of it.

We give first the surveyor's application to the referees on the subject, and his notice to the builder.

District of Saint John, Saint Thomas, and Saint Olave, Southwark, and Saint Mary Magdalen, Bermondsey.

12, Bermondsey-square, April 24th, 1845.

Sir,—I hereby request the determination of the official referees as to the following matters, concerning which, difference has arisen between the builder of the under-mentioned works and myself.

Mr. Henry Horlock, of 11, Augusta-row, Spa-road, builder, has cut into, and cut away certain chimney-jambs, breasts, and flues, for other purposes than those allowed by the above Act.

Previously to the commencement of the works hereafter mentioned, a certain stack of chimneys existed back to back in an internal wall of a certain house, situate and being No. 3, Grange-road, in the occupation of Mr. Teversham, and was built from the foundations which are below the surface of the basement floor upwards.

The whole or greater part of so much of the said stack as extended through the ground story has been cut away, and the upper part of the stack is now supported upon a brest-summer and two iron columns based upon the part of the stack still remaining in the basement story.

The notice of irregularities, of which a copy is hereto appended, was duly served on the builder, and the first-mentioned irregularity has not hitherto been amended.

I have the honour to be, Sir, &c.,
(Signed) Robert Hesketh.

"To the registrar of Metropolitan Buildings.

(*Copy.*)

To Mr. Henry Horlock, of 11, Augusta-row, Spa-road, builder, or to the foreman or principal workman on the premises hereunder mentioned.

I do hereby give you notice, that the building operations now in progress under your superintendence, situate at Mr. Teversham's house, Star-corner, in the parish of St. Mary Magdalen, Bermondsey, are not conformable to the statute in the portions thereof under mentioned; and I require you within forty-eight hours from the date hereof, to amend the same.—April 16th, 1845.

IRREGULARITIES REFERRED TO.

Certain chimney-breasts, jambs, and flues, having been cut into for other purposes than those allowed by the said Act; and certain timber being placed under the chimney openings, so that the same is, or will be within 18 inches of the surface of the hearth.

Robert Hesketh, District Surveyor.
12, Bermondsey-square."

The following is the award:—

With regard to the house in the occupation of Mr. Teversham, situate and being No. 3, Grange-road, in the district of St. John, St. Thomas and St. Olave, Southwark, and St. Mary-Magdalen, Bermondsey, within the limits of the Metropolitan Buildings Act, 7 and 8 Vict. cap. 84.

Whereas the official referees of metropolitan buildings, duly appointed in pursuance of the said Act, have received and duly considered the information of Robert Hesketh, the surveyor of the said district, against Henry Horlock, relative to certain works done by him at the said house, dated the 24th day of April, 1845, containing a copy of the notice of irregularity, from the said Robert Hesketh to the said Henry Horlock, a copy whereof is hereto annexed.

And whereas on the 13th day of May last, the said official referees did duly hear the said Robert Hesketh and Henry Horlock touching the matters of the said information, and did also proceed to view the said premises.

Now, inasmuch as the works in question *have been securely done and are not dangerous as regards fire*, and are entirely within the same premises, we the said official referees make no award thereon.

And with regard to the costs and expenses attending this proceeding, we do hereby award that the same be paid by the said Henry Horlock, that is to say,

First, as to the fees and expenses of the office of metropolitan buildings, that on or before the 3rd day of June, 1845, the sum of 2*l.* 5s. 6d. be paid to the registrar of metropolitan buildings at the said office at No. 3, Trafalgar-square, London.

Secondly, as to the costs and expenses of the said Robert Hesketh, as such surveyor as aforesaid, that on or before the said 3rd day of June, 1845, the sum of 1*l.* 1s. be paid to the said Robert Hesketh, at his office, No. 12, Bermondsey-square, or to the said registrar at the office aforesaid.

In witness whereof, we, the said official referees, have to this our award on two pages of foolscap paper, set our hands this 26th day of May, 1845. (Signed)

Jas. W. Higgins. } Off. Ref.
William Hosking. }

Arnott's Ventilating Valve.

The clause above referred to prevented the insertion even of the ventilating valve, and the referees accordingly obtained a modification of it, as is set forth in the following document:—

"To all to whom these presents shall come, greeting. Whereas by an Act of Parliament passed in the 7th and 8th year of the reign of her Majesty, entitled "An Act for regulating the construction and the use of buildings in the metropolis and its neighbourhood," after reciting that for the purpose of preventing the express provisions of the said Act from hindering the adoption of improvements, and of providing for the adoption of expedients either better or equally well adapted to accomplish the purposes thereof, it was enacted with regard to every building of whatever class, so far as related to the modification of any rules thereby prescribed, that if in the opinion of the official referees the rules by the Act now in recital imposed should be inapplicable or would defeat the objects of such Act, and that by the adoption of any modification of such rules such objects would be attained either better or as effectually, it should be the duty of such official referees to report their opinion thereon, stating the grounds of such their opinion to the commissioners of works and buildings: and that if on the investigation thereof it should appear to the said commissioners that such opinion was well-founded, then it should be lawful for the said commissioners, or any two of them, to direct that such modification might be made in such rules as would in their opinion give effect to the pur-

poses of the said Act. And whereas the official referees have, by their report, in writing, bearing date the 7th day of March last past, certified to us that the invention denominated Dr. Arnott's ventilating valve is an improvement tending to increase the ventilation, and thereby produce a healthier atmosphere in apartments. And that it may be made so as not to counteract the enactments for security from fire. And that there is no provision in the said Act prohibiting its being built into new chimneys, and therefore cuttings for its insertion into chimneys already built may be permitted. And that the present rules in the said Act are inapplicable, and such as would hinder the adoption of the improvement denominated Dr. Arnott's ventilating valve. And that by a modification of such rules in schedule F. of the said Act such objects will be better attained. And having, on investigation of these grounds, and of the subject matter set forth by the official referees, considered them, and the opinion of the official referees to be well-founded, we, the undersigned, the said commissioners of her Majesty's works and buildings, do hereby direct that a modification be made in the rules of the said Act, after the last existing clause in schedule F., as follows, viz. :—

"And except for the insertion of Dr. Arnott's ventilating valve, provided that such cutting be not nearer than 9 inches to any timber or other combustible substance, and that the valve be so arranged as not to be capable of opening more than 30 degrees from its vertical position. And that every part of the valve be made and fixed with incombustible materials."

Which modification being made in such rules will, in our opinion, give effect to the purposes of the said recited Act.

As witness our hands this 17th day of June, 1845. (Signed)

LINCOLN, } Commissioners of
CHARLES GORE, } Works and Buildings.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT an ordinary meeting held on the 23rd ult., Mr. Tite, V.P., in the chair, several presents were received, and Mr. J. Dobson, of Newcastle-on-Tyne, was elected a fellow. A paper was read by C. Parker "On the Proportions of the Beams used by Ancient and Modern Architects." The paper commenced by shewing the strongest beam that could be cut out of a round tree, and contrasting the proportions with the usual forms which ancient and modern architects adopted in beams, the former making the breadth, and the latter the depth, the element of strength. It then traced the views that different nations have held and practised in their constructive operations. It stated that the Egyptians preferred the square form of bearing beam, which proportion was used in Solomon's palace, and that the Greeks and Romans used the rectangle placed horizontally. It then remarked that in the timber buildings erected before and after the Norman conquest, the breadth of a beam was placed to resist an opposing force, and so continued to be used in the rebuilding of London after the fire in 1666. Prior to this date, the system of double framing was introduced on the continent, and changing the proportion of timbers made the depth preferred to the breadth, which view is now thought correct. The diversity of opinions thus shewn, induced the writer to institute a number of experiments, which were made with iron, from the difficulty of obtaining specimens in wood of equal strength.

The results of these were given; one curious deduction was, that two bars of equal size will not bear double the weight that one of them will support. The same bars formed into the reversed T shape (⊥), would support twice the weight that they would carry placed side by side. Making a beam two, three, or four times the width does not make it proportionably stronger. In a conversation on the subject that afterwards occurred, Mr. Tite referred to the tables in Tredgold, and cautioned young architects against unlimited dependence on them; he believed the scantlings there given, to be too slight. The scantlings, for example, given for a queen-post roof of fifty feet span were insufficient. He had made a roof in younger days with scantlings in accordance with Tredgold's instructions, and it had failed. Much was often said of the smallness of timbers used now as compared with those in old buildings; for his part he believed our houses (that was, our properly built houses) were better timbered now than then. He regretted that Mr. Parker had not tried his experiments with timber, instead of iron, as the materials were not analogous. Mr. Godwin directed attention to the report recently made by Mr. Cubitt and Sir H. Delabeche as containing valuable information on the subject of iron beams. Mr. I'anson said the great point was to discover the neutral axis in beams.

A paper drawn up by Mr. G. Bailey, was afterwards read, descriptive of a series of drawings of buildings in Southern India, made some time since under the direction of General Monteith. The drawings comprised some elaborate views of the pagodas, and the palace and choultry of Tremail-Raig at Madura, a city on the Coromandel coast, and erected about the year 1623; likewise of the Great Temple of Shivven, on the sacred island of Ramisseram, between the Coromandel coast and the island of Ceylon, and but little known to Europeans. This temple and its appurtenances almost entirely cover an area of 830 feet by 625 feet. The building is of different periods, a small shrine or temple having existed on the island from a remote period, but the chief additions were made by the Rajah of Ramnad, about 150 years since.

Mr. Moon offered some remarks on his improved chimneys. He stated that in consequence of the new Metropolitan Buildings Act, and in order to comply with its regulations, he had been compelled to new model the bricks, in doing which he had been enabled to simplify the construction. He observed that different opinions existed as to the space required for the emission of smoke, and that various sizes and diameters had been adopted. In his original formation he adopted three sizes, but experience and attention had brought him to the conclusion that one size was sufficient for ordinary purposes, viz., 10 inches diameter; which, bonded and worked in a wall two bricks thick, and complied with the stipulations of the Building Act, by leaving 4 inches of solid brick at the thinnest point.

July 7th.—Mr. Pocock in the chair. A paper was read by Mr. Edward I'anson, jun., on a mosaic pavement in the cathedral of Sienna. Mr. Scoles afterwards made some remarks on columns.

THE CONSTRUCTION AND WORKING OF RAILWAYS.

SIR,—As you were kind enough to insert my former communication on railways, I beg leave to trouble you with a few more observations on the same subject. I observe that a commission is to be appointed by her Majesty, to inquire into the inconvenience attending the break of gauge, and the practicability of having a uniform gauge established throughout the country; and as the commission is to be composed of men of science unconnected with the Houses of Parliament, and, I hope, *uninterested* in any line of railway, I anticipate much good will result to the country from their labours. There cannot, I am sure, be two opinions on the subject of the inconvenience attending the difference of gauges of railways, and even Mr. Brunel's proposition to obviate the same, namely removing the train of carriages from the broad to the narrow gauge, and *vice versâ*, is but a clumsy and objectionable substitute to cover an acknowledged deficiency; for if we are to reap the full benefit of railway locomotion, we should not be subject to any such delays or obstructions as would be required to transport a whole train of carriages from one line to the other at every point of junction of railways of different gauge.

In Ireland one uniform gauge might have been adopted, and even a different principle, if considered necessary, but I observe they are pursuing the same short-sighted policy as we are in England.

The evil consequences attending the difference of gauge was foretold by Mr. Hawkshaw, civil engineer, in his report to the Great Western Company in 1838, immediately after the Great Western Railway was commenced; he observed: "It will not be too much perhaps to say that three-fourths of England are already being traversed by railways of the narrow gauge. It follows then that any company deviating from this gauge will be isolating themselves to a certain extent, if not as regards their main line, yet as regards their branches; if not as regards their direct traffic, yet certainly as regards their collateral traffic. But in the present early stage of railway traffic it yet remains to be seen whether or not it may become a great evil for a main line to be thus isolated and rendered impossible of connection with the great lines in its neighbourhood. That it will be an evil in this sense as it regards the branch lines there can be little doubt, for they, or some of them, in course of time will of necessity run into the neighbourhood of other lines of different gauge; but with these, however vital the connection may be, all connection will be impossible.

In this point of view only it has become a serious matter for any company in this country to make their line differ as to dimensions from the majority of the lines around them. It is to a certain extent as if a canal company in a country of canals should construct a new navigation so, and with locks of such a character as would totally shut out the boats of all the canals that surrounded it."

Although it has been remarked by a member of a committee of the House of Commons that no engineer would commit himself to state what he considered to be the best gauge for railways, yet when we reflect that all the leading engineers of the day, with one or two exceptions, are projecting railways on the narrow gauge principle, it is pretty conclusive evidence which system they prefer. I always judge of engineers by their works. I regret that the powers of the commission are to be limited to the subject of the gauge, and not extended to the construction and working of railways, as these appear to me to require scientific analysis and investigation as well as the gauge. There is now and will be as much squabbling between engineers about this construction of railways as there was formerly between the disciples of Telford and MacAdam respecting the correct principles of construction of turnpike roads; and unless this subject, as well as the more important one of the moving power, be submitted to the mature deliberation of a scientific commission of inquiry, a further sacrifice of the "sinews" of the country must be made to the great benefit of engineers and gentlemen of the legal profession. The great cost attending the progress of private bills through Parliament has frequently proved a source of serious and permanent injury to the works.

As the extent of railway on the narrow gauge principle exceeds nearly fourfold that of the broad, and as it would be attended with a considerable expense to increase the width of the narrow gauge railways, inasmuch as the cuttings and embankments would require widening, the bridges and tunnels enlarging, and the upper works reconstructing and strengthening, and as it is not too late even now to obviate the evil of the difference of gauges, I would recommend the broad gauge to be reduced, which may be done at a comparatively trifling cost merely by laying down an additional line of rails to suit the narrow gauge traffic, and that the respective companies of the broad gauge railways could introduce gradually locomotive engine carriages, &c., on the narrow gauge principles as their old stock became depreciated or unfit for service. As this alteration would be required for the public convenience, I think in justice the expenses incurred ought to come out of the public treasury. B. B.

Brecon, June 30th.

*** In the committee, on Wednesday, the 25th ult., Mr. Cobden moved the following resolution, which was afterwards agreed to :—"That, it having been represented to this House by petitions from various public bodies, as well as from merchants, manufacturers, and others, that serious impediments to the internal traffic of the country are likely to arise from the 'breaks' that will occur in railway communications from the want of a uniform gauge; and these representations not having been fully inquired into by any of the committees of this House upon private bills, and it being desirable that the subject should be further investigated, an humble address be presented to her Majesty, praying her Majesty to be graciously pleased to issue a commission to inquire, whether in future private Acts for the

construction of railways, provision ought to be made for securing a uniform gauge, and whether it would be expedient and practicable to take measures to bring the railways already constructed, or in progress of construction, in Great Britain, into uniformity of gauge; and to inquire whether any other mode of obviating or mitigating the apprehended evil could be adopted; and to report the same to this House."

Her Majesty has since appointed Sir John Mark Frederic Smith, Lieutenant-Colonel of the Royal Corps of Engineers, late Inspector-General of Railways; George Biddle Airy, Esq., Astronomical Observator in her Majesty's Observatory at Greenwich; and Peter Barlow, Esq., Professor of Mathematics in the Royal Military Academy at Woolwich, to be her Majesty's Commissioners for the purpose stated.

INSTITUTION OF CIVIL ENGINEERS.

On Tuesday, June 24th, Sir John Rennie, president, in the chair, a paper was read by Mr. J G. Bodmer, "On the advantages of working engines with high-pressure steam expansively and at great velocities."

The author based his observations upon the principle of a considerable area of piston being essential for taking advantage of the initiative impulse of highly elastic steam, in contradistinction to the idea of the percussive action which had some time ago found advocates. In order therefore to take advantage of this action, and be enabled to cut off the steam at an early period of the stroke, the piston at short intervals, and consequently making a great number of strokes within a given time, must travel over a limited distance, that as little as possible of the heat, and consequently of the elasticity, should be lost.

It has been generally acknowledged that the action of a short crank and rapid stroke is very disadvantageous to the framing and foundations of ordinary engines. Mr. Bodmer has in constructing his compensating engines concentrated the action, and confined the strain to the crank, connecting rod, and piston rod. By his construction he has been enabled to carry the expansive principle to such an extent, as to deliver the steam into the condenser almost in a state of mere vapour, or within 3lbs. of a vacuum. The saving of fuel must therefore be in proportion; and there must be a very considerable reduction of the actual weight of the machinery, and of the coals on board steam vessels on long voyages. The paper considered at great length the reasonings upon these principles, and in tabular forms gave the comparative results of this and the ordinary engines. The peculiar construction of the compensating engines was illustrated by several models and detailed drawings, shewing the peculiar action of the expansion valves, and the two pistons in each cylinder. The great difficulty encountered appeared to have been in the valves of the air-pumps, which were destroyed by the extreme rapidity of the action; this was provided for by constructing an air-pump without valves. By a peculiar arrangement of the air and water passages it became practicable to substitute for the ordinary cover a piston travelling through a very limited space, and for the air-pump bucket a solid piston travelling the full length of stroke. The valves were thus done away with, and the action of the engine became complete. This construction has been adopted with great success in several stationary and locomotive engines, and is now being applied to marine engines, to which it is peculiarly applicable, as it is of great importance to be enabled to work the Archimedian or screw propeller without the intervention of bands or wheel work.

Mr. J. Woods exhibited and explained the action of Siemens' chronometric governor. The centrifugal governor of Watt being acknowledged to be an imperfect instrument in consequence of its inability to adjust the valve to the altered circumstances of the load on the engine, Mr. Siemens invented the chronometric governor. The new instrument is stated to have been at work successfully for some time at Carpenter's Corn Mills, Shadwell. It consists chiefly of a heavy pendulum which is allowed to move to a certain extent of vibration of chronometric revolutions, and it is connected with the horizontal pinion above, which therefore moves in union with it: an endless screw is geared in contact with the horizontal pinion, and is drawn by a constant weight in a horizontal direction: it has therefore a tendency to produce revolution of the pinion and pendulum. This horizontal screw must be turned by the engine at the exact velocity necessary to insure its running in gear with the pinion, driven at the constant velocity dependent on the length of pendulum; and should the engine succeed in turning the screw at the proper velocity no horizontal movement will take place, and the weight on the lever, before mentioned, continues a constant driving power independent of the engine, for overcoming the existence of the atmosphere and the friction of the pendulum. If the load, or the supply of power varies, a tendency to alter the speed of the horizontal shaft immediately commences, and it takes up a new position, by having travelled faster or slower than the pendulum and its pinion, and it retains this altered position, and consequently the adjustment of the valve, by means of appropriate connecting levers, until the conditions of equilibrium of load and power are again varied.

The action of this governor is so sensitive, that no variation of the speed of an engine, when 40 per cent. of its load is thrown off, can be observed, for the entire change is performed in one fiftieth of the revolution of the fly-wheel; this change absorbs or adds a portion of the momentum of the pendulum, and slightly alters its arc of vibration, the limit of which is between 18° and 21°, and by the laws of pendulous motion this is shewn to effect the number of revolutions to the amount of only 8 per cent. of its velocity, and even that small variation in the extreme position of the pendulum ceases immediately the momentum is restored to its former condition.

This being the last meeting of the present session, the president addressed the members, with congratulations on the interesting character of the papers read the discussions at the meetings and the very full attendance of members and visitors; and impressed upon them the necessity of redoubled exertions in future in order to support adequately the elevated position which the Institution had attained. Mr. Walker, in a speech full of kind feeling, proposed a vote of thanks to Sir John Rennie for his devotion to the duties of president, his uniform attendance at the meetings, and the kindness and hospitality he invariably displayed to the members collectively and individually. The meeting then adjourned until the second Tuesday in January of the ensuing year.

In closing our notice of the proceedings during the session, we cannot omit a brief commendation of the energy and ability with which the present secretary, Mr. Manby, discharges the duties of his office, and materially conduces to the effectiveness of the association.

PRIZES IN ARCHITECTURE.

UNIVERSITY COLLEGE, LONDON.

The following is a list of the students who were rewarded after the recent examination:—

FIRST YEAR'S COURSE.

Fine Art.—Prize ..	Mr. G. Lamb.	
2nd Certificate ..	Mr. Fred. Chancellor	equal.
2nd ,, ..	Mr. John Seddon	equal.
3rd ,, ..	Mr. W. W. Deane.	
Science.—Prize	Mr. Frederick Chancellor.	
2nd Certificate ..	Mr. George Lamb.	
3rd ,, ..	Mr. W. W. Deane.	

SECOND YEAR'S COURSE.

Fine Art.—Prize ..	Mr. E. P. Boyce.
2nd Certificate ..	Mr. Charles Corbett.
3rd ,, ..	Mr. Howard Bankart.
Science.—Prize	Mr. C. Corbett.
2nd Certificate ..	Mr. T. O. Donaldson.
3rd ,, ..	Mr. Howard Bankart.
4th ,, ..	Mr. Edwin Ireland.

The Academy of Fine Arts, Philadelphia.—On the night of the 11th of June, this establishment was consumed by fire, an event that is ascribed to the act of an incendiary. Among the very few works saved are Gilbert Stuart's full-length portrait of Washington, West's "Death on the Pale Horse," Haydon's "Christ's Entry into Jerusalem," and Alston's "Dead Man Restored to Life."

LEVERINGTON CHURCH.

For some months past the church of Leverington, near Wisbech, has been undergoing repairs, which the fearful state of dilapidation into which it had fallen rendered necessary. These are now completed. The restorations, though they have not been so complete as they might have been, are yet very extensive, and have converted almost a ruin into a very interesting structure. We have not heard the exact cost which has been incurred, but believe the burden upon the parish is under 1,000*l.*, as the rector himself contributed 500*l.* [illegible]nen of architecture, and contains valuable examples of the early English, decorated, and perpendicular styles, the tower is early English; the spire above it rising altogether to the height of 162 feet, is decorated and pierced with small octagonal turrets, which somewhat awkwardly serve the purpose of the pinnacle and flying buttress in Louth and other celebrated spires. The body of the church is built in the perpendicular style, and is upwards of 200 feet long, presenting a very open and light appearance. Before the late alterations, abuse upon abuse had been inflicted on the church. One part had been built off to form a coal-hole, at the expense of two beautiful perpendicular windows, one of which of elaborate design now forms a conspicuous feature in the west end. On the opposite side another large piece had been built off to form a vestry; and between these unsightly incumbrances a very mean gallery had been erected, immediately in front of a rich early English arch, with foliated capitals, supporting the east wall of the tower. All these blemishes have been removed, and, by the exertions of the Rev. H. Jackson, the curate, the windows have been restored, and the floor of the tower thrown open to the nave. The south side of the church has been almost entirely rebuilt; and two heavy brick buttresses, that seemed actually dragging the walls they were erected to support, have been taken down, and the architecture finished in its original taste. A new roof, braced by simple open work, has also been put up, and the whole church re-pewed, or rather re-seated. This last alteration will be as much appreciated by the inhabitants as any that has been made. No church had suffered more from the abuse of pewing, that grand abuse of English churches, than Leverington. Pews of the size of parlours encumbered its aisles, and even intruded into the middle width of the nave. Mr. Jackson has, however, fought and conquered the prejudices that were raised against seating the church, and the advantages will, we are sure, be appreciated even by those most hostile to it in the first instance.

Leverington has several claims upon the antiquary. The font, which has been engraved in Van Voorst's work, is one of the finest perpendicular fonts in England. It is octangular, and 8 niches with figures form its sides. The pillar is similarly ornamented, with eight emblems at its foot. Leverington has besides, the rather uncommon ecclesiastical curiosity of two credence-tables, attached to two portions of the aisles, which were formerly chapels. They are perpendicular, like most other parts of the edifice, and are in excellent preservation. The piscina of each chapel is also preserved. The south porch is one of the most remarkable parts of the building, and is, at the same time, one of the most chaste and simple of its beauties. Its buttresses are niched, its pediment crocketed, and a very rich open parapet runs along the ridge of its stone roof. Over it is a parvise chamber whose sloping stone roof is broken into the pointed arch by the latter springing from nearly the centre of the slope, the space between the point of the arch and the meeting of the roof being filled with a ring of stone. This roof is perhaps singular in ecclesiastical architecture. There is also a piscina in this chamber.

There was formerly one entire window of rich painted glass in this church, but it has been suffered to be strangely mutilated, and is now only a wretched fragment. Several portions of painted glass are also inserted in the other windows of the chancel, which, together with the parts we have mentioned, and some costly monuments, make Leverington well worth a visit from all interested in our old ecclesiastical remains.—(*From a Correspondent.*)

EXAMPLES OF CARVED BENCH ENDS.



Fig. 1.

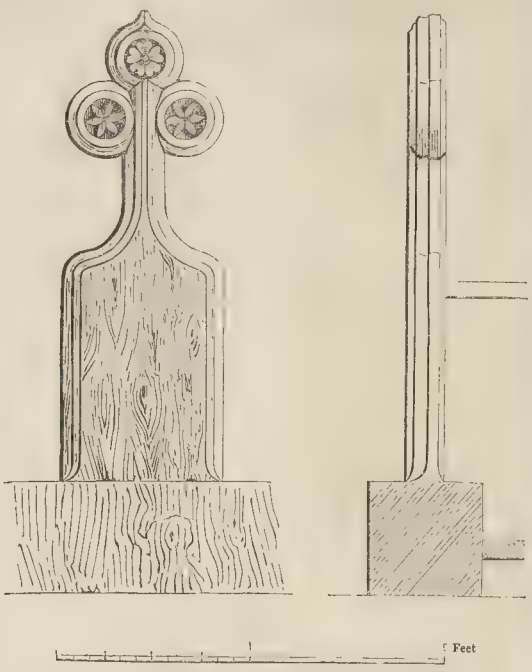


Fig. 2.

CARVED BENCH ENDS.

ALL SAINTS CHURCH, BRANSTON, RUTLAND.

This church contains several bench ends, as shewn by the engraving, fig. 1. There is not any thing else worth remarking in this church, except the old Norman font, which having been discarded from the interior, now serves for a tank to catch the water which falls from the nave roof.

DICKLEBURGH CHURCH, NORFOLK,

Is on the road to Norwich, 4½ miles from Diss; it is a very interesting church, dedicated to "All Saints," and consists of chancel, nave, aisles, and chapels, and western tower.

The accompanying engraving, fig. 2, shews the character of the bench ends, which are remarkably small, being only 2 feet 5 inches in height, and 10 inches broad. There is a very beautiful octagonal font in this church.

NEWARK CHURCH, NOTTS.

The accompanyin gengraving, fig. 3, represents one of the seven different designs of bench ends in the Church of St. Mary Magdalen, at Newark, so well known for its elegant tower and spire. This church was founded by Allan Flemyng, in the reign of Henry VI., to whose memory is the splended brass now on the wall at the back of the altar, but formerly in the south transept. It has shared the fate of most of our churches, in the way of huge galleries; some good stained glass still remains, and there is an excellent picture by Hilton, who was a native of Newark.

ST. GILES'S CHURCH, AT BALDERTON, NOTTINGHAMSHIRE,

Is entirely filled with open benches. The ends, one of which is represented by the engraving fig. 4, vary only in the animals and heads, the general outline being preserved throughout. They have a very beautiful effect. There is also a very fine Norman porch on the north side of this church.

Burwood-place. GEORGE TRUEFITT.

ART AND MANUFACTURES.

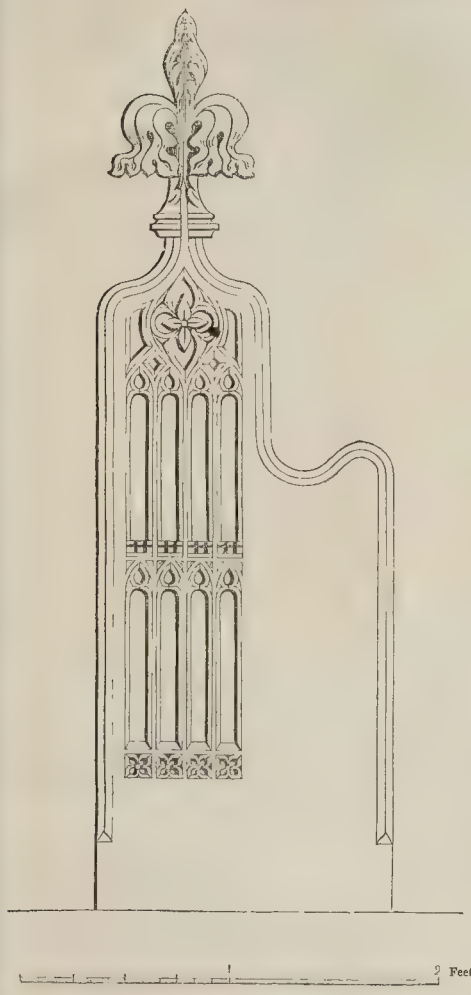
THE Art-Union Journal of the present month contains, in addition to its usual varied and valuable matter, a detailed account of the articles lately exhibited at the Free Trade Bazaar, viewing it as an exposition of the products of British industry,—as a first attempt to bring the various manufacturers of the country together, that they may compare the progress that has been made in the application of art to their several materials,—and as shewing the importance of design in enhancing the mercantile value of our manufactures. The account is ably written and profusely illustrated by wood cuts, and cannot fail materially to influence the healthy movement now being made by our manufacturers. At the conclusion the writer urges, as we have already done, the importance of establishing forthwith a periodical NATIONAL EXPOSITION:—"Commercially viewed, such an enterprise would more than repay the cost and time of its preparation. We have heard large contributors to the Bazaar assert, that the advertising effect of having their goods displayed in Coventgarden, under all the disadvantages of sale and crowding, very nearly compensated the cost of the goods. It was asserted in the French Chamber of Deputies, that the sales of goods to the foreigners who crowded to Paris to see the Exposition last year, more than doubled the whole expense of the building and attendants.

A National Exposition in London would attract visitors from every quarter of the globe; and the rent which manufacturers would gladly pay for the use of the space necessary to the display of their goods would more than cover the cost, even if admissions were gratuitous. Such a project is worthy the combined efforts of the Board of Trade and the School of Design. They would be nobly supported by the country, and the Temple-Palace of British Industry would surpass any thing which this world has ever witnessed. A hint of this kind was given at the Bazaar, and was received with an enthusiasm which left no doubt of the result, and just as little doubt that the enterprise will be undertaken by some public body, even if it should not be taken up by the Government.

We look upon such an Exposition as an important part of national education. Specimens of beautiful conception and artistic execution cannot be contemplated without elevating the mind and improving the feelings. The Bazaar gave evidence of the benefit of such a display in improving and enlarging the sympathies. No one could avoid feeling a personal interest in the continued prosperity of those who produced such triumphs of ingenuity and industry, of taste and of intelligence. It was scarcely possible to avoid reflecting on the consequences that would follow, if the looms which wove those shawls, carpets, and dresses were stopped; if the furnaces that produced those magnificent castings of iron were blown out; if the hammers that wrought this steel ceased to sound; or if the spindles that spun this yarn ceased to turn. How many families would at once be consigned to misery! how many happy cottages would be reduced to the deplorable condition of the rick-burner's home! We sadly want to be introduced to each other in this country, and to learn more of our mutual dealings and productions. The worker at the loom has much to learn from the worker with the hammer; the weaver of lace and the weaver of horsehair might communicate with profit; and the designer for iron might interchange valuable hints with the designer for porcelain.

A more perfect National Exposition of the products of British Industry would lead to the display of high and noble feelings with greater intensity and wider extent. It is for this reason chiefly that we so strenuously urge the project. We value taste, we esteem industry, we love every form in which intelligence embodies ideality; but, above all, we estimate the influence of artistic beauty in developing emotions of moral loveliness, and the influence of the triumphs of Britain's industrial prowess in strengthening every man's interest in the prosperity of the British nation.

EXAMPLES OF CARVED BENCH ENDS.



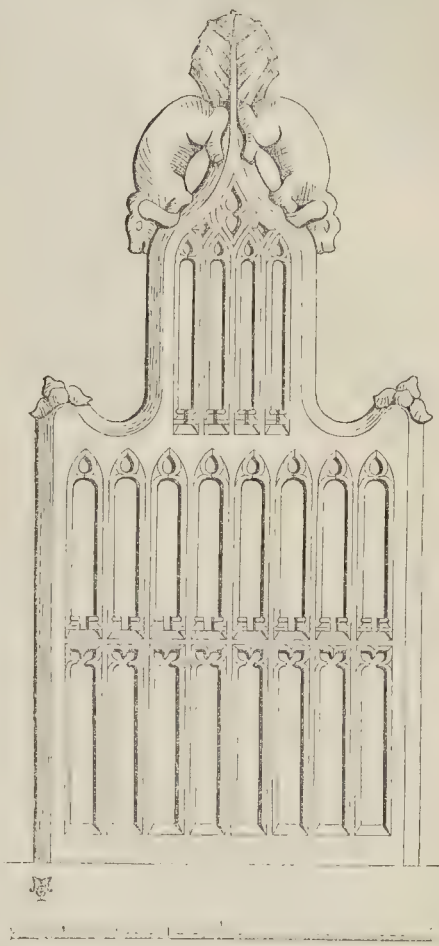


Fig. 3.

Fig. 4.

The long night of darkness, in which Nations fought for vain shadows and derived their dreams of glory from violence and bloodshed, has gone down the sky. "The dayspring from on high has visited us," and taught that "Glory to God in the Highest" is blended and identified with "Peace on earth, good will towards men!" Commerce must bind together the nations which were dissociated, and trade unite the races which blind and selfish jealousy dissevered. The soothing influences of Art, superadded to the usefulness of manufactured products, will give force and efficacy to those lessons of civilization which it is the proud destiny of Britain to preach to the whole human race. In this career we see no goal fixed to our country's march of prosperity and greatness: her benefits to humanity will be co-extensive with the wants of mankind; and her high reward will be a recognized supremacy in intelligence more glorious than the sway of the proudest empire that ever existed.

MONUMENT TO THE LATE SIR WILLIAM FOLLETT.—We understand (says the *Exeter Gazette*) that it is in contemplation to erect a statue to the memory of our late respected representative, as the most fitting memento of the admiration of his genius and character entertained by the citizens of Exeter.

IMPORTANT TO ARTISTS.

THE Art-Union of London are about to offer a premium of 500*l.* for a group in marble, to be competed for by models in clay, the size of the intended work. These must be sent in by the 1st of July, 1846, and the work finished in marble by the 1st of July, 1847; 200*l.* will be paid when the premium is adjudged and the remainder on completion.

As regards the historical picture for which a premium of 500*l.* has been offered, the committee request artists to forward by the 1st of December next (that is, a month before sending the cartoon), a sealed letter containing name and address, and having on the outside a motto by which the cartoon must also be distinguished. The object of this arrangement is, that the committee may learn how many cartoons will probably be forwarded, so that they may provide sufficient accommodation for the exhibition of them.

On Monday, the 15th of December, artists may learn by application at the office, the name of the place to which the cartoons are to be sent; 200*l.* will be paid on the selection being made.

We observe with regret that in consequence of the approach to the end of the session the bill brought in by Mr. Wyse some weeks ago to place art-unions on a permanent basis has been withdrawn. A temporary bill of indemnification, however, has been brought in with the full consent of the Government, so that no practical inconvenience will result.

THE PEERS AND MR. BARRY.

WE learn with gratification that our respectful remonstrance against undue haste in the completion of the new House of Peers,* to which the daily press gave increased circulation and weight, has received considerate attention in the proper quarter, and is likely to effect the desired end. Lord Brougham has since given notice that he will, on Monday next, name a day for moving an humble address to her Majesty, praying that she would be graciously pleased to order the preparation of the House of Peers for their lordships' occupation from the beginning of next session, *with temporary fittings*, and that care should be taken in providing the means of ventilating and warming the same; that all risk from fire should be guarded against by making the building fire-proof.

* See page 301 *ante*,

PAVING, CLEANSING, AND DRAINAGE.

A PUBLIC meeting of an association for the promotion of improved paving, cleansing, and drainage, was held on the 3rd inst. at the Hanover-square rooms, with the view of enforcing upon the public the fact, that if the streets, courts, and alleys of towns throughout the United Kingdom were properly swept and kept clean, not only would the accumulation of mud and dust be entirely prevented at a trifling expense, but employment could be given to 40,000 labourers. There were upwards of 500 persons present, including a number of ladies. On the platform amongst others were the Duke of Grafton (who presided in the unavoidable absence of the Duke of Cambridge), the Earl of Charlemont, Lord Ranelagh, M.P., Sir Burgess Carnac, P. Borthwick, Esq., M.P., C. Cochrane, Esq., the President and Founder of the Association, B. B. Cabbell, Esq., &c.

Mr. Cochrane, in detailing the objects of the association, divided his remarks into three distinct propositions, undertaking to prove, first, that the streets could be kept so clean, as to prevent the accumulation of any mud or dust; secondly, that by keeping the streets so clean, they might secure the employment of 40,000 of the able-bodied poor; and thirdly, that the public would be reconciled to pay any extra expense entailed by raising rates through the parochial authorities towards the accomplishment of these ends. (Cheers.) In proof of the first proposition, he referred to the experiments which were made last winter in Oxford-street and Regent-street, when those streets were kept so clean, that a lady's shoe would not be soiled in crossing at any part of them, whilst some of the adjoining streets were little better than quagmires. With regard to the second proposition, he stated that most accurate calculations had been entered into, which were open to the inspection of any one who wished to examine them, and from which it appeared that each man could keep an area of from 1,500 to 2,000 square yards perfectly clean. Upon that calculation, about 330 men would be required for the city of London, 80 for St. James's parish, 140 for St. George's, from 500 to 600 for St. Marylebone, and so on, giving throughout the whole country employment to at least 40,000 persons. (Cheers.) With regard to the third proposition, as to the expense, it had been calculated that in the city of London the expense entailed upon every housekeeper would be about 7s. per house per year, in addition to what was already paid; or, upon individuals, the expense would be from 1d. to 1½d. per head per month. Mr. Cochrane concluded by moving a resolution to the effect that it is essential to the community at large, in a sanatory, moral, and social point of view, that the greatest possible cleanliness should be maintained in the public thoroughfares.

Mr. P. Borthwick, M.P., moved a resolution to the effect that the improved system of cleansing the public thoroughfares, while it would relieve parochial burdens by securing employment for the poor, who were compelled for want of work to ask for parochial relief, would also tend to the more perfect preservation of buildings and monuments, theimprovement of the morals and health of the people, and would also effect a diminution in the losses to householders in furniture, goods, &c.

These resolutions, together with others of secondary importance, being carried unanimously, and thanks having been awarded to the noble chairman for his kindness in presiding and for his conduct in the chair, the meeting was dissolved.

NEWS FOR CHURCH BUILDING COMMITTEES. —An advertisement has lately appeared in one or two of the daily papers, stating that "A sum of money has been appointed by the will of a gentleman lately deceased, to be given (on certain conditions) in aid of the funds for building twelve new churches;" and informing parties wishing to put themselves in communication with the trustees how they can do so. The regulations of the stamp office do not allow us to publish the address of the party who advertises, but for the benefit of those who are interested in the bequest, the advertisement itself can be seen on applying to our publisher.

THE STRENGTH OF STONE COLUMNS.

LAST week we mentioned a paper on this subject read by Mr. E. Hodgkinson, at the late meeting of the British Association for the Advancement of Science (p. 316). Our contemporary, the *Athenæum*, gives the following additional notes:—

"*On the Strength of Stone Columns*, by Mr. E. Hodgkinson. — The columns were of different heights, varying from 1 inch to 40 inches; they were square uniform prisms, the sides of the bases of which were 1 inch and 1¼ inch, and the crushing weight was applied in the direction of the strata. From the experiments on the two series of pillars it appears that there is a falling off in strength in all columns from the shortest to the longest; but that the diminution is so small, when the height of the column is not greater than about 12 times the side of its square, that the strength may be considered as uniform, the mean being 10,000 lb. per square inch, or upwards. From the experiments on the columns one inch square, it appears that when the height is 15 times the side of the square the strength is slightly reduced; when the height is 24 times the base, the falling off is from 138 to 96 nearly; when it is 30 times the base, the strength is reduced from 138 to 75; and when it is 40 times the base, the strength is reduced to 52, or to little more than one-third. These numbers will be modified to some extent by the experiments in progress. In all columns shorter than 30 times the size of the square, fracture took place by one of the ends failing; shewing the ends to be the weakest parts; and the increased weakness of the longer columns over that of the shorter ones seemed to arise from the former being deflected more than the latter, and therefore exposing a smaller part of the ends to the crushing force. The cause of failure is the tendency of rigid materials to form wedges with sharp ends, these wedges splitting the body up in a manner which is always pretty nearly the same; some attempts to explain this matter theoretically were made by Coulomb. As long columns always give way first at the ends—shewing that part to be the weakest—we might economize the material by making the areas of the ends larger than that of the middle, increasing the strength from the middle both ways towards the ends. If the area of the ends be the area in the middle as the strength of a short column is to that of a long one, we should have for a column whose height was 24 times the breadth, the area of the ends and middle as 13·766 to 9·595 nearly. This, however, would make the ends somewhat too strong; since the weakness of long columns arises from their flexure, and increasing the ends would diminish that flexure. Another mode of increasing the strength of the ends would be that of preventing flexure by increasing the dimensions of the middle. From the experiments it would appear that the Grecian columns, which seldom had their lengths more than about ten times the diameter, were nearly of the form capable of bearing the greatest weight when their shafts were uniform; and that columns tapering from the bottom to the top were only capable of bearing weights due to the smallest part of their section, though the larger end might serve to prevent lateral thrusts. This last remark applies, too, to the Egyptian columns, the strength of the column being only that of the smallest part of the section. From the two series of experiments, it appeared that the strength of a short column is nearly in proportion to the area of the section, though the strength of the larger one is somewhat less than in that proportion.

Prof. Challis inquired whether Mr Hodgkinson had found the columns to give way chiefly in the direction of the cleavages of the stone? Mr. Hodgkinson replied that he had; and that hence the same size and shape of stone cut out of the same block, required very different forces to crush them across the grain from what they did with it. Prof. Stevelly said, that it was one peculiarity of Mr. Hodgkinson's researches, that they opened up so many collateral objects of interest and wide fields of inquiry. It was easy to see that the present researches might become important to the geologist, by leading him to the source from which originated the splitting up of extended rocks into beds and strata, and the contortions of them; for example, to some volcanic matter forced up vertically in such a manner as to exercise a crushing force upon even distant masses. — Prof. Willis shewed, by examples deduced from various styles of architecture, that the ancients must have been practically in possession of similar principles; and from several examples which he gave, it would appear that columns of a shape suited to these principles were again coming into use.

CHURCH OF THE HOLY TRINITY, BARNSTAPLE, DEVON.

THIS church, which was consecrated by the Bishop of Exeter on the 21st ult., is built in the style of the fifteenth century; the plan is cruciform and consists of a nave (without aisles) and transepts, a spacious choir and aisles. The tower, which is at the south-west angle of the building, is to be surmounted with a spire. The exterior walls are faced with a sort of sand-stone obtained in the neighbourhood; the dressings and windows are of Bath-stone.

The large west window is a copy of the beautiful window at St. Mary's, Oxford. On entering the church, the choir, which is raised several steps above the nave, is seen through three lancet arches which divide it from the nave; and the view is terminated by the eastern window of three lights filled in with stained glass, manufactered at Exeter by Mr. Bere. The arches and clustered columns between the nave and choir, are of Bath-stone; the two lateral arches being much narrower than the centre one; a low open panelled screen of oak between the piers of the arches divide the nave and chancel; the transepts which are lighted by windows of three lights, are divided from the nave by arches of stone springing from corbels; the nave is lighted on either side by four windows each of two lights; the mullions, tracery, and jambs, are of Bath-stone; the open timber-framed hammer beam roof, forms a principal feature on entering the church; the pulpit, reading-desk, and font, are all sculptured of Caen-stone by Mr. Rowe, of Exeter; the pulpit, and reading-desk, which are uniform, are placed at the easternmost angle formed by the junction of the nave and transepts, the pulpit being on the north side.

The pews are constructed of American oak; the framing is low, somewhat similar in construction to many of the old oak seats in the neighbouring churches, with the exception that they have a low door to each seat or pew, somewhat similar to St. Katherine's Church, Regent's Park; the pews will seat above 800 persons, out of which number 326 sittings are to be free for ever; there is a small gallery at the western end of the church, capable of holding 150 persons; the front is of oak panelled; the internal length of nave, 77 feet by 34 feet 10 inches; chancel, 27 feet by 16 feet; chancel aisles, 35 feet by 11 feet 6 inches; transepts, 16 feet by 14; height from floor to springing of roof 27 feet; to centre of roof, 56 feet; the east window is 15 feet high by 7 feet wide in three compartments; the four top compartments of the tracery represent the emblems of the four Evangelists; the remainder of the window is filled with stained and ornamental glass; the tower when completed will rise 100 feet with a spire on the top 56 feet high; there is ample room in the bell-chamber for eight bells; the lancet-windows in the north and south chancel aisles are also fitted with ornamental glass, that in the south has the emblems of the Alpha and Omega; that in the north, represents the three nails and a crown of thorns encircling "J. N. R. J.;" it is proposed to fill the west window with stained glass with emblematic representations of the twelve apostles, at a cost of about 200 guineas.

The font stands in the aisle near the western entrance, and has on the rim, in old English characters—"In the name of the Father, and of the Son, and of the Holy Ghost." An organ is in course of erection for the church by Houlditch of Soho, and will be completed within six months. The nomination of the minister is in the hands of the Rev. John James Scott (at whose sole expense this church was built and endowed), his heirs and assigns for ever.

The church is capable of holding 1,200 persons, and built at a cost of nearly 8,000*l.* when completed. The architects are Mr. G. Abbott, of Barnstaple, and Mr. D. Mackintosh, of Exeter.

NOTES IN THE PROVINCES.

A NEW church is about to be built in the Beddington-road, North Brixton, the neighbourhood of which has become a new village from the immense quantity of buildings which have been recently erected there.——It is said that the Roman Catholics have obtained a lease of a large portion of ground at the head of Bruntsfield Links, Edinburgh, for a seminary on an extensive scale. Their present college at Blairs will be removed to it. It is further stated that the plans, which are now out of the hands of the architect, include the design of a magnificent cathedral. The same religious denomination are about to erect a splendid church, school, and presbytery, or priest's residence, in the immediate neighbourhood of Burnley, at an estimated cost of about 6,000*l.*——It is in contemplation to erect a theatre in Bridgwater. Some of the most respectable inhabitants have started the project of building it by shares. The want of such a place of amusement has for a long time been complained of by parties visiting the town. —— A movement has been made in Newcastle, with a view to the establishment of a collegiate institution in that town, in connection with the London University.——The Committee appointed to superintend the rebuilding of St. Alkmund's Church, Derby, have issued a second appeal to their friends and the public. They require an addition of at least 1,500*l.* to the funds already subscribed, exclusive of 700*l.* for a spire——The Stockton and Darlington suspension bridge across the river Tees, near Stockton, which was opened to the public in 1830, is now nearly taken down, the engines, coaches, and waggons, have for some time past crossed the river on the new bridge, which is erected at a short distance, in a more substantial manner. The demolition of this structure, once an object of general admiration, attracted thousands of persons to the spot.——The present Widford Bridge, on the road between Chelmsford and Ingatestone, in Essex, having been pronounced unsafe, the County invited tenders for a new iron bridge, and Messrs. Cottam and Hallen, of Winsley-street, Oxford-street, obtained the contract at 30*l.* and the old materials. It is to be completed in about two months from the present time, under the supervision of Mr. Hopper. ——The Durham Victoria Harbour, erected at the expense of the Fishery Board and town of Dunbar, is now completed. The local committee have been so much satisfied with the unwearied attention and anxious superintendence of Mr. David Ross, the inspector of works, that they have presented him with a handsome watch, bearing a suitable inscription. The contractors were Messrs. David Lyon, and Co.——At a meeting of the Litchfield Diocesan Church Extension Society, which took place on the 17th ultimo, the following grants were made:—

To Brockmoor new Church, in Kingswinford	£250	additional.
To Leigh, for increase of accommodation	60	,,
To Boxley new Church, near Wednesbury	723	,,
To Biggin, in Hartington	300	conditional
Towards a parsonage, at Quarry Bank, in Kingswinford	200	,,
Towards Ditto, at Brown Edge, in Norton	200	,,
Towards increase of Endowment of Coleham, in St. Julian's, Shrewsbury	150	,,

——The committee for the erection of the new district church of St. Thomas, in the parish of St. John's, Coventry, have nearly brought their preliminary arrangements to a close. The town council have agreed to grant one acre and twenty-eight perches of waste land, situate in the Summerland Butts, for a site in accordance with the suggestion of Mr. J. L. Pearson, of Ackroyd, whose plans are to be carried out. The extreme dimensions of the new building will be 43 yards long and 24 wide. It is to contain 700 free sittings.——On Saturday last the Birkenhead Dock Committee commenced driving piles on the Seacombe side for the new river wall, which is to extend across the mouth of Wallasey Pool. The first pile was driven about 20 yards from the Seacombe-slip.——On Tuesday week a meeting of the Yarmouth Haven and Pier Commissioners was held at their office, for the purpose of receiving tenders for the completion of the new drawbridge, according to the plans of Mr. Birch. The only tenders were, one from Mr. Peto, and another from Mr. Simpson. We have not been able to learn the precise amount of the tenders, but are assured that Mr. Peto's exceeded 32,000*l.*, while Mr. Simpson's was under 20,000*l.*——At the present time, in the diocese of Salisbury, the following new churches are in the course of erection:—At Chittoe, in the parish of Bishop's Cannings; Sedghill, in the parish of Berwick St. Leonard; Zeals, in the parish of Mere; and at Cholderton, near Amesbury. The following churches are undergoing thorough repairing and repewing, with a view to increase the accommodation:—Melsham, Tilshead, Stratton St. Margaret, Wanborough, and Stert, near Devizes.——The woolcombers of Bradford are prosecuting their inquiries with a view to the improvement of their dwellings, and thereby to increase their comforts, and to promote their sanatory condition. A meeting of a few of the most influential gentleman of the town was held in the Exchange on the 1st instant, for the purpose of assisting them.——At a meeting of the Yarmouth Church Trustees, held last week, it was resolved to expend the sum of 1,250*l.*, in the repairs recommended in the report of Messrs. Hilling and Norfor, the surveyors deputed to inspect the fabric of the parish church of St. Nicholas.——The Newport Harbour Commissioners, a short time since, addressed a memorial to the Trinity Corporation, representing the disadvantageous situation of the present lighthouse, and soliciting that a new lighthouse, of similar construction to those at the Maplin Sand and at Fleetwood, might be erected 1,650 yards S. by E. from the mouth of the Usk. It appears that the authorities at the Trinity Board suspended proceedings in the matter, pending experiments which are still in progress in respect of the best mode of obtaining a permanent foundation for structures in situations similar to that pointed out by the harbour commissioners of Newport; and the Trinity Board have instructed Mr. James Walker to "examine the said proposed situation, and to report his opinion as to the description of building which, in the event of the board's determining to accede to the prayer of the memorial, it may be most advisable to set up."——The general committee appointed at the last meeting of the Ipswich Town Council have elected a sub-committee, to whom is delegated the arrangements necessary to give *éclât* to the opening of the new custom-house. Several preliminary steps have been already taken, and measures are being adopted to raise the necessary funds by public subscription. The ceremony of the opening is fixed to take place on Monday the 21st of July; to be succeeded by a public dinner, and by aquatic sports, and a brilliant display of fireworks.——The annual report of the Health Committee of the Town-council of Liverpool, made a few days since, states that the operations of the baths and washhouses for the poor during the past year were of a most favourable character. After paying all expenses a surplus of upwards of 50*l.* was left. The new baths and washhouses now being erected in the north end of the town will cost nearly 7,000*l.*, they will not be opened till next year. The committee strongly recommend the erection of a third establishment in a central locality, and there is every prospect of its being carried into effect. Thus, while the Corporation of London have contributed only about 500*l.* towards a similar object, the municipal authorities of Liverpool have spent 10,000*l.*, and most likely they will soon devote 3,000*l.* or 4,000*l.* more to the same laudable purpose.——The railways are making such rapid progress in this country, that canal traffic cannot successfully compete with them. It is therefore proposed to convert certain of the canals into railroads. With this object in view, a meeting of the Kennet and Avon Canal Company was held on the 1st instant at the London Tavern, and on the 12th ult. the proprietors of the Ellemere and Chester Canals met for the same purpose. In both cases there is every prospect of the conversion being made.——The Admiralty having refused the promoters of the South Wales Railway Bill leave to carry the line over the Severn by means of a bridge, Mr. Brunel proposes to effect the object in view by means of a tunnel under the river.——At the Warwick Quarter Sessions, held last week, the presentment made at the last Sessions, stating "that the present prisons at Warwick ought to be removed, and that a new gaol and house of correction are necessary to be erected in a more eligible situation near to the town of Warwick," was confirmed on the motion of Sir John Mordaunt, bart., by a majority of two, there being 14 in its favour and 12 against it.

MANCHESTER, TEN CHURCHES ASSOCIATION.

A MEETING of the friends and members of this association was held last week, the Bishop of Chester in the chair. The report, which was read by the hon. secretary, traces the progress of the church-building spirit in Manchester during the last fifty years. In the first twenty years from 1745 to 1815, not one church was consecrated in that immense parish. From 1815 to 1825, two churches only were consecrated. From 1825 to 1835, five were consecrated, four of which were built out of the million parliamentary grant. From 1835 to the present time, the number of churches consecrated, or in course of erection, or about to be built, the money being already subscribed, is no less than twenty-eight, including the entire re-building of three on a greatly enlarged scale. In 1835, the number of churches in Manchester amounted to exactly thirty, it has consequently nearly doubled during the past ten years. From the treasurer's account, it appears that the receipts during the past year amount to 20,478*l.* 10s. and the expenditure to 20,183*l.* 12s. 9d. In the latter sum are the following items:—

Building of St. Bartholomew's Church	£4,392	11 9
,, St. Matthias	4,766	9 11
,, St. Silas	4,563	16 4
,, St. Barnabas	5,860	7 3

There is the sum of 300*l.* 19s. 3d. in the debit account of the association under the head of "Drawback on St. Barnabas's Church." This sum has been received since the general account was made up, and added to the balance in banker's hands, subscriptions promised but uncollected, and cash recently received, make a sum of 4,673*l.* 19s. 3d. to begin the current year with. The proceedings of the meeting terminated with a proposal to raise 25,000*l.* for the erection and endowment of six other churches.

CARPENTERS IN FRANCE.

THERE is much commotion at this time amongst the carpenters; they have published a circular, setting forth that the sum of 4f. a day, their established wages (in common with masons and others) for these twenty years past, is insufficient, and refuse to work for less than 5f.; giving as reasons for the claim, 1st. that through bad weather and want of work, they, in reality, have only to depend on about seven months out of the twelve; 2nd. the progressive increase of the cost of food and lodging, and 3rd. that they run more personal risk than other operatives. They further refuse to undertake any "task-work," or work to be paid by the piece, and call on the masters to abandon the practice. "Task-work," says the circular, "is the ruin of industry. It kills the good workmen, and induces bad construction. Task-work is sometimes undertaken by a bold, good workman, who strives early and late to effect what he has agreed to, but more often it is taken either by men in extreme want or boys, who know nothing of the matter." Large numbers of them still remain out of employ.

PROPOSED JOINT-STOCK COMPANIES.

THE following is a summary of bills applied for during the present session of Parliament, for which a subscription contract, or undertaking in lieu thereof, has been deposited in Private Bill Office:—

Description.	Estimated expense.	Capital stock.	Money to be borrowed.
	£.	£.	£.
Railways	92,921,779	94,812,813	30,276,883
Navigations and canals	176,190	——	76,000
Waterworks	613,452	732,080	387,466
Ferries and Docks	1,653,000	1,000,000	1,100,500
Piers and Harbours	331,050	——	320,000
Bridges	49,500	22,000	7,333
Roads	3,358	——	——
	95,748,329	96,566,893	32,168,182

DR. RITTERBANDT'S INVENTION

TO PREVENT INCRUSTATIONS IN STEAM BOILERS.

The process consists merely in converting all the carbonate of lime into chloride of calcium, by the introduction into the boiler of a small quantity of chloride of ammonium. In this way, the lime remaining constantly in solution, the boiler cannot foul, and fuel is saved to a great extent. Nor is this the case merely with fresh water. Dr. Ritterbandt's experiments prove that when sea water is boiled, the first change is the liberation of carbonate of lime, the excess of carbonic acid being driven off by heat, and that the particles of that compound become nuclei for the adhesion of the crystals of common salt, &c., which begin rapidly to form in consequence. In preventing the formation of carbonate by the introduction of chloride of ammonium, the chemical effects of contact are obviated, and no salt can be deposited until the water is almost evaporated away. This invention will do away with the necessity of blowing off so very frequently, and will supersede the brine pumps, both attended with an excessive loss of heat and waste of fuel.

A NEW MODE OF PREPARING LEATHER.

To a commercial country like Great Britain, and indeed to the world at large, the manufacture of leather must always be a matter of the first importance, whether we consider its value in the construction of most implements of husbandry, its use in mechanical trades, in the multitude of innumerable engines and machinery of every description, and in our manufactures, or as an article of general consumption in the production of those things which conduce so much to our domestic comforts and necessities. The article of leather has always ranked in point of value and extent as inferior only to cotton, wool, and iron; indeed, some statistical writers have gone so far as to consider it equal, if not greater, than cotton. From this circumstance, and as, according to the statement of those practically acquainted with the subject, 170 to 180 parts of leather might be obtained from 100 parts of dry hide, instead of 50, if every part of the gelatinous tissue could be made to combine with a full proportion of tannin, some idea may be formed of the advantages to be derived from any improvement in the art of tanning. And yet notwithstanding these important facts, it is equally true that in this enlightened age, when almost every other branch of the arts has made such rapid strides towards perfection, little, if any progress has been made in improving the art of tanning.

A patent for "a new mode or method of more speedily and effectually tanning hides and skins" has been recently obtained by Dr. Turnbull. The inventor seems to have been impressed with the important fact, that a knowledge of the disease was necessary to the cure, and to have brought to the study of his subject great scientific knowledge and research. In his specification, which is now before us, in pointing out the various difficulties in tanning, he says: "In preparing the skins and hides for the tanpit, they are steeped for a considerable time in a solution of lime to remove the hair and epidermis. In this process, the skin imbibes a considerable quantity of lime, which has the effect of either removing from the hide, or skin, a portion of the gelatinous substance in the form of soluble gelatine, or of altering the gelatinous fibre, so as to render it incapable of speedily and effectually combining with the tannin or tannic acid, and the pores of the skin are so impregnated with lime, as to prevent the tanning principle from operating freely, or reaching the heart of the skins."

And, after enumerating other obstructions, he observes that the great object to be attained is "to find out some means of removing these obstructions and antagonist principles, and of bringing about a speedy and effectual combination of the gelatinous fibre of the hides or skins, and the tanning matter, and thus produce, in a short space of time, leather superior in weight, quality, and durability to any yet produced. The object of my improvements is to remove these difficulties and obstructions, either by extracting the lime with which hides and skins are impregnated in the process of removing the hair, or removing the hair and epidermis from the hides, or skins, without the use of lime, by means not hitherto attempted."

The doctor then states that by steeping the hides or skins in a mixture of sugar, or any other saccharine matter and water, for from two to four days, according to the size of the skin, the lime is entirely removed. "The action," says the doctor, "of the sugar and pyroxylic or wood spirit upon the lime is so rapid, that in the largest skins the lime is entirely removed and the skins are rendered fit to receive and imbibe the tannic acid, and thus the operation of tanning is perfectly accomplished in a very short time."

We know the immense prejudice which exists against all new methods of tanning, especially if the tanning is accomplished in a short time. This, we believe, has been engendered by the signal failure of almost every attempt at improvement. It is worth while therefore to inquire a little into the philosophy of the doctor's discoveries, and to endeavour to ascertain from known facts whether the doctor is likely to be more fortunate than his predecessors in the same line.

All great chemists have described lime as a solvent of gelatine; indeed the fact is easy of demonstration by placing a small quantity of pure gelatine or isinglass in lime water. No doubt therefore can exist when we reflect on the energetic action of lime on organic bodies, especially on animal tissue, that the destruction of a great portion of the most valuable part of the skin must be the result of employing lime in taking off the hair.

The means hitherto employed to extract the lime has been the application of an alkaline lixivium called "bate." This is composed of the dung of pigeons, and other domestic birds, but this mixture has been found not to remedy the evil, for the bate does not dissolve the lime, but merely destroys its causticity by converting it into carbonate or chalk. Besides which it causes the destruction of a portion of the gelatineous tissue by the fermentation created by the decomposition of the animal matter in the bate.

Sugar, on the contrary, is well known to be a great preserver of the gelatinous fibre; our domestic experience proves this beyond controversy, and it has been demonstrated by Mr. Ramsay, of Glasgow, in a series of experiments published in "Nicholson's Journal" for 1807, that sugar is a powerful solvent of lime. We think therefore that we see in the doctor's discovery the means of removing "the antagonist principle, and of bringing about a speedy and effective combination of the gelatinous fibre with the tanning matter," and that the public may safely conclude that the doctor has been fortunate enough to discover the application of a remedy for an evil which has long baffled the skill of chemists and others, and which will go far to realize the enormous advantages in the quantity and quality of leather, to which we have before alluded.

The Wood-Carvers.—At a general meeting of the profession of wood-carvers, held April 4th, 1845, it was moved by Mr. R. Moore, "that the services of Mr. W. G. Lock, wood-carver, in conducting the correspondence with her Majesty's commission on the fine arts, relative to the decoration of the new Houses of Parliament, on behalf of the wood-carvers, have entitled him to the warmest approbation of the profession. And this meeting, desirous to testify its estimation of the same, recommends a voluntary subscription throughout the profession, to present him with a suitable acknowledgment of the same." The motion was seconded by Mr. Gray, and carried unanimously. A committee of nine gentlemen were appointed to receive the subscriptions, and to decide on the nature of the testimonial, &c. Subscriptions were received from 221 wood-carvers, residents of London, Dublin, York, Cambridge, Hull, Manchester, Brighton, Leeds, Peterborough, Warwick, Leamington, &c. The result has been that the committee have publicly presented to Mr. W. G. Lock a splendid watch and appurtenances, engraved with a suitable inscription commemorative of the same. Mr. Lock has for some time past been acting as honorary secretary to the general body of wood-carvers, metropolitan and provincial, who have been in correspondence with the royal commission upon the subject of the decoration of the new Houses of Parliament with wood-carving.

Correspondence.

THE ROUND TOWERS OF IRELAND.

Sir,—Will you permit me, through the medium of your paper, to make one or two observations to the writer of a letter in The Builder of June 28, on the round towers of Ireland, signed "J. K."

Your correspondent says that they doubtless were intended originally for the convenience of the architects employed in constructing churches, for he says, "That the towers and churches are invariably found together." Now, if he means to say that the towers are only to be found near churches, I can only say, that I have not found such to be the case. I have had occasion to visit Ireland frequently, and of course those memorials of the past, concerning which there is so much doubt occupied no small share of my attention. I have examined them carefully, and have not the least doubt as to their being of the same date as the buildings they adjoin. But I have found them near the castle quite as often as the church; so that I do not think they were originally built by the architect merely to protect his workmen and suit his own convenience, far from it. That they were erected as reconnoitring towers no one can doubt, but not for the special use your correspondent seems to think. They were intended as part and parcel of the building about to be raised (be it castle or church), as a necessary appendage for the safety and welfare of the inmates of the main building; the stability of the workmanship is a sufficient proof that it was for no temporary purpose, but to last for ages. Further, I have observed that in nine cases out of ten they are within sight of others; so that in case of a general enemy appearing, signals to that effect might be conveyed from place to place, to rouse the natives to arms to repel the invading foe. Trusting you will pardon this intrusion on your time and attention, and give publicity to these few remarks,—I am, Sir, &c., Veritas.

NEW DOORS AT YORK MINSTER—STONE USED AT HOUSES OF PARLIAMENT.

Sir,—Perhaps it is only justice, in reference to your accurate and explanatory engravings of the western doors, York Minster, to name, that the framing and plainer portions were made by Mr. James Wallace, of Newcastle-upon-Tyne, and the carving by Mr. Scott of the same place; the latter artist is one of the best carvers in wood of the present age, and is also an expert modeller.

To clear up a doubt will you have the goodness to state what kind of stone *the external ashlar work* in the new Houses of Parliament is composed of — whether lime or sand-stone? I mean the *plain portions*, without reference to the carved surfaces. F. Tyrrell.

Tynemouth, near Newcastle.

*** Magnesian lime-stone, from quarries between Worksop and Mansfield, in Yorkshire, and called Anston or Norfal stone.

Proposal to convey Letters 100 leagues per hour.—An original, if we cannot call it a clever, idea was communicated to the Paris Academy of Sciences on the 23rd ult. by the Baron de Colonge an attaché of the French legation in Bavaria. The rate he proposes to convey letters is not so quick as that of the English inventor, who has taken out a patent for conveying them at the rate of 400 miles an hour through an exhausted tube, like Mr. Vallance's tunnel, which was to transport passengers from London to Brighton in 10 minutes; but it is quick enough — and how does the scientific baron propose to accomplish his feat? Listen, gentle reader, and wonder at the progress of science in this nineteenth century. He would build small houses as stations, and provide each of them with a revolving lever, 300 feet long, which should throw the mail to the next station, and so on along the whole line. Would it not be more easy to adopt the school-boy plan of trap and ball? We need not say that the Academy attached little importance to the communication of the Baron de Colonge, and that it is not probable a committee will be appointed to examine and report upon his scheme.

Miscellanea.

PROPOSED NEW CHURCH AT SEACOMBE.—The amount required for the erection of this church is 3,000*l.* of which 2,364*l.* have been already contributed. So much difficulty exists in obtaining the remaining 636*l.* that the rector of Wallasay (Dr. Byrth), at a meeting held at Parry's Hotel last week, stated that 500*l.* of the amount subscribed was placed entirely at his disposal, and that if by the 10th of August next, the remainder of the money was not provided, he should proceed to build Day, Sunday, and Infant Schools, on a large scale, near his own church. He also said that a further portion would be withdrawn, and applied to the building of an Infant School in another part of the parish. He subsequently stated that a personal friend of his had allowed him to say, that if the subscription came within 100*l.* of the sum required, he would add that amount to his already very liberal donation. Another conditional grant of 100*l.* was made by Mr. Mainwaring, leaving 436*l.* still deficient, for lack of which sum, there is every probability that Seacombe for the present will remain without a church.

LABOUR PROVIDED BY RAILWAYS.—That some idea may be formed of the immense stimulus the trade of the country would derive from the formation of the contemplated railways, it is only necessary to state, that were 2,000 miles of the projected railways to be constructed, it would give employment to 500,000 labourers and 40,000 horses for the next four years. The necessary buildings, sheds, and permanent ways, would cover 20,000 acres of land, and to lay a double line of rails would require 400,000 tons of iron—*Bristol Journal.*

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For Building a New Farm-house at Swavesey, Cambridgeshire.

For 1,000 Tons of Scotch Pig Iron, and 500 Tons of Finers' Metal, to be delivered at Rotterdam in the months of July, August, and September.

For Building a New Church of Kentish Rag Stone and Caen Stone at Homerton (time extended).

For the pulling down the present School House and erecting a new one at Chesterfield, Derbyshire.

For Lighting the town of Devonport with Gas for a term of fourteen years, to commence from the 1st day of October next.

For Building a Sewer of the first class (in length about 1,700 feet), at Little Chelsea, for the Parish of St. George, Hanover-square.

For the Construction of Four divisions of the Chester and Holyhead Railway, comprising the entire line through the County of Anglesey.

For the Erection of a Church at Zeals, in the parish of Mere, Wilts.

For the Erection of a Church at Merthyr Tydvil, in the County of Glamorgan.

For Building Sewers in the Old Bailey, Hanging Sword-alley, and Crown-court; also in John-street, Crutchedfriars, and Cullum-street, all being within the City of London.

COMPETITIONS.

Plans are required for Laying out and covering with Villa residences about 20 Acres of land having a frontage of about half-a-mile to the Queen's-road, Richmond, Surrey, extending from Spring-grove towards Richmond-hill. Premiums will be given of 25 guineas for the most approved plan, and 15 guineas for the second.

TO CORRESPONDENTS.

"J. C. S."—*Mr. C. J. Richardson's works are the best on the subject named. Weale, of Holborn, would give particulars if applied to.*

"B. C."—*We will make inquiries on the subject suggested.*

"W. A." (Yorkshire).—*The Rev. H. Carrow, Loxton Rectory, near Cross, Somersetshire, has been named to us as likely to afford the education sought. If terms be too high for the inquirer's views, Mr. Emberton, Croydon, Surrey, might be applied to.*

"A Constant Reader" (Aldgate).—*Much would depend on the instructions that were given and the nature of the specification. We might mislead him by replying in ignorance of these.*

"J. J." (Belfast).—*We are obliged to him for the enclosure, but have not yet had time to examine it. An account of the scaffolding, if peculiar, would be acceptable.*

"Col. M." *has our best thanks for his kindness.*

"Mr. Wood."—*A parcel is left at the office: it shall be forwarded if Mr. W. will oblige us with his address. Many apologies are due to him.*

"D. M."—*The notice which appears in to-day's* "BUILDER," *was in type before the arrival of our correspondent's parcel. We believed it to be from him.*

"A Subscriber" (Paddington), "J. L.," "Tenders," *and* "D. F.," *next week.*

Received "*J. D.*" (Bath.)—"*The Pictorial Gallery of Arts,*" *Part VI.* (*C. Knight*), —"*Old England,*" (*C. Knight*), —*Young's* "*Lectures on Natural Philosophy,*" *edited by Kelland,* (*Taylor and Walton*), —"*The Illustrated Family Journal,*" *Part IV.* (*Sherwood*), —"*The Illuminated Magazine,*" *No.* 1 *of new series* (*a very good specimen*), *and the Natural System of Architecture as Opposed to the Artificial System of the present day, by W. P. Griffith, F.S.A., to which we shall refer shortly.*

ADVERTISEMENTS.

TO ARCHITECTS AND SURVEYORS.

THE VESTRYMEN OF RICHMOND, SURREY, are desirous of obtaining PLANS for laying out and covering with Villa Residences about 20 acres of Land having a frontage of about half-a-mile to the Queen's-road, Richmond, extending from Spring-grove towards Richmond Hill, and within a few minutes' walk of the Terrace there. The Plans will be expected to include the laying out of grounds and suitable offices, but it is not expected nor required that the elevations shall be uniform. — PREMIUMS will be given of TWENTY-FIVE GUINEAS for the most approved plan, and FIFTEEN GUINEAS for the second.—Lithographic plans of the ground and further particulars had on application to Messrs. SMITH and SON, Solicitors, Richmond, to whom the designs are to be sent before the 14th day of August next.

SMITH'S PATENT SASH SUSPENDER, or SASH-CORD SHIELD.—Its purposes are for releasing cords from windows, giving a facility to take the sashes out, or to turn them for cleaning or repairing inside the room, thereby avoiding any accident, of which many daily occur from the present dangerous method of conducting these operations on the outside. The price within the reach of all classes—only One Shilling a pair for each sash.—To be had, with instructions, of all Ironmongers, or of the Proprietor, W. SMITH, Architect, Alnwick, Northumberland.

TO ARCHITECTS AND BUILDERS.

G. BARTLETT, ARCHITECTURAL MODELLER, 33, DUNCAN-TERRACE, CITY-ROAD, begs leave respectfully to inform Architects, Builders, and others, that they may be supplied with any quantity of Cement and Plaster ornaments from his unlimited collection, consisting of Centre Flowers, Soffits, Bed Mouldings, Pilotras, Trusses, Scrolls, Ballusters, Gothic and other Shafts, Grotesque Heads, Chimney-Pots, Corinthian and Ionic Capitals, Vases, Figures, Fountains, and every description of ornament for parks and gardens, at unprecedented low prices for cash.

THE CAUSES of EXPLOSIONS in STEAM-BOILERS, and the prevention of those arising from incrustation, is now lectured upon by Dr. Ryan daily at half-past Three, and on the Evenings of Monday, Wednesday, and Friday at Nine, at the ROYAL POLYTECHNIC INSTITUTION. Professor Bachhoffner, lectures daily at Ten o'clock, and on Tuesday and Thursday Evenings at Nine, on the ATMOSPHERIC RAILWAY, a Working Model of which, carrying visitors, is exhibited daily and in the Evenings. A curious MECHANICAL HAND; new and beautiful Objects in the Chromatrope, Physioscope, Proteoscope, and Dissolving Views. Working Models described. Experiments by the Diver and Diving-Bell, &c., &c.—Admission, One Shilling; Schools, half-price.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

FREESTONE.—Noblemen, Gentlemen, Engineers, Architects, Railway-Contractors, Builders, Grainstone-cutter, and others, are respectfully reminded of the admirable Freestone (a perfect oolite), which may be obtained at the LITTLE CASTERTON QUARRY. The inducements for using this Freestone consist in its property of resisting the most intense frost, the facility with which it is wrought, and consequent great saving of expense, the uniformity and beauty of its colour and texture and its low price. It has been used and approved for many years past by some of the first Architects in the Kingdom, and is now being used in the Stations on the line of the Blisworth and Peterborough Railway. The Quarry is situate in the County of Rutland, about one mile from Stamford and the River Welland, six from Wansford and the Nene, about ten from the Bourn Eau, and the same distance from the Oakham Canal. It would be delivered by Land Carriage in Blocks of any portable size, at a charge of one halfpenny per cubic foot per mile in addition to the price at the Quarry.—Apply to FRANCIS SIMPSON AND SONS, Stamford.—July, 1845.

CAEN STONE.

LUARD and BEEDHAM have a quantity of the above stone, of the best quality, direct from their Quarries at Allemange, which may be inspected at the Norway Sufferance Wharf, Greenwich.—Further particulars at Mr. G. GATES', 18, SOUTHWARK-SQUARE, SOUTHWARK.

BATH STONE.

T. E. WELLER, of STEEL-YARD WHARF (late Drewe's), begs to inform Stone Merchants, Contractors, &c., that he can supply them with best FARLEIGH-DOWN STONE on lower terms than ever before offered. — Depôt for immediate supplies, DRUCE'S WHARF, Chelsea.

CUNDY'S MARBLE AND STONE WORKS, PIMLICO.

SAMUEL CUNDY begs to inform Architects, Builders, &c., that he is supplying VEIN MARBLE BOX CHIMNEY-PIECES, Opening 3 feet square, and 7 inch piers, for FORTY-FIVE SHILLINGS! STONE BOX CHIMNEY-PIECES, opening 3 feet square, and 7 inch piers, Twelve Shillings; do., do., with MOULDED CAPS, and 8 inch piers, FOURTEEN SHILLINGS.

The above are manufactured in the best manner and of the best material. For CASH ONLY.—Address, SAMUEL CUNDY, Marble and Stone Works, Belgrave Wharf, Pimlico.

Masons' Work, Monuments, &c., &c., at equally Low Prices.

TO ARCHITECTS, BUILDERS, BRICKMAKERS &c.,

PUMPS of Superior CONSTRUCTION, bored perfectly true by improved machinery, in various plain and ornamental patterns for Conservatories, Squares, Market Places, Roads, Gardens, and for Liquid Manure. BRICKMAKERS' PUMPS, in Wrought and Cast-Iron, HYDRAULIC LIFT PUMPS, and ENGINES for Wells of any depth. SINGLE and DOUBLE PUMPS up to 12-inch bore, kept for Hire.

BENJ. FOWLER, 63, Dorset-street, Fleet-street.

PATENT WROUGHT NAILS.—These Nails are submitted to the Notice of Builders and Contractors as being superior to any others, and cheaper. They have the toughness of the best hand-made nails, with far greater uniformity of make. The flat-pointed Rose Nails are particularly recommended wherever oak or other hard wood is used; being perfectly chisel pointed, they require no boring, and will drive into the hardest wood without splitting it, and their heads being very strong, do not fly off. The Patent Wrought Nails may be had of all Wholesale Ironmongers; and an ample stock of them is kept at the Warehouses of the Agents,

HIGGS and GEORGE, 179, BOROUGH, LONDON.

CHUBB'S PATENT WROUGHT-IRON AND FIRE-PROOF SAFES AND DOORS.

C. CHUBB & SON have constantly on Sale a large stock of very superior Wrought Iron Fireproof Doors or Frames for strong rooms or closets, and Safes and Chests of all dimensions, and which from their arrangements in manufacturing they are enabled to sell on such terms as will meet the approval of Architects and Builders. The whole are fitted with the new Patent Detector Locks, throwing from three to ten bolts.

Caution. As several imitations of the above are offered for sale by different makers, Architects, Builders, and the Public are respectfully informed that no Ironmongers, Smiths, or Brokers are supplied with the above Doors or Safes; and that they can only be obtained direct from C. Chubb & Son, 57, St. Paul's Churchyard, London.

COTTAM and HALLEN, Wholesale Ironmongers, Manufacturers of Kitchen Ranges, Stoves, &c., &c.

Strong Self-acting Kitchen Ranges, with back Boiler, Oven, and Wrought Bars:—

2 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
3*l.* 6s.	3*l.* 12s.	3*l.* 16s.	4*l.*	4*l.* 10s. each.

Cottage Ranges:—

32 in.	34 in.	36 in.
40s.	42s.	45s. each.

Best Register Stoves, at 7d. 8d., and 9d. per inch.
Ditto Elliptic do. at 9½d. and 4d. do.

C. & H. having a large Stock of Rain-water Pipe, Gutters, and Sash Weights, purchased before the advance of iron took place, are selling at the old prices, AT CORNWALL-ROAD, LAMBETH, and WINSLEY-STREET, OXFORD-STREET.

VARNISH.—It has long been a desideratum amongst the consumers of Varnish to obtain a good and genuine article; brilliancy, facility of drying, hardness, and durability are the qualifications necessary, but these are seldom if ever found united. The experience of a life-time devoted exclusively to the manufacture of this article, the great and important discoveries of modern chemistry, and the daily improvements in machinery, have enabled Messrs. George and Thomas Wallis to produce Varnishes (both oil and spirit) unrivalled in every respect, and they confidently recommend them to the trade, as deserving of notice both in price and quality.

Builders, Coachmakers, Painters, and others may depend on being supplied with a genuine and unadulterated article. Fine Oil Varnish, from 10s. per gallon; best White Spirit Varnish, 21s. ditto; Best Spirit French Polish, 20s. ditto; White Lead, Oil, Turps, and Colours of every description at the very lowest prices.—WALLIS'S Varnish, Japan, and Colour Manufactory, 64, Long-acre, one door from Bow-street. Established 1750.

WALLIS'S PATENT LIQUID WOOD KNOTTING.—This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them cating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; a boy can use it as well and effectually as the best workmen: it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20s. per gallon.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

Agent for Liverpool, Mr. WYLIE, 56, Gloster-street; ditto for Manchester, Mr. J. THOMPSON, Back King-street; ditto for Chester, Mr. J. HARRISON, Linen Hall-street.

ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architecture and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

MARTIN'S PATENT CEMENT.

TO ARCHITECTS, BUILDERS, AND PAINTERS IN FRESCO.

STEVENS and SON, PATENTEES and SOLE MANUFACTURERS, beg respectfully to announce that this beautiful cement has now arrived at a degree of excellence far surpassing their most sanguine expectations. For all internal work it possesses a great superiority over every article hitherto in use; it is now being used extensively by Government in the British Museum and other public buildings. IT DOES NOT THROW OUT ANY SALT, but presents a beautifully plain and perfect surface, which may be painted upon dry work within four days without peeling. It is equally applicable for walls or lath, for mouldings, architraves, skirting, or flooring; and is admitted to form the best ground for fresco painting, having been used for many of the prize frescos lately exhibiting in Westminster Hall. It will bear an intense heat without cracking, and for hardness, durability, and economy, cannot be equalled.

186, DRURY-LANE, LONDON.

Agent for Liverpool and Manchester, Mr. R. Part, 11, Atherton's-buildings, Dale-street, Liverpool.

KEENE'S PATENT MARBLE CEMENT.—The Patentees of this composition beg to refer to the British Museum, the Royal Exchange, the new works at Bethlem Hospital, Greenwich Hospital, and the Coliseum in the Regent's-park, as buildings finished or in progress, in which Keene's Cement has been used as an internal stucco. Its superiority to common plastering consists in its extreme hardness, and the rapidity with which it dries, which qualities fit it to receive paint or other finishing sooner than other water Cement.

When employed for skirtings, architrave, and other mouldings, in place of wood, it checks dry-rot, is impervious to vermin, prevents the spread of fire, and is more economical in its application than the material for which it thus becomes the substitute.

Confirmation of these statements is to be found in the almost universal adoption of Keene's Cement for Skirting and Hall flooring in the new houses on the Hyde Park Estate, where its application is to be seen to the fullest advantage.

In Liverpool and Manchester, Keene's Cement has in several cases been used for the covering of the fire-proof warehouse floors, where its lightness and hardness give it the preference over tiles and flagging, which are much heavier, and necessarily leave the floor intersected with numerous joints, whilst Keene's Cement is laid down in one unbroken surface.

The high polish and marble-like hardness of which this Cement is susceptible render it the most suitable material for the manufacture of Scaghola.

Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

Depôt in Liverpool, 36, Seel-street; James Woods, Agent.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

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has been used. For the purpose of securing the use of the Genuine Article, Architects and others are recommended to insert in their specifications the "Seyssel Alphalte, Claridge's Patent," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used, gas-tar and other worthless and offensive compositions have been introduced. I. FARRELL, Secretary,

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*** In proof of the necessity of the above advertisement, it may be mentioned, that it has come to the knowledge of the Directors, that in certain works which have been executed by Messrs. Curtis, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

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N.B.—Asphalte supplied to Railway Contractors and Builders in ½ cwt. Blocks, for convenient conveyance to all parts of the United Kingdom, at 45s. per ton.

The Builder.

No. CXXVIII.

SATURDAY, JULY 19, 1845.

IN our number for the 5th of April last,* we alluded to the proposed restoration of that noblest of parish churches, —St. Mary Redcliffe, and stated the amount of subiptions received, and the desire of the comtee to proceed immediately with the works the extent of their means. We also reted the proceedings of a meeting held May, whereat it was resolved that the comtee should make early application to each the subscribers for permission to apply donation to the repair of the fabric thwith. Since then this has been done, some of the too-necessary works are to commenced directly, under the direction Mr. Britton and Mr. George Godwin. Britton, it will be remembered, had ginally associated with him in this very eresting undertaking, Professor Hosking; by them conjointly, the report was made which the committee have been acting up his time. When the latter gentleman was de an Official Referee, he felt it necessary esign this work, and, at his recommendaaided by that of Mr. Britton, Mr. Godwin s appointed by the committee in his stead.

n the first volume of THE BUILDER (page), will be found two engravings, representthe interior and exterior of the church uestion, as originally proposed to be re-ed. They will serve to convey to the der who is not acquainted with the edifice ne notion of its style and character, but y give no idea of its extraordinary beauty. e genius, skill, and fancy, which it disys, cannot be conveyed by any small pical representation.

The tower is perhaps as fine as any thing in world, and needs a long study before it be fully appreciated. The north porch, h its unique doorway, the boldness and va-y of the mouldings throughout, the beauty skilful arrangement of the groining inside, re some of the many points which arrest the ntion of the examiner, and compel him to nit what a fine appreciation of the beautiful architects of the middle-ages had. In the er particular, the groining, St. Mary's is, haps, unrivalled for variety and richs. The bosses, too, display extraordinary ility of imagination, and will repay care-examination; and, indeed, the same may said of every part of the structure. Alugh exceedingly harmonious as a whole, is the work of several eras. The inner th porch, for example, belongs to the inning of the 13th century, the tower fly to the end of the same century or the inning of the next, and the greater part of body of the church to the 15th century, ough we have ourselves little doubt that ch of it was built considerably before that e.

The material of which the building is conted is an oolitic lime-stone from Dundry, from various causes is in a dreadful state decomposition, and in parts, of danger. parapets are falling and fallen, the outof mouldings is fast disappearing, the crockets and finials of pinnacles are displaced by the wind, and the whole face of the stone is eroded to a considerable depth. There are, however, few forms at present, mouldings or sculptured ornaments, that could not be restored with truth; but every day will make the task more difficult, and *if left for any considerable portion of time it will become impossible.* One winter even, now that the stonework has reached its present state of disintegration, may do irreparable mischief. We need hardly say, therefore, that we in common with all who look with pride on the noble heir-looms received from our forefathers (*Templa quam dilecta!*) and are anxious that they should be religiously maintained, are well pleased to find that operations are to be commenced immediately. It is painful, however, to learn how small a sum, comparatively, has yet been provided for this noble purpose, namely, little more than 5,000*l.*, nearly half of which, if we remember rightly, is the produce of estates vested in the parish authorities for the repair and support of the church. If St. Mary Redcliffe were destroyed by fire or otherwise to-morrow, so justly proud of it are all the inhabitants not merely of Bristol but of the neighbouring counties, that we are satisfied subscriptions would flow in from all quarters for its perfect restoration. Why, in York, after the destruction of the Minster by fire in 1829, forty-eight thousand pounds were collected in two months! And no less enthusiasm would be displayed in Bristol, Somersetshire, Gloucestershire, indeed all England, were any such calamity to befal Redcliffe church.

But while it remains whole as they believe, they are not roused to any act of munificence. They forget that time (*edax rerum*), is more certain than the flames, and they hardly know that if left alone only a short time longer, the object of their boast will be but a shapeless heap of stones.

The Diocesan Society when applied to, will of course afford a considerable grant of money towards the object in view, and the parent Society in the metropolis will doubtless do so too, but the bulk of the sum required must come from individuals, and we urgently call on the public for their liberal co-operation.

In Bristol alone, where the annual accumulation of money is enormous, much more ought to be subscribed than is yet announced; in fact, we have little doubt that the moment the works are commenced in earnest, additional assistance will be afforded. St. Mary Redcliffe does not simply belong to Bristol, but to the whole world,—it is one of those records of the past that all have an interest in preserving, and from which all may derive advantage. It belongs to history, it belongs to poetry, it belongs to art; and it will be a national disgrace if it be not immediately rescued from its present dangerous condition, and restored in the minutest respect.

We will not believe for a moment that funds can be wanting for such a purpose, but we call on the wealthy inhabitants of Bristol themselves, if they are not disposed to keep the whole credit of the restoration in their own hands, at all events to set a good example. If there had been any public board for the conservation of national monuments, this building would not have been *suffered* to fall into its present state.

A desire for restoration is at this time general in Europe, — Germany, Belgium, France, all are actively engaged in this important task. The last project of the sort in France, and one of great extent, is the restoration of the Metropolitan Church of Paris, Notre Dame,—which is found to require thorough repair and reinstatement, a repair that is to extend to all the works of art contained in it; monuments, cenotaphs, carvings, and coloured decorations. Messrs. Lassus and Viollet le Duc, the architects engaged to effect the restoration, have been empowered forthwith to direct such works to be done as may be necessary to preserve the structure from ruin, and application has been made to the chamber for a grant of 2,650,000 francs or 106,000*l.* sterling, with a statement that the repairs are not merely necessary, but most urgent. A commission was appointed to examine the nature of the works proposed, and there is very little doubt that when they send up their report, the required grant will be made.

At Cologne, the money required for the restoration of the cathedral is immense, still no one despairs; subscriptions daily come in, and the works progress. The town-halls throughout Belgium were in a dreadful state of dilapidation and called for a large expenditure; yet the money has been raised, and in several cases they are now satisfactorily completed. Surely then, as we before said, there can be no cause to fear for St. Mary Redcliffe. Once let the inhabitants of Bristol be convinced, that without interference on their part, restoration will be soon impossible, and we are quite satisfied they will come in munificently to the rescue. We appeal, however, in its favour to every lover of our ancient architecture in the United Kingdom.

* See page 157 *ante*.

ILLUSTRATIONS OF ARCHITECTURE FROM THE BRITISH MUSEUM.

THE PHIGALIAN MARBLES.

AMONG the most interesting remains of Grecian architecture, the marbles from the temple of Apollo Epicurius, at Bassæ, near Phigalia, hold a high place. They are not only interesting from their character and style of art, but as fragments of a singular edifice, contemporary with the Parthenon at Athens, and the work of the same architect. It is not an uncommon supposition, that the Grecian architects adopted one model, from which they made no very sensible deviations. But, although modern imitators have contributed to the prevalence of this opinion by adopting the same Ionic capital, or the same victor's wreath in all buildings, sacred or profane, the Greeks were an originating people, and did not restrict themselves to imitation in their architecture. It is true, that instead of trying a new experiment in every fresh building, they made use of the principles of their predecessors, which the voice of public taste had applauded; but they were not less strong in the endeavour to give each building the appearance of an original work; so that we find in all Grecian buildings, that general character of resemblance which is sufficient to mark them all of one style, a scrupulous attention to detail in points, many of which have only lately been discovered, and a marked difference in those details. In the temple under notice, we find some peculiarities, which are the more singular, as existing in a work of the architect Ictinus.

The notice which Pausanius gives of this temple in his "Description of Greece" adds greatly to its interest, as it leaves no doubt that it belonged to the age of Pericles. His words are "Phigalia too is surrounded with mountains; on the left hand by Cotylion, and on the right by the mountain Elaion. The mountain Cotylion is about forty stadia distant from the city. In it there is a place called Bassæ, and a temple of Apollo *the Helper*, the roof of which is of stone. This temple surpasses all the temples in Peloponesus except that which is in Tegea, for the beauty of the stone from which the roof is built, and the symmetry of its construction."—"Ictinus, the architect of the temple of Phigalia, was contemporary with Pericles, and built the Parthenon for the Athenians." The temple had

been visited by Sir W. Gell, when subsequently it was examined by Mr. Cockerell, along with Baron Haller and with Mr. J. Foster, now of Liverpool. These gentlemen discovered the existence of the sculpture, now preserved in the British Museum, and in 1812, a party was formed at Athens for the purpose of excavating, and delineating the precious works of art. The temple was found to consist of six columns in front, with a range of fifteen columns on each side, two more than in the temple of Theseus, and was 125 feet in length, and nearly 47 feet in breadth. It is considered to have been hypæthral. The external order is elevated upon three steps. The temple is peripteral, consisting of a peristyle, pronaos, naos or cella, a space between the naos and the opisthodomus, and the opisthodomus itself. The *space* is separated from the opisthodomus by a wall, which has no opening; but in the side wall there is a door into the peristyle, the use of which has occasioned some discussion. A similar door is found in the Temple of Theseus at Athens. The structure does not stand east and west, as most temples do, but nearly north and south. The Doric columns of the peristyle were 3 feet 7 inches in diameter, and 19 feet 6 inches in height. In the interior of the cella were very curious columns of the Ionic order, together with a single column of the Corinthian order, which, as it has been supposed, occupied the position opposite the entrance, being an almost isolated instance of a central column in Grecian architecture. There is one other example at Pæstum. This idea of the position of the column is, however, formed upon the assumption that the temple was hypæthral, which may not have been the case, and upon the fact that the space would scarcely allow of two columns. The frieze would thus range round the four sides of the cella, being common to both orders, and it is an argument for the temple's being hypæthral, that otherwise the sculpture would receive no light. The Ionic columns project from the walls in a very singular manner, being attached to the ends of short walls, and are three-quarters of a circle in plan. Two of these walls, at the further end, join the wall of the cella obliquely, for what reason does not seem clear. Engaged columns were not usually employed in Grecian architecture, but are found in the Erectheum, and the Temple of the Giants, at Agrigentum. The capitals and bases of the columns are very singular, so much so as to have led many to suppose, that they were of a later date than other parts of the fabric. It is rather difficult to describe them, but a fragment of one of the capitals is in the collection, shewing that the volutes were joined at a right angle, the capital facing all ways; an extension of the idea of the angular capital in the temple on the Ilissus, and in those of Minerva Polias, and Erectheus. The continuous moulding of the volutes rose in a slight curvature from one volute to the other, and had not the usual abacus. The eye of the volute was a separate piece, it was, however, of stone, and not of any other material, as might be supposed, and was fastened into the socket by a plug. In the fragment, one of these balls is wanting. The base is not less singular. The small segment, forming the union between the shaft and base, is here expanded into a large curve, so that the bases have great projection. The bases hemselves have for their principal moulding a large scotia, the section of the whole being not unlike that of the moulding, immediately below the base of the order in the monument of Lysicrates. The flutes are more like those of the Doric than of the Ionic order, being of slight depth; they have narrow fillets between, as sometimes seen in the Doric. It is to be regretted, that the museum possesses no other fragment of this singular order than the small one above alluded to, which includes a portion of the flutes. The Corinthian capital is a still greater loss, as the examples of that order of Grecian origin are few:—it has now disappeared from the ruins, but a capital bearing close resemblance to this one, was found on the Acropolis of Athens by Mr. Inwood, and is now in the collection of that gentleman. The discovery of two capitals of similar description in these particular localities, is a circumstance of some interest, leading us to the inference, that they were both designed by Ictinus. That at Phigalia was much mutilated, but shewed a lower range of caulicoli, as in the monument of Lysicrates. The other *architectural* fragments are, one of a Doric capital of one of the columns of the peristyle, fragments of tiles, an antefixa of beautiful design, and the corresponding ornament at the ridge, besides fragments of the metopes, from the porticos of the pronaos and posticus. These parts of the building were not usually ornamented with triglyphs, but were so in the building under notice. It seems to us, that Pausanius, in speaking of the beauty of the roof of this temple, referred to the lacunaria, of which six different varieties were discovered, and figured in the description of the temple by Mr. Donaldson, which forms part of the supplementary volume of Stuart's "Athens." They were all beautiful, and two varieties were arranged in diamond forms. The ornament of the crowning cyma of the pediment is engraved in the title-page of the fourth part of the description of the Museum marbles; it was of beautiful design, similar to that of the Erectheum, and may be considered to shew an advance upon the painted ornament of the Parthenon. In accordance with the Grecian principle, the cyma was not continued along the flanks, its position being occupied by the antefixæ.

The really valuable portion of the Phigalian marbles is the frieze. When discovered, it was much broken, and the uniting of the several pieces was a work of extreme difficulty, at last accomplished by Mr., now Sir Richard Westmacott. It occupied the position, above the Ionic columns of the interior, about 22½ feet from the floor, and was attached to the wall by pins, the holes of which may still be observed. These pins are considered by Mr. Taylor Combe, the author of the description of the Museum marbles, to have been of lead, similar pins being used in the fixing of friezes of terra cotta. The positions of the slabs are almost a matter of conjecture, though evidently some of them followed in the order, in which they are now ranged. The subject of eleven of the slabs is, that which was so fertile a theme for Grecian sculptors, the combat of the Centaurs and Lapithæ; and that on twelve of the slabs, is the battle of the Greeks and Amazons. The direction of the slabs, belonging to the former subject, was from right to left; that of the latter, from left to right. The frieze of the Parthenon is in low relief, representing the Panathenaic procession in honour of Minerva, and is wonderfully accurate in anatomy, and the proportions of parts. But the Phigalian frieze, though not in every respect correct, as to the several parts of legs and arms, exhibits a marvellous spirit and energy. Some of the figures are almost detached from the background, and the whole are in violent action; the Centaurs are hurling rocks at their opponents, and everywhere the ardour of strife prevails amidst the dead and dying.

The marbles were purchased at Zante, in 1814, for the sum of 60,000 dollars, rather above 15,000*l.*, which had been previously offered for them by Mr. Legh, one of the discoverers, and they are now hardly inferior in value to those other works of the age of Pericles with which they were in origin so intimately connected, and along with which, they are now united under one roof. E. H.

THE FUTURE ARRANGEMENT OF THE XANTHIAN MARBLES.

Since our former notice of these interesting fragments,* the question of their future arrangement, in the building now in progress, has become a subject of consideration. In consequence, a model has been prepared, we believe by Sir Richard Westmacott, shewing a proposed arrangement, and we have heard, that Sir Charles Fellowes is about to prepare another. The former model is now in the central saloon of the Museum. Taking the door to be the same size as that of the Elgin room, 7 feet wide, we may venture to consider the scale of the model, one inch to the foot. This makes the proposed room 73 feet long, 40 feet wide, and 30 feet high. It is lighted by a range of long windows, immediately under the ceiling; the walls are shewn of a light red granite, about three feet in height from the floor, being left for scagliola in imitation of Sienna marble. This leaves the lower part of the wall entirely free, except at the ends of the room.

* Vide p. 301. *ante.*

On the walls are various bas-reliefs, many
them not yet unpacked; and the end of t
room opposite the entrance is occupied by t
fragments of the monument, erected to co
memorate the conquest of Xanthus by Ha
pagus, previously described. They are arrang
in the same positions, as they occupied
the building, with the exception of the pe
ments, and some of the figures from the inte
columns, which are necessarily placed on t
floor of the room. The lower range of ba
reliefs also, is placed too high, and we wou
much rather see it occupying its original po
tion. The centre of the room is occupied
two immense tombs of the kind, which S
Charles Fellowes has likened to Gothic work
They precisely resemble each other, being on
turned different ways, so that we don't unde
stand why there should be two of them. Th
stand on pedestals having a pannel at the en
and a simple cornice of fascia, enriched ovo
and fillet. Above this pedestal are bas-relie
apparently of good character, and above this
curious arrangement of pannels, and pr
jections very much resembling timber co
struction, and the projections much remin
ing us of the halving of the wall plates
the angles of a roof. There are also so
projections in the form of hooks, or rather li
the catch which receives the latch of a co
mon door.* The roof is in the form of a Goth
arch, and with its ridge, resembles the botto
of a vessel upset. The "pediment" at t
ends has mutules, which are not found in t
pediments of Grecian buildings. Two lio
heads project on each side from the curve
the roof. Nearer to the door of the room,
the "Harpy Tomb," and on each side the do
are examples of the two other varieties
monuments, which bear so strong resemblan
to the dwellings of the present inhabitants
Asia Minor.

We trust, that the increased accommodati
in the new buildings will allow of the bet
arrangement of many parts of the collectio
which have long needed it—the architectu
casts for example. We wish we could see a
reason to hope for some provision for *nation*
antiquities, which are as deserving of attenti
as those of Greece or Rome, and are to be h
for a small fraction of the expense. E.

THE (LINNEAN) SYSTEMATISING OF TH STREETS OF LONDON.

BY J. L——Y.

"It leads us to look onward, through the long vista of tim
with chastened but confident assurance, that science
still other (!) and nobler work (!) to do, than any she
yet attempted."—*Sir John Herschel's address to Brit
Association*, 1845.

If the men of the present age have tak
great deal of trouble in systematising gna
beetles, and all sorts of vermin—it can, n
withstanding, not be said, that they ha
bestowed equal care on any thing connect
with *public utility*, objects more grand, su
lime, worthy. And as we would be inclin
thinking bad of any gentleman, who
gloves even, for instance, were constan
soiled or otherwise disorderly, the co
plete chaos in which the huge network
our streets is remaining, leaves ample room
an analogous conclusion as to the whole of
civic arrangements. It is, however, one of
standing and periodically returning *items*
our periodicals, to dilate on the number
streets, going by the *generic* of King's
Queen's, the scores which are named af
Charles (either I. or II.), and so on. Th
our perodicals have stopped—and, therefo
rather deserve the stygma, which has b
cast, at least, upon *one* of them, viz. "findi
fault with *every* thing, without stating
thing to be done in lieu thereof." Beside
most confusing and perplex *synonymy*, t
very nomenclature of many streets is *erroneo*
and unsystematical—in as much as

1st. Two *opposite* rows of houses of
same street bear *different* names; for instan
Cambridge-terrace and Oxford-terrace,
many other (even better) examples.

* A peculiar projection of similar description was not
by Mr. Stephens in the buildings of Mexico. May it
have assisted to support an awning, stretched at the sid
the tomb, when the relatives visited the grave of the
ceased? The blocks which we sometimes find projecting
mediately below the eaves of a Gothic church, those wh
evidently answered a constructive purpose, we might
some difficulty in understanding, did we not know how
quently a chapel was attached to the church, of which
other trace has since disappeared. In such a case the ble
are the only evidence, but a certain one, of the roof, w
rested upon them.

nd. Streets of an immense extent have no -division into upper (middle) and lower— instance Oxford-street; while many others ch minor have.

rd. Streets quite contiguous and straight, broken up by names different; so for in- ce John-street may end into Prince-street, the like.

th. The labelling of squares, streets &c., is t defective, and there are some large squares ch are not labelled at all.

th. The numbering of the houses is at a with the above, as many houses have no bers at all, the same number occurring e in the same street.

t would be matter of supererogation to *te* on the inconvenience, confusion, and usiness-like aspect, which result from this e of things. Besides, any such (palpable) maly augurs bad for every other civic or al item of our huge metropolitan system; what we wish is, that men should arrive -and-by—but not *too slow*) at a certain , reasonable, business-like condition in this every other respect. It cannot be denied, ever, that since our present *reign*, things beginning to look very differently, from t they did at any period of English (or r) history; and as we are just in a *numera-* mood, we will resume by stating, that st. Now-a-days there is scarcely a man of nence in any department of science or art even literature), who is not consulted, em- ed and paid by Government; for instance, Hallam, Dr. Owen, Faraday, &c.

nd. That last year only, Government have ended 5,839*l.* in experiments, scientific and rwise.

What is not to be expected under similar pitious circumstances! But we shall vary point of a mere encomiast, by saying, that lst it is very laudable to drag for instance e depth of the Ægean sea," still the old ely proverb: "charity (justice) begins at e," should not be left unheeded. We sequently hope, that our Governmental or e authorities should not begrudge the grant- a commission, or an adequate prize, for *systematising and regulating the nomencla-* *, and the proper labelling of the streets of don* (and other large cities). In Paris it ired a *revolution* to do all that, at least to rtain degree — but we hope that John will do *the same*, without requiring such ong extraneous *excitement*. This is our and trust throughout: "that we shall a *revulsion* of affairs without a *revolu-* "

his, however, is after all not the report of mmission —*nor even* a prize essay. We , therefore merely throw out the following f remarks:—

t. It would be required, that all (what we *generic* street appellations of King, Queen, rles, John, &c., should disappear. They n absolutely *nothing*, as they apply, at pre- to nobody at all. If their be any *histo-* incident, which might have given to a in (say Charles or other) street its name, might be preserved, but no more. In so g, a great number of *vacancies* would r, for which there are, indeed, a great many idates. Should any one believe, that while Parisians *have* still a street of Jean Jacques sseau, Condorcet, Chaptal, &c. — we have called after Jenner, Cabot, Chaucer, Her- l, Handel, &c. National recognition, even st way, would excite national emulation— hus, the *material* result would cease as it , to make room for one of a more exalted ncter. We need hardly to add, that such ndertaking would require not only the aid storical, but far more the *surveyor's* know- , as in many streets (especially the small rrooked ones) there is at present no *sys-* of appellation—none knows or can know, e a street begins or ceases, which all t to be determined after certain laid-down and system. In fact, we have in our 's eye, a certain tidy, complete, business- consummation of this undertaking—as we a great enemy of all cobbling and botch-

menclature, however, is only part of that opolitan *systematization* which we pro- and which would avail but little, if the nt wretched, beggarly, and jobbing way of *ing* the streets were to be persevered in. e labels are really a disgrace to the (*mate-*) first city of the world. Some are large, others small, some in one sort of *type*, and others in another, some at such a height, and some at another, and there is a *new*-fangled sort with moveable letters, of which, however, many have faded or fallen out, and look like the defective teeth-work of an old woman. We, however, propose (as we always do), that a uniform, solid, sterling, decorous, and ornamentive way of labelling the streets should be adopted. Having (albeit timidly) alluded to *jobbing*, we believe, that in most of our civic expenditure, there is too little regard paid to the humble and poor rate-payer. Paving is done most *futilely* and wretchedly, labelling in the same way—because such expenses increase the rate *only* by one penny or so in the pound; while none seems to think, that it is the last half ounce which *breaks* the back of the camel, and that that *job* which gives A, B, C, some employment, sends D, E, F, to the poorhouse— in fact, a mere repetition of our *seven and a half* per cent. parable, mentioned in previous essays. Solid, sterling, business-like work is, therefore—as every honest and candid man knows—always the most economical. And thus we propose a labelling of the streets which may last a century, or a couple of centuries—and *we* also, like Lord Stanley, say, that we don't want to *legislate* for any longer time.

Having, however, called our systematization, a *Linnean* one, we have to apply this principle to our present purpose. The labelling, as well as the proper naming of streets, will require a division of the metropolis—

1st. Into certain localities according to their architectural and other respectability—say divisions *A. B. C.*—"Belgrave-square" and such like—"Soho-square" and such like— "St. Giles," and other such crowded and poor localities. This would form, say, the *generics*. But it is to be borne in mind, that in any, say *A.* (Belgrave-square) locality, there are streets of different size and architectural or other importance. We, therefore, distinguish in every of our *A. B. C.* localities, three *species* of streets (or better, *aggregates* of houses), which we shall mark 1, 2, 3. Thus, for instance, Belgrave-square would stand *A.* 1. in our proposed systematisation—meaning that it is a *first*-rate street (*aggregate*), in a *first*-rate locality; West-street, Petticoat-lane would be *C.* 3, meaning a third-rate aggregate in a third-rate locality, etc. And now we have to state, that this (simple be it) systematization will materially assist, as well the nomenclature as the proper labelling of the aggregates. For instance, the following rule (law) would result therefrom: If any No. 1. street is transected by another No. 1. street (no matter which locality), both *retain* the *same* name after having crossed each other. Such is the case with Regent and Oxford-streets. But if *any* (1. 2. 3.) street is transected by one which changes its character after the transsection—becomes 2. or 3., from having been 1.; then the name ought to be necessarily changed, and the *major* to *retain* its name, if other causes should not militate against it (for instance it being a generic name). A further detail and exemplification would be displaced here.

The above systematization would also greatly assist the labelling of the streets. This, we propose, should be done in a solid, sterling, showy manner. We propose it to be of the hardest and toughest China or the like possible—*azure* letters on *white* ground. But it would be wrong (in many respects), to have the same *sized* labels in an A. 1. aggregate, as in one *C.* 3., viz.; in Belgrave-square and in West-street, Leather-lane. We propose, therefore *three* different *sizes** of labels—thus. The names of the aggregates should be composed of oblong *movable* type (letters) of the above material, which could be manufactured wholesale, and then *composed* accordingly, encased in a (solid) brass frame, and then the back part filled out with some imperishable (hard and tough) cement; so much so, that every label should present a solid block of a certain size (according to the *A. B. C.* localities); most solid, we repeat, and not to be injured but by the mainest force. But it would be very wrong to charge the *C.* 3. ratepayers with the same amount as those of *A.* 1. or the like. We, therefore, further propose, that the price, which a *C.* 3. label would cost, should be first ascertained, which we think would be 2*l.*, made in such considerable quantities. A label of *B.* should be charged 4*l.* — and an *A.* one 6*l.* This were to be the general calculation. But, as a *B.* label would *not* cost the double of a *C.* one, and an *A.* label for less, the triple of a *C.* label — the *C.* label price of 2*l.*, would be only a *fictitious* one, resembling (somewhat) the 149*l.* item of the income tax. In fact, it would then be, as it ought to be, *everywhere*— the *same* "*public*" *accommodation* would be afforded to the *public*; but the man who has 7*s.* a week and he who has 7,000*l.* a week, would pay *differently* for it. Without the application of such a *principle*, *nothing* of any sterling nature can be accomplished; for which stating we have the high authority of the *Premier*, who said in the debate on the income tax: "the humbler classes cannot be taxed to any further extent."

No *sterling* work, however, of any kind can be ever effected, if it is made a *job* for any one. Thus, if our (Linnean) labels were to fade, break, split, exfoliate, melt (!), and all the like —it would only lead to the (accessory) conviction, that now-a-days no public *work* can ever be done *workmanlike*, and that all and every thing of the kind is merely done to put money in the pockets of a few favoured persons. It behoves us, therefore, to state briefly, how a (*sad*) repetition of that drama or farce is to be avoided. Our favourite system of super-revision (a *system* of revision) would have again to come into play. The *patterns* of the type or letters ought to be first produced by the persons tendering for the contract, and be subjected to a commission, of which men beyond all suspicion should be members—for instance Prof. Faraday, Brande, Dr. Ure, &c., &c. The ultimate *contract* of the accepted tender should be drawn out by a legal person, also beyond suspicion—and the material then received *not* in a whole lump, but in such quantities as they can be most conveniently fabricated.

In fact, every precaution ought to be taken, that the letters do not turn out to be made of gingerbread or pipeclay. Similar *deep* precautions ought to be taken with respect of the brass (or other) cases, forms; the cement, the filling-up—the placing in the walls.*

We are perhaps over-rating the importance of public tidingness and sterlingness—in saying, that the consummation of our plan would, and could not but, be of great influence on the morals, the behaviour, and (proportionately) on the whole social condition of the people of this metropolis. It is all idle to preach to the people a regulated and business-like behaviour—if the very labels of our streets (those pilot-marks on the estuary of the metropolis), proclaim in their dilapidated and futile appearance the fact, that those *above* are hardly better than that people, who exhibit (in the three kingdoms) the astounding figure of 1,500,000 paupers. Do our respected readers doubt, that such a beginning even, of making *all* our streets looking tidy, nay ornamented, would not act like a constant *memento* on the idle, the disorderly, the filthy! Do our readers doubt, that the cobbler, the scavenger living in a C. 3 locality, would not be induced to some thought on seeing such a tidy ornamented plate inserted in his house— can their be any doubt that many might be induced to speak thus to their wives:—"why, missus, as how they have stuck sich a snuggy thing in our street, I thinks we must keep the ouse somewhat more clean ourselves, and I shall send down Bobby to sweep the passage and clean the windows oftener as he did hitherto." And such and similar *is* the fulerum of Archimedes, with which to move the lumber of our present social condition. There is no use of *selling* theories (books) on that score any more —*business* (John Bull-like business) is to be done henceforth.

* The shape of the labels would be either uniformly oblong, or, in some cases, *oval*—*if*, viz., the names could not be well arranged in any other way.

* If it were possible, I would propose that an additional slip (*space*) should be inserted at the bottom of each label, bearing the names of the manufacturers of the china letters, the brass forms, the cement, the builder who has placed them. Such an *advertisement* might somewhat deter the fraudulently inclined.

CLAREMONT.—An extensive and convenient range of stabling and coach-houses has been completed at Claremont, for the accommodation of the horses and carriages belonging to her Majesty when the court is stationed there.

STIR IN THE SCHOOL OF DESIGN.

Sir,—As you have been pleased to give publicity in your journal of the 5th to letters containing statements on matters connected with the Government School of Design, and which represent that institution as in a state discreditable to all connected with it, whether as teachers or scholars, it is hoped that you will in like manner be pleased to insert at your earliest convenience a few short matter-of-fact statements, tending to shew that there is much misrepresentation afloat about the present state and future prospects of that establishment.

In your number of the 5th there is a brief report of a conversation that took place lately in the House of Commons, in the course of which it was stated by Mr. Ewart, that the dispute in the School of Design had resulted in the withdrawal of the pupils almost without exception. That this is very far from being the case is easily proved, by giving the number of scholars that composed the school prior to the drawing up of the remonstrance, the number of those who were compelled to withdraw consequent upon their signing that document, and the number at present composing the school. (See postscript No. 1). But it is asserted that those remonstrators were the only persons in the school possessed of talent, and that, to use the words of your correspondent H. J. L., "in fact, the only students of promise the school could boast have been expelled." Our main answer to that will be made public about the 24th of the month, the time when the annual exhibition of designs and drawings will take place in the School. But it may be as well to answer this as the former assertion by a few simple facts. Before entering upon them you will perhaps pardon a short digression while we allude to the circumstances which have in a degree compelled us to come in this manner before the public. The thirty-seven remonstrating students have, in a pamphlet published by them, made a statement to this effect, that the students remaining in the upper classes of the school, are secretly as much dissatisfied with the present management as themselves, and as anxious to see a change in existing arrangements; this, an assertion totally at variance with truth, as far as the Class of Design for Manufactures is concerned, was circulated in such a manner, that while it might have been working an injurious effect in influential quarters, we who were thus unwarrantably spoken of could not know of it, as they had never in any way communicated with us, neither personally nor by sending us a copy of the pamphlet, in which we were so dishonestly made use of. As the authorities of the school have apparently disdained making reply to the calumnies so plentifully heaped on them, and as the pupils have hitherto forborne answering, the expelled have become bolder and bolder in their assertions till they have reached a climax. In the first of the letters before alluded to, it is said, that the only students of promise having been expelled, "there is none at present designing, nor even attempting to design;" if the letter containing this statement be indeed the production of one of the thirty-seven, the only conclusion we can come to is, that he is guilty of wilful falsehood, because many of the designs about to be presented before the council were in progress before the outbreak, and the majority of the remonstrators having visited frequently on the public days, they have seen many of our designs at their different stages towards completion. Surely a cause requiring the use of such disreputable means must be a bad one! To the general assertion of incompetence in those of us who remain attached to the school, we will apply a test that the remonstrators themselves must allow to be a fair one; we will take the list of prizes for original designs awarded at the competition in June, 1844, and shew who of the successful competitors are now in the school, who of them have been expelled, and who have been promoted to masterships of provincial and district schools —(See No. 2). This is the most sure test that can be applied, because original designing is the end and object of the institution, the point to which all our studies tend, and therefore the best criterion of talent; unless then it can be proved that they who were beaten are superior to those who beat them, it is incontrovertible that the great majority of those who last year distinguished themselves are still in the school, or have left it with credit to themselves.

We think enough has now been said to shew the unfounded nature of the statements contained in your paper of the 5th; for further proofs of the efficiency of the school, we again refer you to our coming exhibition, which we hope will exceed in quality as much as it will in quantity, all the former competitions at the School of Design.

We are, Sir, &c.,

G. M'Kenzie,	Geo. Wallace,
John Woods,	W. E. Cadman,
Daniel Pearce,	C. Hairs,
Robt. Jefferson,	P. Holland.
C. Worrall,	W. Chenling Wild,
Jno. Strudwick,	Samuel Walker.

This statement is signed only by students who will exhibit one or more original designs at the coming competition.

July 14th, 1845.

No. 1.

In April, the month of the outbreak..	Morning Class ..	113
	Evening Class ..	189
		302
Suspended for Remonstrating		37
		265
In July, the present month ..	Morning Class.. ..	82
	Evening Class	111
		193
Now waiting for admission, when the new arrangements are completed		70
		263

It is necessary to state that there is always a smaller number of scholars in the summer than in the winter and spring months, which may be accounted for by the fact that many of the scholars being artisans and apprentices, they cannot be spared from their employments in the summer, or busy season, as they can in the winter months.

No. 2.

A LIST OF THE PRIZES *Awarded at the Competition in the School of Design in June, 1844.*

No.	Description of Design.	Removed to Provincial Schools.	Remaining at Somerset House.	Suspended.	Sum Awarded. £. s.	Remarks.
1	Arabesque in Fresco	Mr. S. Rice..	.....	....	5 5	Now Master in the Edinburgh School.
2	Ditto, in Fresco Sand..	....	.....	Mr. Stewart	5 5	
3	Arabesque in Oil	Mr. Findon.	.....	....	5 5	Now Master in the Manchester School.
4	Ditto, 2nd Premium	....	.....	....	3 3	
5	Design for Paper-hangings	....	Mr. Walker ..	M. Fussell.	2 2	
6	Composition from Natural Flowers	Mr. Brown	....	....	3 3	Now Master at Spitalfields.
7	Design for Chandelier	....	Mr. Strudwick	....	5 5	Sold to Mr. Pellatt for Ten Guineas.
8	Design for Pure Grecian Service.....	....	Mr. Wyld ..	....	5 5	
9	Two Drawings of equal merit	....	Mr. Wallace ..	....	5 5	
10	Design for a Sideboard	....	....	Mr. Phillips	3 3	Two Guineas only were given, because the Council did not consider the design deserving of more.
11	Design for a Candelabrum..	....	Mr. Harvey ..	....	3 3	
12	Design for a Silver Candelabrum.	....	Mr. Strudwick	....	5	Now at Spitalfields.
13	Design for Silk Hangings.....	Mr. Brown.	.....	....	....	
14	Printers' Bouquet	....	Mr. Wyld ...	....	3 3	
15	Two Designs of equal merit.....	....	Mr. Harvey..	....	3 3	
16	Best Specimen of Ornamental Modeling	....	.....	Mr. Armsted	3 3	

New Churches.—There are now in progress, in the diocese of Chester, no fewer than ninety-six new churches.

EXAMINATION IN LINES AND CURVE

Sir, — The accompanying are a few que tions, which may be put to students to ascerta their knowledge of lines. Doubtless the answers would suggest many other questio and such questions may be greatly extend both in reference to the different characters curves and their applications, as well as to t simple methods of tracing them.

1. What is a right line?

2. How is an original *right line* formed a proved to be such?

3. Describe the various means of producin right lines in different positions, in the exec tion of architectural works.

4. What is a circle, or circular line?

5. Describe the various means of formi circular lines or circles in the office and in t setting out or execution of large works, bo by continuous motion and otherwise.

6. What is an ellipse, or an elliptical lin and what are the varieties of its form?

7. What solid is an ellipse a section of?

8. What is an elliptical line the perspecti representation or projection of?

9. Describe the various means by which elliptical line can be traced— distinguish tho most applicable for the smallest or large practical example required.

10. Are there any patchwork imitations the ellipse, and in what do they differ from t true ellipse?

11. By whom and for what reason are su imperfect imitations of the ellipse used?

12. Point out instances of the application the whole or part of an ellipse in architectur and give the proof that the examples are suc

13. By whom was the ellipse discovered and point out the earliest known applicatio of it in architecture or the arts.

14. What is the difference between an ellip and an oval? and shew how the latter can drawn by continuous motion.

15. Describe the various kinds of ovals, a point out instances of the whole or parts such curves being applied in architecture.

16. What is the hyperbola, how traced, a where applicable in architecture?

29, Wimpole-street. Jos. Jopling.

THE MESSRS. BAKER'S DINNER TO THEIR WORKMEN.

Sir,—Whatever is calculated to increa the happiness of the community is well worth of general attention; and among the vario means tending to that end I will venture place the occasional meeting of large numbe of men who are engaged in the same occup tion. The good to be anticipated is an i provement of the social qualities by an ex cise of mutual good and friendly feeling, a by affording an opportunity for each to le the good points of his fellow-workman.

On Saturday, July 5, the annual recreati of Messrs. Baker and Sons, builders, Sta gate, was held at the Greyhound, Dulwic Many of the men availed themselves of t opportunity to visit the picture gallery longing to the college, and manifested gre interest in the inspection of this splendid c lection; others occupied themselves with t various exercises for which the place adapted, while the more quiet were satisfied look on, and breathe the fresh air. It w pleasing to see the unanimity which pervad the whole party. At seven o'clock about sat down to dinner, for which they were w prepared by the various exercises of the aft noon, Mr. T. Fielder in the chair; after whi the party were served with punch. The cus mary healths and toasts were drank with usual formalities, and songs, recitations, addresses were given. Thanks were voted the chairman, and being duly acknowledg the party separated in hope of seeing anot July. It is thought that the example of Mess Baker and Sons is worthy of publicity imitation from their cheerful liberality to t annual dinner. It is one proof among oth of the interest entertained by them for th workmen, and no doubt can exist of its prod cing reciprocal respect and esteem. The int est of this annual dinner is also increased the workmen by the kind and friendly man in which the foremen and others meet converse with them, forgetting for a time th distinction when in the workshop.

I am, Sir, &c., J. O.

THE GAUGE QUESTION AND THE DEFUNCT RAILWAY BOARD.

We mentioned in our last impression, that Government had appointed a commission to inquire into the expediency and practicability of securing a uniform gauge in the construction of railroads. The subject at the first glance will, with many persons, appear to be a difficult one, the bearings of the question however, are within extremely narrow limits. The gauge or breadth between the rails is upon American railways 4 feet 6 inches; upon Irish, 5 feet 3 inches. The Liverpool and Manchester Railway Company fixed their gauge at 4 feet 8½ inches. Other railways adopted the same breadth. Mr. Brunel introduced the first exception. Upon the line of the Great Western, 7 feet 6 inches were left between the rails. With this single exception, the narrow gauge was universal. In process of time, the rival lines were united by other railways, and then the evil resulting from a want of uniformity in the gauge was experienced. Trains constructed to ply the narrow gauge could not run right on along the broad, and *vice versa*. This rendered necessary the frequent shifting and transferring of passengers and luggage. The question now arises, is it expedient to avoid this evil by enforcing uniformity of gauge, and if so, what gauge must yield?

If the narrow gauge be finally adopted, it is pleaded that great risk of life and limb will be incurred. A certain speed of train is alleged to require a certain breadth of rail. If, to shun this evil, the narrow gauge be sacrificed to the broad, a vast expenditure of capital and labour is indispensably demanded. The narrow gauge extends over 2,000 miles of way the broad gauge over 300 miles only; 2,000 miles, therefore, must be altered to suffer 300 miles to remain unaltered.

If the broad gauge be compelled to conform to the narrow, only the rails require to be lifted, and the carriages slightly altered. In the other case, embankments must be reformed, tunnels widened, bridges broadened, and carriages made anew. It is also strongly denied that experience demonstrates higher risk of life and limb upon the narrow gauge.

Such is the nature and bearings of the question which the Royal Commissioners have to investigate and decide upon. Much speculation and uneasiness prevail with respect to the issue.

Since our last number went to press, Lord Dalhousie has delivered himself of the painful duty of pronouncing an *éloge* on the defunct railway board over which it has been his misfortune to preside. His Lordship stated, that "the Government having maturely considered the question, and having due regard to the constitution and operations of the committees of the House of Commons, and to the feeling which had been evinced by Parliament in the course of the present session, had come to the conclusion, that the Board of Trade should not in future prepare or submit to Parliament any report upon the merits of railway projects." He further said, that "the same preliminary steps on the part of railway companies which were now required, such as depositing with the Board of Trade a copy of the plan and a statement of the objects of the bill, would continue to be required. They would also be expected to deliver a copy of the bill when prepared; and if upon the examination of its provisions it should appear to the Board of Trade to be desirable, on public grounds, to direct the attention of Parliament to the nature of those provisions, the Board of Trade would be at liberty to submit to Parliament a report upon the subject, but in no case to pronounce any opinion upon the merits of the bill."

The determination of Government on this subject appears to have given universal satisfaction.

Coghlan's Guide Book for Travellers.—Now that our friends in "populous cities pent," town-wearied, are about to fly hastily to various parts of the world to get fresh ideas and health, we cannot do better than introduce to their notice Mr. Coghlan's extended guide book. Whether they propose examining the modern buildings of France, the town walls of Belgium, the cathedrals of Germany, or, later in the season, the glories of old Rome, they will find it a most serviceable companion.

NATIONAL EXHIBITION OF MANUFACTURES.

We mentioned some time ago that the committee of the Society of Arts, Adelphi, proposed to establish an exhibition of the products of British industry. They have now issued a preliminary prospectus soliciting promises of assistance from artists, engineers, manufacturers and others. The prospectus says justly: — Besides the delight and instruction which would certainly be afforded, it may fairly be expected that a periodical competition of this nature will exert some beneficial effect on the progress of the arts; not only by exciting honourable rivalry in the producers, but by enabling the consumers better to appreciate real excellence. The present moment seems particularly auspicious for making such an attempt. The triumphant success of two especially British products, the railway and the locomotive, has so united the remotest parts of these islands, that the exhibition, though taking place in the metropolis, would be rendered available to all persons, in all places; and would therefore be divested of much of that exclusiveness which might otherwise be objected to such a scheme.

Without entering into details, it may be stated, that the plan embraces the exhibition not merely of *products*, but of the *instruments* of production in actual work—the facility, rapidity, precision, and economy of the act of fabrication, being often much more wonderful than the fabric itself. In carrying out these ideas, it is intended entirely to exclude all private, personal, and political objects. It is hoped that the plan may be preserved so free from objection on these points, as to command the approbation of all ranks, and justify its promoters in anticipating the highest patronage.

Parties willing to assist in carrying out the proposition are invited to communicate with Mr. Whishaw, the secretary.

FREEMASONS OF THE CHURCH.

July 8.—The Rev. G. Pocock, L.L.B., in the chair. The minutes of the last meeting were read and confirmed. Mr. William J. Short, architect, and the Rev. F. Wrench, rector of Stowting, were elected members. The Right Hon. the Earl Cadogan exhibited one of the columns of the bedstead of Pope Leo X.; an Italian carving of Arlimisia, and a carving of Rubens' Battle of the Bridge. Mr. G. Field exhibited the four seasons carved in boxwood by a Flemish artist of the seventeenth century, also a medal in carved wood of the sixteenth century, containing Greek and Latin inscriptions. Mr. B. Hertz exhibited a carved spoon of ancient Egyptian workmanship, a ram's head in ebony, a deer's leg in cedar wood, &c. Mr. J. W. Archer exhibited a monumental brass, enriched with enamelling of various colours, now being executed by him, and dedicated to the memory of Lieut. Colonel White by the officers of the Inniskilling dragoons. Mr. W. H. Rogers presented some impressions of seals of the middle ages from the seal of Boxgrove priory, Nutley Abbey, Bucks, and from the seal of the vicarage of Salisbury.

Mr. W. G. Rogers then delivered a lecture on wood-carving, and illustrated it with carvings of all ages He commenced by referring to the neglect of the study of the art, and explained the difference between carving in wood and in stone. There is no branch of art which offers a larger field for investigation than the neglected subject of wood-carving. Disregarded to too great an extent by the architects and sculptors of our own country, and scarcely considered worthy a place in its literature, its history contains facts of the greatest interest. The high antiquity of the art of carving in timber was referred to, and a glance given at its history from the earliest ages, tracing its progress among the Egyptians, Syrians, Jews, and its cultivation amongst the Greeks and Romans. Mr. Rogers endeavoured to account for the absence of Etruscan carvings, and enumerated a few works of Oriental character. The impulse given to the art by christianity was noticed, and great stress laid on the extent to which carving in wood had been carried by the Norman and gothic architects. He noticed a remarkable work of the former period in box-wood, in the cabinet of Mr. Cavan. The advantages and disadvantages of the "Renaissance" were fully explained, and the pagan character of the wood-carvings of the period alluded to. After a few remarks on the loss of style, followed a catalogue of the principal carvings of antiquity, and those which in more modern times have gained the greatest celebrity. For instance, the lives of Demontrieul, the great wood-carver to the court of Marie Antoinette, Birbeck, the English, French, and Dutch carvers employed on the decorations of St. Paul's Cathedral, were severally noticed, and their works reviewed, not forgetting Grinling Gibbons, his works, his merits, his boxwood portrait of Charles II. in the Earl of Orford's cabinet, &c. The concluding remarks were on wood-carving at the present day, giving reasons for its decline, noticing carvings by machinery, and referring to the inventions and patents relating to the art.

After the lecture, Mr. Payne explained his process of injecting timber with a solution of iron, and exhibited numerous specimens which occasioned much discussion.

SAVINGS BANKS.

The following comparative statement of progress, at specified periods, during the last seven years, has been forwarded to us by the secretary of the St. Marylebone Bank for Savings:

	Open Deposit Account.	Sums invested with National Debt Commissioners.
	£.	£.
On the 5th July, 1839..	11,620	216,017
,, ,, 1840..	12,445	243,469
,, ,, 1841..	12,881	260,352
,, ,, 1842..	13,100	275,072
,, ,, 1843..	13,820	305,383
,, ,, 1844..	14,638	340,509
,, ,, 1845..	15,724	356,265

Mr. G. R. Porter, in a sketch of the progress and present extent of Savings Banks in the United Kingdom, read at Cambridge, stated that these institutions owed their origin to Miss Priscilla Wakefield, who in 1804 induced six gentlemen residing at Tottenham to receive deposits from labourers and servants, paying 5 per cent as interest. Four years later eight persons, four of whom were ladies, took upon themselves the same responsibility at Bath. The first savings bank regularly organized was formed at Ruthwell, Dumfriesshire; its success led to many imitations, so that before any legislative provision had been made for their management, there were seventy savings banks in England, four in Wales, and four in Ireland. In 1817 an act was passed to encourage banks of savings in England and Ireland, but it was not extended to Scotland until 1835. Of the value of these institutions there can hardly be two opinions.

TERRA COTTA CHURCH, BOLTON-LE-MOORS.

The church of St. Stephen and All Martyrs, in the new parish of Leverbridge, Bolton-le-Moors, which is built entirely of *terra cotta*, from designs by Mr. E. Sharpe, as already mentioned in our pages, was consecrated on the 26th ultimo, by the Lord Bishop of Chester. The ground plan is cruciform, and at the west end is a tower, surmounted by an octagon, and a beautiful spire of open tracery, after the manner of Friburgh cathedral. The church has two entrances, the principal one at the west, and a small south one under the window of the south transept. The nave is paved with unglazed, and the chancel with encaustic, tiles. The font is a large basin of stone, enclosed in solid panels of *terra cotta*. The pulpit is at the angle of the chancel and north transept. The pews are low and open, with bench-ends and poppy-heads moulded in *terra cotta*, and painted. The north and south walls of the chancel are ornamented by an arcade below, with seats used as sedilia, and above by recesses with canopies. The east and west windows, and the tracery of all the windows, are filled with rich stained glass. The east window is by Willement, and the west (a memorial window to the Rev. George Langshaw, late Fellow of St. John's College), by Wailes, and is seen through a tower arch. The cornices and mouldings are enriched with texts; the chief of which are John vi. 53; Rev. xix., 9; Isa. lxiii., 5, 6; Wis. iii. 1—5; Rev. xx. 12; Matt. xi. 28.

SUSPENSION BRIDGES.

Fig. 1.



Fig. 2.

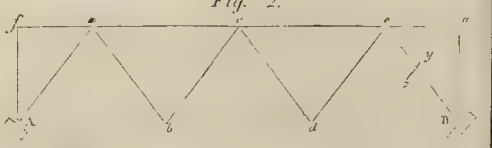


Fig. 3.

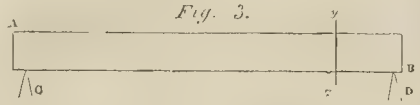
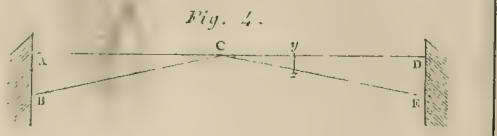


Fig. 4.



SUSPENSION BRIDGES.

Sir,—I perfectly understood the nature of my communication to you the other day, but since I have to explain some part of it, let us quote the whole sentence to which your correspondent B. B. refers:—"I must differ from you in supposing that suspension is more likely suddenly to give way than compression bridges; in proof of the contrary, I will instance the fall of the bridge across the Mill Fleam at Derby, those at Ashton-under-Lyne, and several others that have occurred lately, by which lives have been lost."

Here the failures at Derby and Ashton-under-Lyne are merely brought forward to shew that compression bridges are as liable suddenly to give way as suspension bridges are; and in the following sentence, when I speak of the erroneous principle upon which both suspension and compression bridges are built, none are particularized, though it alludes to all (that is all the bridges in which the horizontal force concentrates at the apex of the curve), and of course includes those at Derby and Ashton-under-Lyne, of which one, it seems, gave way from the trivial cause of the mortar not being sufficiently dry at the time the centres were struck, and which was as effectually destroyed as when, in the other case, the workmanship in the pier was defective. This shews the truth of my position by supplying an illustration omitted in my letter.

The most orthodox way of discussing the question of a principle is by reasoning mathematically upon the subject, which would directly shew my statement to be correct, but as many of your readers may perhaps prefer a simple common-sense, though rough illustration, to following me through the intricacies of the calculus, we will dispense, in this instance, with mathematics altogether. Suppose A *a b c d e* B, fig. 1, to be a viaduct consisting of three arches, and A and B the extreme abutment. Now, if from defective workmanship, or any other cause, either of these piers were to yield, all the arches would of course be levelled with the ground: or, suppose from the mortar not being sufficiently dry at any part, as *y z*, that part was to yield, the whole viaduct would be as effectually destroyed as in the former case, when one of the piers gave way. But if tension lines *f a a c* &c., be introduced, as in fig. 2, to the apex of each arch, so as to prevent any concentration of horizontal force, then if either of the piers, as B, were removed, not all the structure would be destroyed, but only that portion B *e g*: or if a failure were to take place at any section, *y z*, only a similar portion would be destroyed; the rest would remain as firm as ever. Again, let A B fig. 3, be a beam resting on fulcra C and D, either of which taken away, or a section *z y* made, would cause the beam to fall. But if on the other hand the beam be of the form as fig. 4, one of the piers, as D E, may be removed, whilst the other would still stand, or a section *z y* may be made, and only that portion *z y* E would fall, the rest would stand as firm as ever. Figs. 1 and 3 illustrate that principle which I say is erroneous, and will leave your readers to judge if I am not right.

If the piers of my bridge were to give way, the bridge of course would fall, but if only one was to yield, that part which rested upon that pier only would fall, the rest would stand as exemplified in fig 4.

The reason why suspension bridges have not been employed for railways is because in the common catenary principle the roadway hangs by vertical rods, and is therefore subject to the same motion as the chains, which would endanger the passing train. This, however, ceases to be the case when the suspending rods are arranged obliquely, for then the horizontal force is taken from the chains and resisted by the roadway, which renders it rigid, and over which railway trains may pass with safety.

Bath, July 8th. J. Dredge.

P.S. A question may be asked, how if the bridge is perfectly quiescent will the motion endanger a train? When using this expression in my former letter, I was speaking of a motion sufficient to alter the internal structure of iron; *now* I am alluding to a motion which would endanger a train; the latter of these would be perfectly quiescent as compared with the former.

ON MOSAIC FLOORS AND TESSELLATED PAVEMENTS.*

Let us now glance at the modes in which the decorative arts have been brought into requisition for covering the floors and pavements of buildings, or of forming the pavements themselves. Here, as in other matters, the usages of different ages and of different countries mutually illustrate each other, by shewing that in many instances a fashion after dying away for denturies revives again into new life.

That variety of pavement or flooring which consists of *mosaic* or *tessellated* work was very extensively employed by the Romans, as is evidenced not only by the pavements of still-existing buildings, but in the excavated ruins of Pompeii. The specimens of this art there brought to light are chiefly composed of black frets, or meandering patterns, on a white ground, or white ones on a black ground. The materials of which they are chiefly composed are small pieces of black and white marble, and red tile, some larger than others, so as to take a deeper hold in the mortar than the rest, and thus form a sort of bonding-course which gave stability to the whole. These pieces were set in a very fine cement, laid upon a deep bed of mortar which served as a base.

Pliny describes very minutely the plan adopted by the Romans in making cement or plaster terraces, which may have been the foundation or groundwork on which the tesseræ or mosaic pieces were laid. "To make a terrace of this sort," he says, "it is necessary to lay two courses of boards, one athwart the other, the ends of which ought to be nailed, that they should not twist nor warp; which done, take two parts of new rubbish, and one of tiles stamped to powder; then with other three parts of old rubbish mix two parts of lime, and herewith lay a bed of a foot thickness, taking care to ram it hard together. Over this must be laid a bed of mortar, six fingers thick, and upon this middle layer large paving-tiles, at least two fingers deep. This sort of pavement is to be made to rise to the centre in the proportion of one inch and a half to 10 feet. Being thus laid, it is to be planed and polished diligently with some hard stone; but, above all, regard is to be had that the boarded floor be made of oak. As for such as do start or warp any way, they be thought nought. Moreover, it were better to lay a course of flint or chalk between it and the lime, to the end that the lime may not have so much force to hurt the board underneath it. It were also well to put at the bottom a bed of round pebbles. And here I must not forget another kind of those pavements which are called Græcanica, the manner of which is this:—Upon a floor well beaten with rammers is laid a bed of rubbish, or else broken tile-shards, and then upon it a layer of charcoal, well beaten, and driven close together, with sand and lime and small cinders, well mixed together, to the thickness of half a foot, well levelled; and this has the appearance of an earthen floor; but if it be polished with a hard smooth stone, the whole pavement will seem all black."

The above description does not apply immediately to mosaic floors as such, but it serves to show that the Romans practised very extensively the art of forming firm and enduring plaster, one of the important requisites in the production of such floors.

The labour bestowed on some of these mosaics must have been immense; for instead of representing mere checquers of black and white, they form entire pictures, some of which have great beauty of drawing and of colour. The large specimen from the floor of the dining-hall of a house excavated at Pompeii in 1829, called the "House of the Faun," is regarded as the finest example of mosaic flooring yet met with, since it adopts a high style of historical painting as its subject, and is worked out with great skill and elaboration. When it was first discovered the Italian critics were enraptured with it; the vividness and harmony of the colours, the wonderful transparency of the atmosphere, and the correct drawing of the figures, called forth high encomiums. Professor Quaranta has said of it: "The extreme delicacy of this work in marble far surpasses the celebrated mosaic of Palestrina, as well as that of Hadrian's villa, which have hitherto been considered as the greatest wonders in this kind of work. Besides, what are four doves, some masks, and a few small figures, in comparison with a painting in which are represented twelve horses, a large war-chariot, and twenty-two persons, more than half the natural size, without reckoning those that were on the left side, which is almost wholly destroyed?

* From the "Pictorial Gallery of Arts," part vii., published by C. Knight, Ludgate-street. This work presents a mass of instructive matter profusely illustrated by woodcuts, at a cost singularly small. We cordially recommend it to our readers.

MOSAIC FLOORS.



Fig. 1.



Fig. 2.

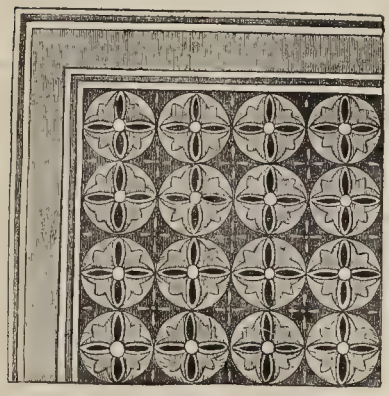


Fig. 3.



Fig. 4.



Fig. 5.

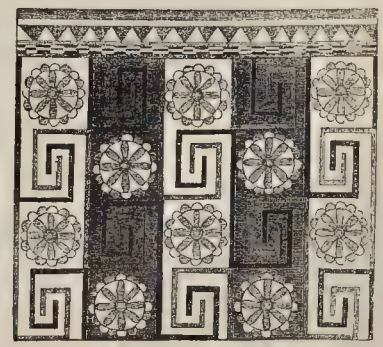


Fig. 6.

It is impossible to describe the consummate skill with which so many figures are arranged and grouped in this confined space, or the truth and correctness of the drawing, the distribution of light and shade, the effect of the colours, and scrupulous attention to the minutest accessories. Michael Angelo and Raffaelle might have been proud of the dying horseman; and Alexander's Bucephalus, the horses of the quadriga, the others that lie on the ground wounded, and especially the one rearing and fore-shortened, are drawn with a boldness and truth in their motions and positions which the greatest modern painters, Raffaelle not excepted, might envy." This praise is perhaps injudiciously glowing; but there can be no doubt that this mosaic must be a wonderful specimen of the art. The subject is supposed to represent one of the battles between the Persians and the Greeks. The odd conceits at the bottom seem of a far inferior stamp, and are probably the work of another hand.

Various other very remarkable specimens of mosaic have been from time to time brought to light in different countries. At the end of the last century a mosaic pavement was discovered near Seville, in Spain, at a small depth below the surface of the ground. It was forty feet long by thirty wide, and contained in the centre a representation of the circus-games of the ancients, while on three sides were circular compartments containing figures of the Muses, &c. In the race-course a busy medley of events was depicted, such as a chariot overturned, the charioteer thrown, horses in confusion, and horsemen dismounted; while several spectators are looking on at the sports. In the compartments, besides the representations of the Muses, were centaurs, children in variously-coloured tunics, and animals of various kinds. The floor between the different compartments also exhibited various birds, fruits, and flowers, and great diversity of colour was exhibited throughout the whole.

Another specimen, dug up near Lyons, was composed of small cubes of marble, interspersed in some places with pastes of different colours. In this, as in the specimen just alluded to, the whole details of the circus-games were represented; it comprised no fewer than eight chariots, which appeared as if they had started at once, some of which had fallen, and the horses and charioteers fallen. Spectators surrounded the scene, and seemed to regard it with eager interest.

The representation of pictures by means of mosaic for flooring or pavement was not the only variety known to the Romans. That ingenious people also formed patterns of a more or less elegant kind by the arrangement of small cubes of marble, or stone, or plaster previously coloured. The six cuts annexed give specimens executed apparently either by the Romans or while the Romans were in power. It is frequently the practice to denominate as "mosaic pictures" those which represent scenes or events, and as "tessellated pavements" those which exhibit simpler designs, generally in two or three colours only. The most beautiful specimen of Roman pavement yet discovered in London is that represented in fig. 1. It was dug up in the year 1803, in Leadenhall-street, immediately in front of the eastern column of the portico of the the East India House. It lay at the depth of only nine feet and a half below the street; a sewer had cut away a considerable portion of it, but the central compartment, about eleven feet square, was nearly perfect. The whole is supposed to have formed the flooring of a room about twenty feet square. "The device occupying the centre was a figure of Bacchus reclining on the back of a tiger, holding his thyrsus erect in his left hand, while a small two-handled drinking-cup hung from his right; a wreath of vine-leaves circling his forehead, a purple and green mantle falling from his right shoulder and gathered round his waist, with a sandal on his extended left foot, the lacing of which reached to the calf of the leg. This design was surrounded by three circular borders, the first exhibiting on a party-coloured field, composed of dark grey, light grey, and red ribands, a serpent with a black back and white belly; the second, a series of white cornucopiæ indented in black; the third and innermost, a succession of concave squares. In two of the angular spaces between this last circle and the circumscribing rectangular border were double-handled drinking-cups; in the other two, delineations of some unknown plant; both figures wrought in dark grey, red, and black, on a white ground. The square border surrounding the whole consisted of two distinct belts, one described as bearing some resemblance to a bandeau of oak in dark and light grey, red, and white, on a black ground; the other exhibiting eight lozenge figures, with ends in the form of hatchets, in black, on a white ground, enclosing circles of black, on each of which was the common ornament, a true lover's knot. Beyond this was a margin, at least five feet broad, formed of plain red tiles each an inch square."—*London*, No. xvi.

Many other specimens of Roman pavement have been dug up in the various alterations which London has undergone within the last half century. Thus in the course of digging the foundation for an extension of the Bank of England, in 1804, a tessellated pavement was found at a depth of about eleven feet below the surface, and is now deposited in the British Museum; its dimensions are only about four feet each way, and it occupied the centre of a floor about eleven feet square. In Cannon-street, in Holborn-hill, in Crutched-friars, in Broad-street, in Fenchurch-street, in Long-lane, in Eastcheap, in Lothbury, in Crosby square, and in Threadneedle-street, specimens of these pavements have been brought to light: thereby shewing that the use of such flooring was very common among the Romans. No longer ago than the year 1841, a specimen was found in the course of pulling down the French Protestant Church, in Threadneedle-street, still glowing with wonderfully fresh and vivid colours.

The Modes of producing Mosaic Floors.

The manufacture of all these varieties of inlaid floors or pavements, whether we call them mosaic or tessellated, depends on the arrangement of small coloured pieces in a definite pattern, the shapes being adapted to each other, and the whole brought to a uniform level. The mode of proceeding, however, differs considerably, according as a mosaic picture or pavement of tessellated tiles be the object in view. We will speak therefore of the former of these two, and then of the latter.

Where a picture rather than a pavement is required, enamel rather than stone is the material employed, as presenting greater facilities for adjustment in a delicate manner. There is first prepared a frame-work or foundation; then a layer of cement into which the mosaic may be imbedded; and lastly the mosaic pieces themselves. The frame-work, formed either of marble or of a volcanic stone called "piperino," is hollowed out to the depth of three or four inches, over the whole surface, except a portion to form a border at the edges. Grooves or channels, about one inch and a half in depth, are cut in the excavated hollow of the marble, somewhat wider at the bottom than the top, as a means of retaining the cement afterwards applied. The subsequent mode of proceeding is described somewhat minutely by Mr. Cadell, who witnessed the operations in Italy a few years ago; and to his account we will have recourse.

The early mosaic-workers used, as a cement in which to imbed the mosaic pieces, a mixture of one part of slaked lime with three parts of pounded marble, made into a paste with water and white of egg. But this paste is considered by the modern artists to harden too quickly, so that it solidifies before the workman has time to insert the pieces. It is therefore superseded by a mixture of one part of slaked lime with three of powdered travertine stone, mixed up with linseed-oil, and stirred and worked every day with a trowel; the mass is at first level on the surface, but afterwards swells up; each day more oil is added, to prevent it from becoming dry and intractable; and the mass, bearing some resemblance to a smooth ointment, is ready for use in a period varying from twenty to thirty days, according to the season of the year.

The next point is the preparation of the enamel pieces to form the mosaic. The materials, consisting of glass mixed with metallic colouring-matter, are heated for eight days in a glasshouse, each colour in a separate vessel. The melted enamel is taken out with an iron spoon, and poured on a polished marble sl placed horizontally, and another flat marb slab is laid upon the surface of the melte enamel, so that the enamel cools into the for of a round cake three-tenths of an inch thic In order to divide these cakes into small pieces, each one is placed on a sharp ste anvil, called a "tagliuolo," which has t edge uppermost, and a stroke of an edg hammer is given on the upper surfa of the cake: the enamel is thus divid into long square strips or prisms, which a cut to a length of nearly an inch. For sma pictures the enamel, while in a melted stat is drawn into long quadrangular sticks, whic are divided across by the anvil and hammer by a file. Sometimes these pieces are divid by a saw without teeth, used with emery, a the pieces are sometimes polished on a lap dary's wheel. Gilt enamel is occasional used: this is formed by applying gold-leaf the hot surface of a brown enamel immediate after it is taken from the furnace, the tw being made to adhere by a subsequent heati in the furnace. The colours of the pieces enamels for producing a picture are extrao dinarily numerous and varied. There is (was twenty years ago) a manufactory of mosa pictures belonging to the Pope at Rom situated in a large building southward of S Peter's. In this building, the enamels, in t form of sticks about an inch in lengt are arranged in a suite of rooms accor ing to their tints; these tints are *seve teen thousand* in number, all arranged labelled drawers, boxes, and cases, from whic they are withdrawn to be used by the arti very much in the same way as a composito uses type for printing, the colours in the or case being somewhat analogous to the lette in the other.

The frame-work, the cement, and t enamels being thus all prepared, the artist pr ceeds as follows:—The cement is laid on small and convenient portions at a time, to t required thickness, and brought very smoo and level at the surface. The artist the with the picture which he is to copy befo him, selects one after another sticks of enam of the proper colours, and imbeds them in t cement, taking them up and inserting the with forceps, and fixing them into the ceme with a small flat wooden mallet, until the surfaces are level. If the effect does n please the artist, he takes them out and r arranges them. The cement remains suf ciently soft for a fortnight or three weeks, that the workmen takes care to lay on no mo cement at once than he can cover with enam before it hardens. When one part of t picture is thus represented, more cement laid on, and another part is done in a simil manner until all is enamelled. As there a likely to be minute crevices between the bi of enamels, they are filled up with powder marble or enamel mixed with wax, which p netrates by having a heated iron passed ov it. When the enamel has remained in position two months, so as to allow the ceme to harden, the upper surface is ground dow and polished by means of a flat stone a emery—an exceedingly laborious process.

Such is the mode in which the delica Italian pictures of mosaic enamel are produce a mode necessarily involving a large expend ture of time and money. At the manufacto at Rome, to which allusion has been ma above, mosaic-work is conducted on a lar scale; the different materials are arranged numerous apartments, from whence they a removed by the artists as occasion require Besides this establishment, there are many a tists in Rome occupied in smaller works, suc as pictures of birds, insects, flowers, and oth objects not exceeding 2 or 3 inches across for such small specimens a frame-work foundation of hardened copper is used inste of one of marble. As an example of the e traordinary minuteness of the work in some these mosaics, we may state that there is o specimen, a portrait of Pope Paul V., in whic the face alone consists of more than a millio and a half of fragments, each no larger tha a millet seed! and from this size up to 2 inch square, pieces are employed in various way Another celebrated specimen was one whic Napoleon ordered to be made when his pow was paramount in Italy. It was to be mosaic copy of the celebrated "Last Supper, by Leonardo da Vinci, and to be of the sam

size as the original, viz., 24 feet by 12. The artist to whom the task was intrusted was Giacomo Raffaelle, and the men under his direction, eight or ten in number, were engaged for eight years on it. The mosaic cost more than seven thousand pounds, and afterwards came into the possession of the Emperor of Austria.

Such, then, is the mode of producing the delicate specimens of mosaic which are adapted rather for pictures than for floors or pavements. The latter are produced in a rougher way, with less costly materials, and in pieces of larger size. In most cases the separate pieces are called "tiles," and are made of prepared clay, though in other instances pieces of marble or stone are employed. Of the pavement before alluded to, as having been dug up near the East-India House, in Leadenhall-street, Mr. Fisher remarks:—"In this beautiful specimen of Roman mosaic, the drawing, colouring, and shadows are all effected with considerable skill and ingenuity by the use of about twenty separate tints, composed of tessellæ (cubical pieces) of different materials, the major part of which are baked earths; but the more brilliant colours of green and purple, which form the drapery, are glass. These tessellæ are of different sizes and figures, adapted to the situations they occupy in the design. They are placed in rows, either straight or curved, as occasion demanded, each tessella presenting to those around it a flat side: the interstices of mortar being thus very narrow, and the bearing of the pieces against each other uniform, the work in general possessed great strength, and was very probably, when uninjured by damp, nearly as firm to the foot as solid stone. The tessellæ used in forming the ornamented borders were in general somewhat larger than those in the figures, being cubes of half an inch."

The ecclesiastical architecture of the middle ages was one of the means of reviving the use of tessellated pavements; for many specimens of tiles, once used for this purpose, are from time to time discovered in such buildings. A chequered flooring of black and white marble might be deemed a sort of mosaic; but the specimens here alluded to were tiles, each of which had its own pattern, independent of the combined pattern which all might have presented when laid side by side. In the Norman churches it was a frequent custom to lay down such tiles as a flooring for the high altar, and before shrines: at first these tiles were irregularly shaped, and were formed of glazed brick or pottery, painted with some Scripture device on the surface; but afterwards the plan was adopted of using carefully squared pieces, so as to produce greater neatness of joint. Wreaths, circles, heraldic ornaments, and various other devices, were painted upon the tiles, together with griffins, spread-eagles, fleur-de-lis, &c. Various animals, such as the fox, the cock, and others, supposed to have had a symbolic meaning, were also adopted.

It was long known to antiquaries that a mosaic pavement existed in the Chapter-House at Westminster, and this was laid open to view a few years ago, when the tiles, each of which bore a particular device, were found to exhibit as brilliant colours as when first laid down, the sizes varying from about 6 to 10 inches square. At Little Marlow Priory, at Lewes Priory, and at Great and Little Malvern, other specimens have been met with. Towards the close of the last century the attention of antiquaries was directed towards a mosaic pavement found at Caen in Normandy, the separate tiles of which were supposed to be emblazoned with the heraldic bearings of the barons who accompanied William of Normandy to England. The pavement is supposed to have belonged to a building forming part of a convent or abbey built by William and to have covered the floor of a hall measuring 150 feet by 90. The tiles were about 5 inches square, made of baked earth. Eight rows of the tiles, running from east to west, bore the arms of William's followers, and between these were ornamental compartments of tiles, formed so curiously into a maze or labyrinth, that it is said the windings of the lines forming the figure or device in each compartment extended to a mile in length. Of the state of this pavement at the time of the French Revolution, Dr. Ducarel said, "Notwithstanding these rooms have been used as granaries upwards of four hundred years, neither the damps of the wheat, the turning and shifting of the grain, nor the wooden shoes and spades of the peasants, constantly employed in bringing in and cleansing the wheat, have in the least damaged the floor, or worn off the painting from the tiles. The only injury this floor has received is the taking up some few of the tiles in order to open funnels through the floor for the more ready conveyance of the corn into the rooms beneath."

Tessellated pavements, like stained glass, have recently come again into fashion, in giving to ecclesiastical buildings a richness of decoration which has not been customary during the last few centuries. Many such pavements have been laid down in churches within a recent period, of which one of the most notable specimens is in the Temple Church at London. This pavement was made because, on renovating this ancient and beautiful building, it was found that a tessellated pavement had formerly existed there, which had for ages been buried beneath a pavement of another kind. The following is a description of the new tessellated flooring which has attracted so much the attention of the visitors to the Temple Church within the last two or three years:—"The ground is a dark-red or chocolate, but so elaborately covered with the amber or yellowish ornaments as to make the latter the prevailing hue. The patterns form first, divisions of various breadth (the widest in the centre of the central avenue), extending side by side, from the entrance-door to the farthest end of the chancel. Within each division there is no alteration of pattern, but the divisions themselves, as compared with each other, present considerable differences. The two most striking are those next to the broad central one, where, as we pace along, we have the lamb on one side of us and the winged horse on the other, the emblems of the two societies ('Middle Temple' and 'Inner Temple') to which the church belongs. The former is founded on the device of St. John; the latter, it is supposed, on the poverty of the Knights Templars at the outset of their career, when two knights rode one horse. Among the other ornaments of the pavement are a profusion of linked-tailed animals in heraldic postures; lions, cocks, and foxes; tigers, with something very like mail upon their shoulders; basilisks and other grotesques. There are also copies of designs of Anglo-Saxon origin, as figures playing musical instruments; and one illustrative of the story of Edward the Confessor, the evangelist John and the ring, a design which at once tells us from whence the materials for the pavement have been borrowed, viz., the Chapter-House, Westminster Abbey. The pavement formed by the tiles is as strong and imperishable as it is beautiful. The tiles are perforated all over with small holes in the under side; consequently, when they are laid in the cement prepared to receive them, and pressed down, the latter rises into these perforations, and hardening there, binds the whole indissolubly together."—*London*, No. 102.

The tessellated tiles of past ages were frequently, if not generally, called "encaustic" tiles, by which we are to understand (if the name be correctly applied) a kind of tile in which the device is in some way or other "burnt in," such being the meaning of the word "encaustic." Now, if the pattern were merely painted on the surface, and then burnt in or vitrified by the action of a furnace, the tiles would scarcely come under the denomination of mosaic or tessellated; and such seems to have been the case in many instances, so far as can be gathered from the descriptions. There was discovered, some years ago, near Malvern, an ancient Roman kiln, in which it is supposed encaustic tiles were baked. It consisted of two parallel arches about 35 feet in length, each 2 feet 3 inches wide by 15 inches high. These arches were composed of layers of brick and tile, and had a flooring composed of a less vitrifiable kind of clay than themselves. Below the floor was the fire-place, about 15 inches in height, and there was a flue at each end of the arches. Near the kiln were found several tiles similar to those in Malvern Church; and from this circumstance the purpose of the kiln itself has been inferred.

Whatever may have been the process followed by the early artists, the tessellated tiles now coming into use for pavements and floors are made by moulding and burning, but without any painting, properly so called. At the large porcelain-works in Staffordshire, Worcester, and elsewhere, this is becoming a regular branch of manufacture, and is conducted (in one of its forms at least) in a manner which we will now briefly describe.

The tessellated tiles are made of two differently coloured clays, one embedded in the other, and disposed so as to form an ornamental device. Three or more colours may be used by somewhat varying the process, but two is the usual number; and whatever may be the colours, the tile is first made entire in one colour, with a depression to be afterwards filled up with clay of one or more other colours. We will suppose the tile to present two colours, a yellow device on a brown ground. In the first place the modeller forms in stiff clay an exact model or representative of one of the tiles, about an inch thick, cutting out to the depth of a quarter of an inch the depression which constitutes the device. When this is properly dried, a mould is made from it in plaster of Paris, and from this mould all the tiles are produced one by one. The ground-colour of the tile is that which is adopted to cast in this mould. This, which we suppose to be brown, is mixed with water to a stiff consistency, and pressed into the mould by the aid of the press. On leaving the press it presents the form of a damp, heavy, square tile of clay, with an ornamental device formed by a depression below the common level of the surface, as in the original model. The next stage is to fill up this depression with the yellow-coloured clay, so as to bring both colours to a common level. To effect this the yellow clay, so far from being made stiff like the first, has a much more fluid consistency. The tile being laid on a bench, the workman plasters the yellow clay on it by means of a kind of trowel, filling up every part of the depressed device. When this is completed, the tile is allowed to remain six or eight weeks, to dry gradually, as a displacement at the joints would occur if the outer surface became quite dry when the interior was yet wet. Each tile is next scraped all over the surface with an edge-tool, till the superfluous portion of the second clay is removed, and the two clays be rendered properly visible, one forming the ground and the other the device. In this state the tiles are put into a kiln or oven, where they are baked in a manner nearly resembling the baking of earthenware or porcelain, the degree and duration of the process having especial reference to the kinds of clay used. Here a point is involved which calls for much attention on the part of the maker. As one of the clays is used in a more fluid state than the other, it would, under most circumstances, contract to a greater degree by heating; but the selection is so made that, notwithstanding the difference of consistency in the two clays, they may contract equally, and leave no unsightly gaps at the joinings. When the tiles are sufficiently baked, they are cooled gradually, and then dipped into a vessel of liquid "glaze," in the same manner as articles of porcelain. After this they are exposed for twenty-four hours to the heat of a "glazing-oven," by which the glaze is made to adhere to surface, and the tiles then appear with whatever ornamental device may have been designedly given to them.

HOLBORN AND FINSBURY SEWERS.

The result of the last meeting of the commissioners for Holborn and Finsbury was rather unusual. All the tenders sent in for the Gray's-inn-lane sewer exceeded the surveyor's estimate very largely, and neither was accepted; and for the Charlotte-street sewer, (Bedford square) 3,400 feet long, estimated at nearly 4,000*l.*, only one tender was sent in and this was returned unopened. The following is a list of the tenders for the Gray's-inn-lane and Liquorpond-street sewer, 800 feet in length:—

Eldred	£1,186
Cooper	1,002
Hill	940
Ward	940

No tender accepted.

CONSTRUCTION OF ICE-HOUSES.

Sir,—Will you allow me to ask a question through the medium of your very useful paper, in which questions and answers from time to time from various subscribers form no inconsiderable part? In the month of January last I built an ice-house at the back of my cellar, which is under ground, built and arched over with 14-inch brickwork, the door opening into an area. On excavating for the ice-house to about the depth of 19 feet, I found a spring of water, which I thought would be available for the house. I carried the excavation down to the depth of 30 feet, steined the well with 9-inch brickwork, and formed a floor 12 feet up from the bottom (the height of the water being 9 feet); the floor was of 1½-inch plank, perforated with holes to lead any water from the ice into the well. Before filling it with (*thick*) ice I put on a layer of straw over the floor. The house was built and domed over with 9-inch brickwork, and well compo'd inside and outside, with 3 feet of earth on the top. Six feet under the dome, a little above the cellar floor, I inserted a cover of 1½-inch plank, with manhole, and had an inner and outer door leading into it from the cellar, also, an outer cellar-door: but notwithstanding all these precautions the ice has disappeared. I should feel much indebted to any of your readers by their informing me in what way I have erred, and what remedy I can adopt to prevent a recurrence.—I am, Sir, &c., A Subscriber.

Paddington, July 3, 1845.

*** No ice could possibly remain in such a receptacle, as the water in the well would speedily reduce the ice to its own temperature. Our correspondent must get rid of the water-well,— introduce an additional wall all round the inside of the house and over the floor (keeping a space between), and provide means for carrying off such water as may be produced by the melting of the ice, without the risk of introducing air. There should be at least three doors, and the space between two of them should be filled with straw. The greatest care is requisite in the construction of ice-houses to prevent the access of heat.

IRON AND THE IRON TRADE.

The usual quarterly meetings of the iron masters were held last week—at Walsall on Tuesday; Wolverhampton on Wednesday; Birmingham on Thursday; Stourbridge on Friday, and Dudley on Saturday.

During the last quarter some houses had reduced the price of bar iron from 10*l.* to 8*l.* per ton, and it was arranged at the Birmingham meeting that a general reduction to the last quoted price should be made. It was, however, reserved, in accordance with the usual practice, that the final confirmation of the reduction should emanate from the Dudley meeting, and at the close of the business, last Saturday, the prices were declared as follows: bar-iron, 8*l.* per ton; pigs from 3*l.* 10*s.* to 4*l.* per ton. How long they will remain at the reduction is uncertain, but there is no great danger of a sudden advance. The fluctuations which have latterly taken place have been of considerable embarrassment to the trade, and rendered it very difficult for the manufacturer to know how to purchase. The general impression is that 8*l.* is a remunerative price, and the masters being well aware that the manufacturers cannot compete with the foreign market if they have to pay a higher price for the raw material, will see the impolicy of again advancing the prices unless under some very extraordinary circumstances.

While on the subject of iron, we would mention that at the late meeting of the British Association, at Cambridge, Dr. Lyon Playfair read a report, prepared by Professor Bunsen, and himself, on the chemical changes occurring in iron furnaces. During many years the attention of scientific men on the Continent had been directed to the employment as fuel of the combustible gases that escape from the mouths of furnaces. Dr. Playfair and Professor Bunsen have carefully examined the gases taken from different heights of the furnace, and gave tabulated results of their analyses, the results of which were that for a depth of 24 feet down the body of iron hot-blast furnaces worked with coal there is no available heat for the melting of the metal, the whole of the heat for that extent of the furnace being employed in distilling the coal. The important fact which they established by their experiments is, that in common hot-blast furnaces, as at present employed, *ninety-one per cent.* of the heating power of the fuel *is lost;* that is, only nine parts out of one hundred are effective, the remaining portion being carried off in gases. It was proposed, therefore, to collect the gas as it issues from the furnace mouth, and to employ it usefully in various parts of the works, though they did not recommend the re-introduction of such gas into the furnace for smelting the metal. Dr. Playfair said that these researches had led them to the consideration of a new system of manufacturing iron, which would produce a complete revolution in the present mode, but they had not had sufficient time to digest the plan to authorise them to recommend it to the association; it would form the subject of their labours for the next year.

NOTES FROM THE PROVINCES.

It is in contemplation, at Yarmouth, to enlarge and restore St. Nicholas' Church, and to convert the remains of a priory on the south side of the churchyard into a national school. The estimated expense is between 4,000*l.* and 5,000*l.* St. Nicholas' Church, to an ordinary observer, appears little better than a dilapitated disproportioned and unsightly erection, but to the eye of the antiquary it presents beauties and attractions of no ordinary character. It is one of the oldest parochial edifices of the kind in England; a great peculiarity, and one in which it perhaps stands alone amongst the churches of Christendom, is in having its nave considerably smaller than the aisles, both in regard to length and breadth. The remains of the priory are now being used as a stable. They still contain two very beautiful windows and other specimens of ancient ecclesiastical architecture. Many of the corbel heads have been removed only within a very few years. Mr. Hakewill is the architect.——The principal difficulties connected with the Woodhouse tunnel, on the Sheffield, Ashton-under-Lyne, and Manchester Railway have been overcome. From the mouth of the tunnel to a little beyond the first shaft there is upwards of 1,200 yards completed, being arched, having side drains and the rails laid. Between the first and second shafts the arching for a considerable distance is finished. The whole of the excavation is completed with the exception of about 300 yards. The depth of the first shaft is 183 yards, and of the second 193 yards. The highest point of ground under which the tunnel passes is situate between the third and fourth shafts, and is 536 yards above the level of the sea at low water.——The York and Scarborough Railway was opened on the 7th instant. The directors and their friends started from York, after partaking of a splendid breakfast in the Town Hall, in 36 carriages, each containing 18 persons. Near to Castle Howard the train stopped to take up Lord Morpeth, who had provided refreshments for the occupants of the train. After remaining a short time at Scarborough the company returned to York, and dined at the Town Hall.——During the past winter the beautiful grounds adjoining Alton Towers have been greatly improved under the direction of Mr. W. A. Nesfield. The upper terraces and slopes have been decorated with groups of marble statues and colossal marble vases interspersed with rose trees and beds of exotic flowers. The growth of the trees, particularly the evergreens, were beginning to hide the architecture. Many of these have been removed, and the beautiful stone work of the scalloped walls and vases are brought to light again, and stand out in bold relief against the rich background of forest trees. The Earl and Countess of Shrewsbury permit the house, with its galleries of paintings and works of art, as well as the gardens, to be shewn to respectable persons, who can obtain cards for admission on applying at the Shrewsbury Arms Inn.——The Town Council of Beverley are actively engaged in improving the sanatory condition of their town. The sewerage has been disgracefully neglected for many years. A capacious reservoir, 30 yards long and 4 feet in depth, has been found to be full of filth, it not having been cleared during the last 30 years.

LIST OF NEW PATENTS RELATING TO ARCHITECTURE, ENGINEERING, &c., GRANTED FOR ENGLAND.

Furnished by Mr. A. Prince, of the Office for Patents of Inventions, Lincoln's-inn Fields, London.

[SIX MONTHS FOR ENROLMENT.]

Cornelius Whitehouse, of Wolverhampton, gun-barrel manufacturer, for improvements in machinery for welding and hammering, and in the manufacture of gun-barrels and other tubes. June 3.

William Costen Aitken, of Birmingham, clerk of works, for a certain improvment, or certain improvements in ornamenting cornices, ends for cornice poles and other rods, curtain bands and certain other articles. June 3.

John Lionel Hood, of Saint John's Wood, gentleman, for improvements in the application of motive power, for locomotive and other purposes. (Being a communication). June 3.

William Brent Brent, of Gower-street, Bedford-square, barrister-at-law, for certain improvements in machinery for cutting or excavating, and removing earth. June 3.

Thomas Lawes, of Old Kent-road, Surrey, gentleman, for improvements in propelling carriages on rails and other roads, and boats or vessels on canals and rivers, which improvements are also applicable to machinery in general. June 3.

William Palmer, of Sutton-street, Clerkenwell, manufacturer, for improvements in working atmospheric railways, and in lubricating railway and other machinery. June 5.

Henry Kerr, of Abingdon, Berks, butcher, for certain improvements in the construction of temporary roofs or coverings. June 5.

James Harday, of Birmingham, gentleman, for improvements in the manufacture of metallic tubes, or pipes, by machinery. June 5.

William Willocks Sleigh, of Stamford Brook House, Chiswick, doctor of medicine and surgeon, for a hydro-mechanic apparatus for producing motive power. (Colonies only.) June 7.

Samuel Harvey, of Halesworth, in the county of Suffolk, cabinet-maker, for certain improvements in sawing machinery. June 7.

David Henderson, of London Works, Renfew, civil engineer, for certain improvements in cranes. June 10.

Thomas Smith, of Wood-street, Cheapside, gentleman, for improvements in suspending carriages, and in the construction of wheels for carriages. June 10.

Frederick Rosenborg, of Kingston-upon-Hull, gentleman, for improvements in the arrangement or construction of machinery, or apparatus for propelling or impelling vessels, and in steering or manœuvring the same. June 12.

Thomas Clark, of Hackney, engineer, for an improvement on the atmospheric system of propulsion, which is also applicable to other motive purposes. June 23.

Robert Griffiths, of Havre, George Hinton Bolville, of Millwall, and George Hennett, of Bristol, engineers, for improvements in the construction of parts of apparatus used for propelling carriages and vessels by atmospheric pressure. June 23.

Joseph Zambaux, chemist, of Paris, for improvements in atmospheric railways. June 25.

William Sykes Ward, of Leeds, gentleman, for improvements in exhausting air from tubes or vessels for the purpose of working atmospheric railways and for other purposes. June 25.

Joham Baggs, of Great Percy-street, Claremont-square, engineer, for improvements in obtaining motive power by air. June 26.

Charles Goodwin, of Bow-lane, ship-surveyor, for certain improvements in masts and spars. June 30.

Account of the Parish of Stowting, Kent.*—The Rev. F. Wrench has published a *brochure* under this head giving an account of the antiquities lately discovered there, which are considered to be Anglo-Saxon, and of the sixth or seventh century. Mr. C. Roach Smith, in a note on these relics, suggests that excavations for railroads about to be made in Kent will probably bring to light many antiquities of different epochs, to preserve which every man of good taste and feeling should exert himself.

* J. R. Smith, Old Compton-street,

Correspondence.

PREVENTION OF DAMPNESS.

SIR,—In the spring of 1844 I built my house, and in the office, in an 18-inch rough stone wall, had a large iron safe fixed, which has a well in it 18 inches deep, the lower part of which is below the level of the floor of the room. It was remarkably fine during the progress of the whole building, and great part of the stones used were old ones, yet, although it is now fifteen months since, if I close the doors for a week, my books begin to mould; and I have never been able to keep any thing in the well, which is covered with rust. Could you oblige me by informing me how I can remedy this serious inconvenience without removing it, as its front reaches from the bottom to nearly the top of the room, and is, moreover, set in large Portland stones, which run a considerable distance into the wall, and could not be removed without great trouble and expense? I thought it possible some means might be suggested, and if you can assist me, you will confer a favour on your obedient servant,

July 10, 1845. A SUBSCRIBER.

*** We have, at different times, received several communications on this same subject, but without an acquaintance with the *locus in quo* find it difficult to suggest a remedy. We shall be happy to hear the opinion of correspondents. As an expedient a lining of slate, kept at a short distance from the sides, bottom, and top, of the safe might be resorted to.

SCAFFOLDING.

MR. EDITOR, — There are some houses building at Kensington Gore which have a contrivance worthy of being imitated by builders, where space will admit of its being used: it is a series of inclined planes, to enable the labourers to reach with more ease to themselves the different stories of the building with bricks and mortar. A labourer told me that he was more fatigued going up one day by the ladder than he was three on the inclined plane. I am, Sir, yours obediently,

A SUBSCRIBER TO YOUR VALUABLE JOURNAL.

Miscellanea.

COLLEGE FOR CIVIL ENGINEERS, PUTNEY.—The annual distribution of prizes was made here on Tuesday last. The Hon. R. S. Howard took the chair, but ultimately resigned it to the Earl of Devon. The Rev. Morgan Cowie, principal of the college, in his report on the general conduct of the students, said; — An engineer's business was, above all others, most various and extended in its operations and effects from one side of the earth to the other. He, therefore, considered that the best way of qualifying the students was to give them a sound theoretical education, the groundwork of which was mathematics and chemistry. The pupils were taught by models, and many of them made models themselves requiring great skill and experience in their execution. They were also occupied in levelling and surveying, accompanied by an experienced person in these branches, who could point out to them and explain whatever difficulty might arise; in fact, they did exactly what they would have to do if they were in an engineer's office. The education that was given by the college might be classed under five principal heads, namely— mathematics, chemistry, geology, the art of construction, and knowledge of principles, and the practice of machinery; to which might be added, the study of French, German, and every other branch of learning necessary to complete the education of a gentleman and an engineer. In all these departments Mr. Cowie could say with much pleasure that the progress of the students had been in general very satisfactory.

THE NEW PALACE AT OSBORNE. — The works are proceeding rapidly under the special supervision of the Queen and Prince Albert. The new wing will be about 70 feet square, and similar in character to the eastern front of Osborne House. Her Majesty and suite unexpectedly attended divine service at Whippingham church during their last visit.

CITY IMPROVEMENTS. — At a Court of Common Council recently held, Mr. R. L. Jones brought up the report of the London-bridge Approaches Committee, to whom it was referred to examine the allegations in the petition of the inhabitants of the north side of the ward of Farringdon-without, for the completion of the improvements at Farringdon New-street and Holborn-bridge, with instructions to report their opinion upon the expediency of carrying out those proposed improvements. It stated that the committee had viewed the new line of street, and the projecting houses on the north side of Holborn-bridge, and directed the clerk of the works to report his opinion as to the estimated value of those houses, and also to report the probable amount of the cost of the improvement, deducting the value of the surplus ground; that they had subsequently received reports from the clerk of the works, from which it appeared that, exclusive of law charges, the probable cost of completing the line of improvement at Holborn-bridge, after deducting the value of the surplus ground, would amount to 14,500*l*. That the committee having duly considered all the circumstances, were of opinion that it was desirable for the City to complete the line of improvement at Holborn-bridge, by purchasing and setting back the said houses, provided suitable means and powers could be obtained for that purpose; and they were further of opinion that an opportunity would at the same time be afforded for effecting an additional improvement of Holborn-hill. The committee, therefore, felt it their duty to draw the particular attention of the court to the propriety of taking measures to carry out these objects, and they recommended the same accordingly. That they had caused the vaults to be constructed on both sides of Farringdon-street, and had already let eleven of the lots of ground in that street on building leases, and were taking measures which they trusted would ensure future lettings, so that the whole of the improvement, so far as the City was concerned, might be completed without delay, and that they were the more strengthened in that opinion in consequence of the measures in progress for carrying on the new line of street in the county of Middlesex.

REDUCTION IN THE PRICE OF GAS.—The Chelmsford Gas Company have resolved to reduce from Michaelmas next to those who burn with meter the price of gas from 10s. per 1,000 feet (the sum hitherto paid) to 8s. 4d. They have also determined to allow 10 per cent. to those whose consumption in the year is 40,000 feet and upwards, thus in effect lowering the price to 7s. 6d. per 1,000 feet. The Barnsley Gas Company have agreed to reduce the price of gas from 9s. to 7s. 6d. per thousand cubic feet from the 1st instant. The Birmingham Old Gas Company have given notice, that from the present time the price of gas to consumers under 5,000 cubic feet per quarter, will be 6s. 8d. per 1,000; to those consuming upwards of 25,000 cubic feet per quarter, 5s. 8d., and to consumers above that quantity 4s. 6d. per thousand cubic feet.

NEW SCHOOLS AND CHURCHES IN SOUTHWARK.—In consequence of the great want of schools and church accommodation in Southwark and the adjoining parishes of Bermondsey, Lambeth, and Newington, a committee has been formed for the purpose of raising funds by subscription to be applied towards the erection and endowing of several additional schools and churches in those districts. Her Majesty has contributed 200*l*., and Prince Albert 100*l*. The Archbishop of Canterbury gives 1,000*l*., and the same amount is subscribed by the wealthy brewers, Messrs. Barclay, Perkins, and Co. The contributions already amount to upwards of 11,000*l*.

THE QUEEN'S PAVILION, BUCKINGHAM PALACE GARDENS.— The decorations of the pavilion are now completed: pressure of matter prevents us from noticing them this week, but we shall do so in our next number, and shall then be able, we trust, to remove one or two misconceptions which at present possess the public mind.

THE HOME MINISTER'S ELECTRIC TELEGRAPH.—A metallic wire, for establishing a communication between the electric telegraph of the Rouen Railroad and the ministry of the interior, has been carried along the watercourses and under the Pont de la Concorde to the minister's office.—*Morning paper.*

Tenders.

TENDERS delivered for the erection of Two Warehouses in Montague-close, London-bridge, for Alderman Humphery; Mr. J. Griffith, Architect.

Harrison	£19,500
Nicholson	19,500
Cubitt	19,400
Lee	19,340
Lawrence	19,280
Ryder	19,100
Jay	18,081
Jackson	17,999
Little	17,896
Grimsdell	16,782

Opened in the presence of the parties.

Tenders for the erection of Dwelling-house and Farm-buildings for F. Tucker, Esq., at Bourton, near Shrivenham, Berks, July 3rd, 1845. At the office of the Architect, Mr. W. F. Ordish, John-street, Adelphi.

Gerry, London	£8,210
Willson	7,782
Burchell, Swindon	7,710
Rose and Terrant	7,400
Kirk, Sleaford, Lincoln	6,650

Tenders delivered for Twenty-four Houses, Lillington-street, Vauxhall-bridge-road, to Henry Coe Coape, Esq., and Capel Coape, Esq., under Mr. Henry S. Ridley, surveyor.

Haward and Nixon	£11,692
Rippon	11,086
Burstall and Son	10,735
Burtonshaw	10,696
Lacey	10,683
Pattenton	10,649
Glenn	10,491
Winsland	10,447
Bennett	10,325
Pink	10,296

Tenders for Four Houses in Charlwood-street, adjoining.

Haward and Nixon	£2,992
Burstall and Son	2,794
Rippon	2,757
Pattenton	2,755
Burtonshaw	2,600
Glenn	2,598
Bennett	2,576
Winsland	2,550
Pink	2,539
Lacey	2,270

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the Construction of Four divisions of the Chester and Holyhead Railway, comprising the entire line through the County of Anglesey.

For Building Sewers in the Old Bailey, Hanging Sword-alley, and Crown-court; also in John-street, Crutchedfriars, and Cullum-street, all being within the City of London.

For Lighting the town of Woodbridge in Suffolk with Gas.

For Building Sewers from Bloomsbury-street, Holborn, along Charlotte-street, the east side of Bedford-square, and Gower-street, with a branch Sewer along Store-street, the length being about 3573 feet with 1480 feet of gully street and 2320 feet of private drains.

For supplying her Majesty's several Dockyards with stone-ground Glass in panes, crown glass and green glass in tables, and window Lead, and glass illuminators and tubes.

For certain alterations of the premises (formerly the Post-Office), in Crown-street, Bury St. Edmunds, and for a New Building.

For supplying her Majesty's several Dockyards with Canada Red and Yellow Pine Timber, Rock Elm Timbers, Spruce Deals, and Ash Oar Rafters.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At the Harvey Arms, Finningly, near Bawtry: upwards of 150 tons of well-hearted Oak Timber in lots of from one to two tons each. Also a quantity of Cord Wood.

At Dockhead, Bermondsey: 200 12 feet 3 inches, 11 inches, and 10 inches Spruce plank; 250 14 feet 3 inch Yellow Findland Deals; 700 15 feet to 6 feet 3 inches and 9 inches Gefle deals; 680 12 feet to 6 feet 3 inches Spruce deals; 100 21 feet to 18 feet Norway Battens; 250 12 feet Spruce and Pine Battens.

At Little Bentley Hall, Essex: 2000 particularly straight and good Larch Fir Trees in lots of from 10 to 20 trees.

COMPETITIONS.

Plans are required for Laying out and covering with Villa residences about 20 Acres of land having a frontage of about half-a-mile to the Queen's-road, Richmond, Surrey, extending from Spring-grove towards Richmond-hill. Premiums will be given of 25 guineas for the most approved plan, and 15 guineas for the second.

TO CORRESPONDENTS.

"Humanitus" *draws attention to the open sewers in the neighbourhood of the Vauxhall-road and Pimlico, and urges that houses there remain unoccupied in consequence.*

"A Carpenter."—*We will endeavour to supply him with the information he wishes to have.*

"J. W."—*Hilch's Drain-bricks may be obtained at Lindsey Wharf, Chelsea.*

"W. S. P."—*The sum named would hardly suffice to provide the accommodation required even in the plainest manner. We should advise our correspondent to appoint some architect to prepare plans for approval. We should be happy ourselves to do so if applied to professionally; or would give any information that might be desired.*

"T. W., (Islington)."—"*Cornices to overhanging roofs*" *(unless building be insulated) must be built of the same materials as are by the Act directed to be used for building the external walls to which such projections belong, or of such other proper and sufficient materials as the referees may permit.*

"Cube Dimensions."—"X. Y. Z." *wishes to know the title and publisher's name of any work containing tables shewing at a glance the cubical contents of bodies of which the dimensions are given: also, tables of superficial contents.*

"Credence Table."—*A correspondent wishes to learn if there be an ancient credence table in any church in London? We do not know of one.*

"E. de B."—*The Act establishes that a fee of 1l. 1s. shall be paid to the district surveyor for every "insulated" building erected. The drains would come under his supervision.*

"A. A."—*Thanks.*

"B. C."—*The suggestion shall not be lost sight of.*

"Workmen at Paddington."—"J. L. G." *states that the way in which the ill-will to each other is shewn by workmen, particularly the plasterers, at Paddington, is deplorable; mouldings and cornices are destroyed, and other injury done. He refers for an example to a balustrade wall in Westbourne-terrace, which has been recently erected. It is to be hoped that the police will keep a sharp look out, and means be taken to detect and punish such miscreants.*

"G. H."—*The paper on railway curves shall appear next week.*

"F. T."—*We shall be happy to receive the paper mentioned, but should not be disposed to insert any* violent abuse.

"P. P."—*Building operations are about to commence at White Knights, Reading. Land may be had for single houses.*

Received: "*W. S.,*"—*the Ecclesiologist, No. 4., new series.*—"*F. G. A.*"—"*Q. Q.*" "*Appeal in favour of the Warder and Statesman Fund.*"

ADVERTISEMENTS.

E. G.'s TRACING-PAPER.—It is warranted to take Ink, Oil, or Water colour, and is sold by MESSRS. ROBERSON AND CO., SOLE AGENTS, 51, LONG-ACRE, at the following cash prices:—

THIN TRACING-PAPER.

60 by 40, at 14*l.* 0s. per Ream, or 15s. 0d. per Quire,
40 by 30, at 7*l.* 0s. „ 7s. 6d. „
30 by 20, at 3*l.* 15s. „ 4s. 0d. „

THICK TRACING-PAPER.

40 by 30, at 14*l.* 0s. per Ream, or 15s. 0d. per Quire,
30 by 20, at 7*l.* 10s. „ 8s. 0d. „

N.B.—Every sheet is stamped with the Initials of the Manufacturer.

This beautiful and unequalled article is allowed to be the cheapest and most useful Paper hitherto introduced to the public, as will be best proved by a trial.

BIELEFELD'S PAPIER MACHE.—The superiority of the Papier Mâché for the purposes of ARCHITECTURAL DECORATIONS is now so generally admitted, that it is needless to argue it. The introduction of Papier Mâché into most of the public and private buildings in the country is the best proof of its merits. Ornaments may be had in almost every style, and pattern-books, containing more than a thousand executed designs. Price 1*l.*

PICTURE FRAMES and other Articles of Furniture, either gilt or in imitation of the finest carved oak. An illustrated Tariff forwarded on the receipt of eight post-office stamps.

PATENT QUAQUAVERSAL GLASS-STANDS for the toilet, on an entirely new principle, of great elegance, and free from all the practical inconvenience of ordinary Glass-stands.

At the works, 15, Wellington-street North, Strand.

TO ARCHITECTS AND SURVEYORS.

THE VESTRYMEN OF RICHMOND, SURREY, are desirous of obtaining PLANS for laying out and covering with Villa Residences about 20 acres of Land having a frontage of about half-a-mile to the Queen's-road, Richmond, extending from Spring-grove towards Richmond Hill, and within a few minutes' walk of the Terrace there. The Plans will be expected to include the laying out of grounds and suitable offices, but it is not expected nor required that the elevations shall be uniform. — PREMIUMS will be given of TWENTY-FIVE GUINEAS for the most approved plan, and FIFTEEN GUINEAS for the second.—Lithographic plans of the ground and further particulars had on application to Messrs. SMITH and SON, Solicitors, Richmond, to whom the designs are to be sent before the 14th day of August next.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

WINDOW GLASS, MILLED LEAD, and COLOURS, Pumps, Closets, Pipe, Basins, Brushes, Dry Colours, Ground ditto, and all materials at the lowest wholesale prices for cash.

Crown sqr. not exceeding 12 by 10, 5d. per foot.
Sheet squares, not exceeding 12 by 10, 6d. per foot.
White Lead. Milled Lead cut to size.
Linseed Oil. Pan Basins.
Turps. Plumbing, Brass
Warranted Varnishes. Work, &c.

Superior Spruce Oker, for Plasterers and Painters, at 6s. per cwt. Gilders, Print Publishers, Picture Frame and Cabinet makers supplied with patent sheet, plate, and sheet, and flatted glass of superior colour, and carefully selected.

SURVEYORS, CONTRACTORS for PUBLIC WORKS, and the TRADE generally, sending specifications of quantities required, will receive by return of post an invoice at the very lowest cash prices. — For complete lists (priced) apply to R. COGAN, 5, Princes-street, Leicester-square, London.

Also may be had, Wholesale and Retail,
LAMP SHADES AND GAS GLASSES.

Gas Contractors, Fitters, Glass Merchants, and others supplied with any description. Lists of nearly 100 patterns, with prices affixed, sent to any part of the kingdom gratis.

CLOCK MAKERS, ALABASTER FIGURE MAKERS, ARCHITECTS, MODELLERS, and others, supplied with FRENCH ORNAMENT SHADES,

for covering Models of Public Buildings, Geological Curiosities, &c., &c., of all sizes and shapes. List of Prices may be had on application. Bee Glasses, Striking Glasses for Nurserymen, Fish Globes and Confectioners' Glasses, &c., of every size and description.

POLONCEAU'S BITUMEN PAVEMENT for paving Foot walks, Terraces, Garden walks, Stables, Coach Houses, Granaries, Corn Stores, and Salt Warehouses. For the exclusion of Damp and Vermin in Basements it is particularly adapted, and for Roofing Dwelling Houses, Porticos, Balconies, and Sheds.

Price 3s. 6d. per square yard.

BITUMEN for covering the Arches of Bridges, Culverts, &c. &c. on Railways and other places (with instructions for laying it down), may be had at the rate of 45s. per ton, by applying to JOHN PILKINGTON, 15, Wharf-road, City-road.

BASTENNE ASPHALTE and BITUMEN COMPANY, Offices, 31, Poultry. The Directors of this Company beg leave to call the attention of ARCHITECTS, BUILDERS, and others, to the very beneficial results attendant on the use of BITUMEN in the erection of buildings, &c. Its application as a FLOORING will be found eminently useful. It is also valuable for numerous other purposes, more particularly where the object sought for is the EXCLUSION OF DAMP AND VERMIN. The Directors beg to refer to the works in Trafalgar-square, which have given general satisfaction. Scale of prices per foot square:—1 inch thick, 8d.; 2 inch thick, 7d.; 3 inch thick, 6d. Works not measuring 400 feet, 1d. per foot extra. Roofing executed at 6d. and 7d. per foot square. Concrete is charged in addition according to the thickness when required. Carriage and men's time are charged extra when works are executed beyond three miles from the General Post-office. Bitumen £6 per ton, without grit. Bitumen £8 per ton, with grit.

CHARLES F. TILSTONE, Sec.

TO ARCHITECTS.

IN consequence of many complaints having been made to the Company, by Architects, of a spurious material having been used in the execution of Works where the SEYSSEL ASPHALTE had been specified for, the Directors, with a view to ensure the fulfilment of any such specification, have authorized CERTIFICATES to be granted to Builders where the

SEYSSEL ASPHALTE

has been used. For the purpose of securing the use of the Genuine Article, Architects and others are recommended to insert in their specifications the "Seyssel Alphalte, Claridge's Patent," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used, gas-tar and other worthless and offensive compositions have been introduced. I. FARRELL, Secretary,
Stangate, near Westminster Seyssel Asphalte Company.
Bridge, Jan., 1845.

Books of Instructions for Use may be had at the Office of "The Builder," and of all Booksellers in Town and Country, price 1s.

*** In proof of the necessity of the above advertisement, it may be mentioned, that it has come to the knowledge of the Directors, that in certain works which have been executed by Messrs. Curtis, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

In the case of a work at Lewisham executed by MESSRS. ROBERT and DANIEL YOUNG, of 10, Crown-row, Walworth-road, where Seyssel Asphalte was specified for, a spurious article was nevertheless laid down by them.

WESTERN PROVIDENT BUILDING SOCIETY for enabling persons to Build or Purchase Freehold or Leasehold Property on the security of such property. The next Monthly Sale of Shares will be held at the City of Westminster Literary, Scientific, and Mechanics' Institution, 7, Great Smith-street, Westminster, on Wednesday, July 30, at Eight o'Clock precisely. The shares will be put up at 4*l.* premium, and the termination of the Society is fixed by the laws to take place in 1854. Full information may be obtained of Mr. G. DETHRIDGE, 1, Broad Sanctuary, Westminster (opposite the Hospital).

PATENT HANDRAILS. — J. MELVILLE, after upwards of 20 years' experience in the manufacture of the above, can now, with confidence, recommend them to Architects and Builders, combining beauty and durability; avoiding heading joints, and the grain of the wood continued throughout the wreathed or otherwise circular parts. They are now patronised by the most eminent Architects, to whom reference can be given.—Specimens and prices sent to Architects or Builders, in Town or Country. Columns Veneered, Pew Capping, &c.—No. 64, John-street, Fitzroy-square, London.

CAEN STONE.

LUARD and BEEDHAM have a quantity of the above stone, of the best quality, direct from their Quarries at Allemange, which may be inspected at the Norway Sufferance Wharf, Greenwich.—Further particulars at Mr. G. GATES', 18, SOUTHWARK-SQUARE, SOUTHWARK.

CUNDY'S MARBLE AND STONE WORKS, PIMLICO.

SAMUEL CUNDY begs to inform Architects, Builders, &c., that he is supplying
VEIN MARBLE BOX CHIMNEY-PIECES,
Opening 3 feet square, and 7 inch piers, for
FORTY-FIVE SHILLINGS!
STONE BOX CHIMNEY-PIECES, opening 3 feet square, and 7 inch piers, Twelve Shillings; do., do., with MOULDED CAPS, and 8 inch piers, FOURTEEN SHILLINGS.

The above are manufactured in the best manner and of the best material. For CASH ONLY.—Address, SAMUEL CUNDY, Marble and Stone Works, Belgrave Wharf, Pimlico.

Masons' Work, Monuments, &c., &c., at equally Low Prices.

TO THE BUILDING PUBLIC.



SASHES AND FRAMES
DOORS, &c.
Manufactured for the Trade
By C. W. WATERLOW,
121, Bunhill-row, Finsbury-sq.
Best Materials.—Lowest Prices.
Terms: Cash.



Full lists of prices may be had on application at the counting-house; if by letter, pre-paid, inclosing postage-stamp.

A large stock of well-seasoned Doors always on hand.

THE CAUSES of EXPLOSIONS in STEAM-BOILERS, and the prevention of those arising from incrustation, are now lectured upon by Dr. Ryan daily at half-past Three, and on the Evenings of Monday, Wednesday, and Friday at Nine, at the ROYAL POLYTECHNIC INSTITUTION. Professor Bachhoffner, lectures daily at Ten o'clock, and on Tuesday and Thursday Evenings at Nine, on the ATMOSPHERIC RAILWAY, a Working Model of which, carrying visitors, is exhibited daily and in the Evenings. A curious MECHANICAL HAND; new and beautiful Objects in the Chromatrope, Physioscope, Proteoscope, and Dissolving Views. Working Models described. Experiments by the Diver and Diving-Bell, &c., &c.—Admission, One Shilling; Schools, half-price.

IRONMONGERY.

BUILDERS will find it greatly to their advantage to purchase IRONMONGERY of CLUSE and BOSE, 36, City-road (corner of Tabernacle-row, and near Old-street-road).

					Best Cut Clasp.
3d.	4d.	6d.	8d.	10d.	20d.
5½d.	7d.	9d.	1s.	1s. 6d.	2s. 3d. per 1000.

Best Cut Floor Brads 10s. per cwt.

Cast Lath Nails 12s. 6d. per cwt. Sash Weights 7s. 6d. per cwt. 6 inch Mortice Locks with best Furniture, 3s. each. Butte Hinges, 2 in. 1s., 2½ in. 1s. 6d., 3 in. 2s. per pair.

Cottage Ranges with Oven and Back Boiler.

3 ft.	3 ft. 2 in.	3ft. 4 in.	3 ft 6 in.
2*l.* 3s.	2*l.* 3s. 6d.	2*l.* 5s.	2*l.* 7s.

Self-Acting Ranges with Oven and Back Boiler, Bright Fittings and Wrought Bars.

3 ft.	3 ft 4 in.	3 ft. 8 in.	4 ft.
3*l.* 3s.	3*l.* 8s.	3*l.* 15s.	4*l.*

Elliptic Stoves with Inside Backs, 3½d. per inch.
Registers with Inside Backs 7d. per inch.

TIP TILES to suit slate roofs in colour; Ridges, with plain or rebated joints, roll tops, and vertical ornaments; drains, many sizes, with plain or socket joints; paving in squares, hexagons, octagons, &c., different colours; roofing, in Grecian or Italian styles, other devices also, or plain; conduits, which do not injure pure water; fire-bricks and tiles; clinkers, and out-door paving; sundry wall-coping, garden-borders, chimney-tops; also tubular and other flues of peculiar material. No agent, but a depôt at 22, WHITEFRIARS-STREET, FLEET-STREET, LONDON, under Mr. PEAKE'S personal care, to supply genuine TERRO-METALLIC goods at fair prices as per quantity; also additional Stock at No. 4 Wharf, Macclesfield-street, South, City Basin.

The TILERIES, TUNSTALL, STAFFORDSHIRE, are near the centre of England, whence boats are sent direct to any inland place; or to the Mersey for the coasts, the colonies and elsewhere.

AINSLIE'S NEW IMPROVED PATENT DRAIN TILE MAKING MACHINE.—Gentlemen interested in procuring first-rate quality of draining tiles at a cheap rate will find the above worthy their attention. It is portable, can be worked by hand or any power, producing tiles only of first class, and in any number, from 5,000 to 20,000 per day, or in proportion to the power applied. All small stones are crushed in the process, and a constant stream of tiles is kept up. It may be seen daily at the Polytechnic Institution, Regent-street, or at Mr. Howe's, engineer, 119, Guildford-street, Southwark, London. In Scotland, at Mr. Lawrence Hill's, civil engineer, Buchanan-street, Glasgow; Mr. James Slight's, engineer, Curator of the Highland Society, Leith-walk, Edinburgh, where particulars may be had; or from the subscriber, JOHN AINSLIE, Alperton, Acton, Middlesex.

The Builder.

No. CXXIX.

SATURDAY, JULY 26, 1845.

ALL England has been railway mad,—perhaps it is so still; and the present session will be remembered by many members of the lower House as the session of "hard s." From the office-messenger at eighteen lings a week (we speak what we know), to editary legislators, men of all grades have n dabbling in shares, and we might say, nen too; for one distinguished peeress, l this time better known at Almacks' than ie share-market, made 30,000 good pounds *guessing* cleverly, what lines would be urably reported on by the Board of Trade. put down the *roulette* tables at Epsom may ery desirable, but there are larger gam-g-booths at home, where Home Secretaries ide not.

en without money, but with a friend in "direction," have obtained large allot-ts, speculating on a rise, and generally success; indeed, up to this time, it seems ably certain that all have benefitted. Let ope that before "calls" are made, the es generally may have passed into the ls of men who really have capital to invest, that thus the difficulty and distress which otherwise be anticipated may be avoided. ie excitement in which thousands have kept for several months past, first by the rts of the Board of Trade, then by the dis-on of the general questions (the advantage herwise of the atmospheric system, and elative merits of the broad and narrow e), and ultimately when reported on favour-by the special investigation of their own ular scheme before committees of both ies of Parliament,—can hardly be de-ed. The money spent in this latter stage have been enormous (by some of the lines, said, as much as 1,000*l.* a day); and all hose personally advantaged by the ex-ture must agree in wishing that some wasteful mode of proceeding could be ed.

he course of a recent forced confinement ne of the committee-rooms, we have been cry shame on the undue advantage taken ndowners who possess influence, and used that influence in opposition to pro-of admitted utility, simply to extort an tant sum of money as the price of their te neutrality. In one case that we could 1,800*l.* per acre is to be paid by special nent for land that the owner had con-d to sell only a short time ago for another e for 300*l.* per acre. If an owner is essed of property against his will, he unquestionably be paid handsomely for surely the legislature should not allow use any accidental influence he may s, for example, being a member of their ody, to extort any unreasonable sum, the company may be led to assent to than incur the enormous expense en-y opposition.

question of *metropolitan* railways is itself on public attention, and several hemes have been propounded for con-the principal lines in London. Amongst e Thames Embankment and City Rail-way Company, of which the following is an outline, has been received with more than usual favour by the press:—

"It is proposed to embank the river from Hungerford Market to Blackfriars Bridge, forming, in the space recovered from the shallow parts of the stream, public gardens, terraces, and docks, and along the edge of the embankment a double line of road; the outer portion as an atmospheric railway, the inner as a macadamized road for ordinary vehicles, with a pavement for foot passengers, communicating with the streets and wharfs, and also, by short viaducts above and below the railway, with landing-places from the river. At Blackfriars Bridge, or about the site of Paul's Wharf, the proposed double road will leave the embankment, and be continued along a new street sixty-six feet wide, leading to the Blackwall Railway and Whitechapel, and, by a short branch at Southwark Bridge, direct to the Mansion House. The railroad portion of the line will join the Blackwall at Fenchurch-street, or the Minories, and be carried along the middle of the new street, upon *an open frame-work of iron girders, at the level of the first floor windows*, leaving an under road of corresponding width for the usual street traffic, and opening throughout the whole line valuable frontages for building."

It thus presents two important and novel features,—the embankment of the Thames, as a money speculation (an achievement which seems too great for our Government), and the commencement of a system of railways through the public streets, out of the way of all ordinary traffic. Relative to these viaducts the *Iron Times* remarks:—"After careful consideration, we can find no objection to urge against them, save that they are *new*. This is a fault we are satisfied will rapidly amend with the perception of their high importance—of the millions per annum that will accrue in savings by reason of their adoption. Have any of our readers watched the erection of the new Houses of Parliament? There may be beheld a railway viaduct set up for the purpose of constructing a building, to be removed when the building is finished. Surely it must be worth while to construct such viaducts for permanent purposes as well as for temporary ones! As an economical plan, these railway viaducts may probably be constructed for about 40,000*l.* per mile. Of elegant construction they may amount to 80,000*l.*, averaging 60,000*l.* Nor is it a mere speculation; the traffic exists—expensive horse traffic—where a saving of horses and a saving of time are both to be achieved."

The line will be in connection with the South-Western at Hungerford Bridge, and with the Great Western, and the London and Birmingham, either at the same point, or near Blackfriars Bridge, by a short extension of the City and Camden Town Junction, from their proposed terminus in Farringdon-street to the river.

Another project, instead of taking the railways over the ordinary course of traffic, takes them *under* it, and contemplates a series of tunnels, which would render London a huge warren and a perfect bore:—

They propose to establish their central terminus at or in the immediate neighbourhood of Hungerford Market, and upon a scale commensurate with the demands of an entire system of metropolitan railways. To proceed thus by tunnels of communication to the London and Birmingham Railway, to the Great Western Railway, the Eastern Counties, and, by subsidiary termini and approaches at the intersections of all the principal roads, to complete the connection between all the northern lines and every part of the northern suburbs. To continue these lines across the river to a station on the south bank, and thence to the Dover, Brighton, and South-Western railways, "thus completing the access to and from every part of the kingdom and the continent." The suburbs are to have a company of their own, and are to be reached on the atmospheric principle. It would thus seem, that, having driven the stage coaches off the roads, the rail will now compete with the omnibus, and take us from one end of town to the other, either through the air or through the earth, at "six-pence all all the way."

When railways were first projected, the towns near which they came strove to keep them as far off as possible, and spent immense sums in effecting what has been most injurious to them. They have now found out their mistake, and would gladly pay as many thousands to bring a station near them as they before spent hundreds to drive it off. Every town now strives for its line, justly feeling that without it, its importance must sink; and before long every village will have one too, or must cease to be a village. How strangely and how rapidly opinions alter! Before we find fault with others, still more, before we *burn* them for not thinking as we do, it would be well always to remember, that ere long we may actually think as *they* do.

THE QUEEN'S PAVILION IN BUCKINGHAM PALACE GARDENS.

HER Majesty's summer-house, concerning which so much has been said from time to time, is now completed, and will hereafter be regarded with interest, if not at this moment, as an early example in England of the use of fresco painting in decoration.

Within the last few years, owing to a number of concurrent circumstances, public attention has been directed to the combination of decorative painting with architecture, after the examples left to us by the great Italian painters and architects of the sixteenth century. The introduction, or rather the revival, of fresco painting in this country has become, in connection with a great national monument, a topic of general interest, an affair of national importance, and no longer merely a matter of private or artistic speculation. While curiosity and interest were thus strongly excited towards the subject, and our artists were occupied in considering its feasibility and the particular management of a vehicle almost unknown to them, it occurred to Her Majesty and His Royal Highness Prince Albert, that it would be well to have the experiment made on a small scale, yet under circumstances which might lend it a more than common interest, and at the same time offer to some of our first artists at once a high motive and a fair opportunity to try their powers in this new *old* method. The idea was surely a happy one; and not the less seasonable that every one who had considered the subject (at least every one who understood it), felt that it was a method which presented particular difficulties to some of the ablest and most distinguished of our painters, whose habitual style of execution, whose aim in point of treatment of their subject and effect, had been precisely the reverse of what is required in fresco.

The application of fresco painting to the decoration of architecture demands the adaptation of parts to a whole; a preconcerted mode of treatment, in which the painting shall seem to be in unison with the original design of the edifice; the harmonious combination of many minds, working under the direction of one mind, to one purpose: and, with regard to the mechanical part of the process, it requires much thought and study in the preparation of the materials, and great care and precision, as well as great rapidity, in the execution.

The advantage of mingling in the interior decoration of a building isolated figures and historical subjects with arabesque ornaments,

has been proved to be twofold. If the locality be small, the space appears to be enlarged to the eye by the involution and continuation of multiplied and varied forms and colours; while, if the dimensions be large, the interest is concentrated by the presence of a leading idea, connecting all these separate compartments and all this maze of variety into one harmonious whole. The wild and dream-like arabesques are like vague, delicious music; the historical subjects form resting-places for the fancy; and the two in combination are like the lyrical drama,—action, sentiment, and melody woven together.

The building in question is very small,—quite a toy, and is situated on an artificial mount in the gardens, and overlooking the ornamental waters. The view from the terrace in front of it is beautiful, and will keep the stranger on his first visit, for some time outside the object of his search. Nash understood well the art of landscape gardening, and displayed much skill in these grounds. It is almost impossible to believe the proximity of this spot to bustling town, it is so still and luxuriant; and the triumphal arch at Hyde-park-corner, seen above the trees, renders the effect of the whole almost magnificent.

The entrance to the pavilion opens into the principal apartment, an octagon 15 feet 9 inches from side to side, and 14 feet 11 inches in height to the centre of the vaulted ceiling. It is here, in eight lunettes at the foot of the vault, that the frescos from "Comus" appear, of which for the most part types have been exhibited in the rooms of the Royal Academy by the respective artists. Over the entrance door, an indifferent place, is Stanfield's, illustrative of the following passage:—

"Yet some there be that by due steps aspire
To lay their just hands on that golden key,
That opes the palace of Eternity.
To such my errand is."—COMUS, v. 12—17.

It is admirably transparent, and exhibits more power over the material than the majority of the works. Passing round with the sun, Mr. Uwins' follows, having for motto,

"This is the place as well as I may guess,
Whence even now the tumult of loud mirth
Was rife."

Then comes Leslie: Ross follows. Eastlake's is over the mantelpiece; Maclise, Edwin Landseer, and Dyce, complete the eight. A copy of Mr. Eastlake's work is now in the Academy exhibition, and will be remembered by all. The lines illustrated are,

——"If virtue feeble were,
Heav'n itself would stoop to her."

Maclise shews the lady spell-bound in the marble chair, and displays much of his usual power. Mr. Landseer has found in the following lines an opportunity to exhibit his great skill in depicting the brute form:—

——"Their human countenance,
Th' express resemblance of the gods, is changed
Into some brutish form of wolf or bear,
Or ounce or tiger, hog or bearded goat."
COMUS, v. 68—71.

Comus, surrounded by his crew, is terrified by the approach of the brothers, who appear behind in the act of rushing upon them. A bacchante, with a beautiful female form, and the head of a hound, has thrown herself in affright upon the arm of Comus. Other monsters, half brute, half human, in various attitudes of mad revelry — grovelling, bestial insensibility— confusion and terror — are seen around him; the pathetic, the poetical, the horrible, the grotesque, all wildly, strangely mingled. In the spandrils are two heads — a grinning ape, and a bear drinking.

Mr. Dyce winds up the illustrations with the presentation of the lady and her two brothers to their parents, who come forth to receive them, and he has produced what must be considered the best fresco, although wanting in the right sentiment.

The *lunette* in which this is placed was formerly occupied by Mr. Etty, and as many ill-natured comments have been made on the removal of the fresco executed by him, it is but just to say that the step was unavoidable. We are much pained that so distinguished an artist —the first colourist of the day,—should have his work superseded, but truth compels us to say, after careful examination of the removed panel, that the fame of Mr. Etty would have suffered materially if it had been allowed to remain.

Two other rooms open out of the octagon apartment: one to the left, which is purely *Romantic*, the subjects being all taken from the novels and poems of Sir Walter Scott, and the other to the right, which may be termed *classical*, having all the ornaments Pompeian.

The walls of the first room are painted in imitation of grey marble by Muxon, and form decidedly the best specimen we ever saw. The perfection of the face was attained by varnishing it ten times, and rubbing it down after each coat.

The subjects from the novels were painted by H. J. Townsend, C. Stonhouse, J. Severn, R. Doyle, and J. Doyle. The small landscapes are by E. W. Dallas, and the bas-reliefs were executed by J. Bell and H. Timbrell. The ceiling of the Pompeian room was designed by A. Aglio. The arabesques in the panels of the octagon room were painted by S. Rice, of the School of Design: the carving of the doors in the same room were by G. B. Lovati; the ceiling was painted by E. Morley; all the stuccoes were by G. W. Nicholl, and the plaster work of Walter Scott's room by Bermasconi.

In concluding our notice, it is right to mention that the whole arrangement of the decorations, after the completion of the eight frescos, was confided to Mr. Lewis Gruner, the author of a fine work on "Fresco decorations in Italy during the 15th and 16th centuries," with the express stipulation that all the artists employed should be English. The Prince is said to have taken considerable interest in the works, and Her Majesty has been pleased to order that they should be engraved and published.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

CLOSING MEETING.

THE meeting held on Monday last was one of more than ordinary interest. The chair was taken by Mr. Papworth, and Mr. Donaldson introduced the Duke of Serradifalco, with a well-deserved eulogy on his researches into Sicilian antiquities, and his uniform kindness to members of the Institute. His grace was not merely an honorary member, but he had contributed five volumes, the fruits of his labours. The antiquities of Sicily were peculiarly interesting: the Doric order was essentially different from the Doric of continental Greece, the Temple of Corinth being the only example, which at all resembled in proportions the Sicilian order. The island had been favoured not only in art, in architecture, in bronzes, in statuary, but was a country of great natural beauty and productiveness. Its rivers abounded with fish, its caverns with sulphur, and a deep veneration for art had possessed the people. The work of the Duke of Serradifalco consisted not merely of measurements, but in the 5th volume were the deductions from his observations, matter tending to elucidate the principles of art. His grace was then formally admitted a corresponding member, and returned thanks in suitable terms. Mr. Donaldson, in announcing the contributions from foreign members, commented upon the peculiar satisfaction which must be felt at this, the closing meeting of the session, in receiving the completion of two great works on architecture, the one on Sicilian antiquities, and the other the work of the Cavaliere Luigi Canina. The latter was the most complete illustration of architecture, that had ever appeared, and as the production of an individual, was in the highest degree meritorious. It illustrated the Egyptian, Greek, and Roman styles, in all their variations, and was not a compilation, but the result of a most careful study of the monuments themselves. It consisted of numerous folio plates, with accompanying letterpress; one volume for each style, illustrating its history, and a second descriptive of the examples. Hitherto, a complete work on Grecian architecture had not appeared, but the want was now supplied. Another work, by the same author, on the temple at Jerusalem, was also announced, and though not so satisfactory as the other, had some novel views on this speculative subject. The secretary announced the present of ten guineas to the library fund from Mr. Sydney Smirke, and of Quatremère de Quincy's "Lives of Architects from Mr. Bellamy, and read the report on t adjudication of the premiums. The committ found a decided superiority in the drawin furnished, and awarded a copy of Wilkin "Vitruvius" to Mr. W. Wood Deane, for t best design for a portico to an assembly roo The design was praised for the effective tre ment of the coffers, and ceiling of the porti and it was noticed, that the modillions in t pediment had been omitted, as well as t antæ: but it was presumed, that the absen of the former was deemed essential to t proper effect of the sculpture in the pedime The report also noticed, that the Greeks w in the habit of constructing the lower cou of the wall in a portico, of blocks of gr height, and that the Romans occupied similar situation with a plinth, and surb moulding, with a dado between; these poin it appeared, had not been availed of by competitors. A copy of Britton and Pugi "Public Buildings of London" was presente for the best series of sketches, to Mr. Jud who also received a copy of Wood's "Lett of an Architect," for notes of papers read the Institute. The medal of the Institute w presented to Mr. S. J. Nicholl, for an essay the various species and qualities of sla Mr. Donaldson then read a letter fr Vicenza, stating that one of the members the academy there, was engaged in prepar a life of Palladio, and requesting the assista of the Institute, in procuring access to drawings and autograph of Palladio, in possession of the Duke of Devonshire.

A description of an antique portico at D mascus, communicated by W. R. Hamilt Esq., honorary fellow, was read by the sec tary. It was first described in 1838, at Royal Society of Literature, having been covered by him, a considerable time previc His visit was made at a period, when travell in the East was attended with great dan and therefore he was unable to make a careful examination. He observed, that th were six granite columns, supporting an tablature and pediment, and that in the ce intercolumn, the entablature was carr across in the form of an arch. The style clearly that of Baalbec and Palmyra, and date therefore referrable to the time of Antonines. The cornice had great project but had less height than usual in works like date. The ruin was covered with rubb up to a short space below the capitals, but feet of the columns appeared in the ba below. It was the only known exampl Roman architecture in Damascus, and m have been a part of the Temple of Serapis, was seen by Col. Leake and others, and i their observations, and those of Mr. Ha ton, all that had been known of it up t present time was gained. In 1844, ever, it was seen by Sir Gardner Wilki under more favourable circumstances, an succeeded in getting sketches of it, and a measurements. The columns were calcul to be 42 feet in height; they were set ra close, with a wider space for the centre i column. The whole entablature took curve of the arch, the dentils radiating t centre, and the dentils of the pediment placed at right angles to the raking mo ings. At the spring of the arch, in the ty num of the pediment, were square aperb the use of which was not apparent. angular column was united to two pilastr a curious manner, the mouldings of pediment and entablature being broken observable in some caprices of Italian pr tion. At this period, some remains of col were found in other parts of the city. Donaldson commented upon the extraord disappearance of architectural works in part of Syria. The prejudices of the long prevented the admission of the R style, but at a later period, it could n doubted, that the country abounded in R works, which it was the system of th perial government to raise in the cou subjugated, and we were aware that in parts of Syria, as in the Decapolis, a Arabia Petræa, at Petra, were magni works. Mr. Scoles stated, that in his jo to Damascus, and in other parts of Syri had seen a great number of fragments Roman Corinthian order, of which ther been no mention by any traveller. W Damascus, although he had examined

of the city, he was not aware of the existence of the portico described, which had been mentioned to him by Mr. Hamilton, subsequent to his visit.*

An account of the remains of the ancient city of Agrigentum was read by Mr. Angell, who said, that amongst the ruins of Magna Græcia, none were of greater interest than those he was about to describe. They had not the awful solitude of Selinus and Pœstum, but occupied a most picturesque site near the modern city of Girgenti. Their architectural character would afford much matter for examination. To any one who might visit them, the Capuchin convent in the neighbourhood would afford comfortable lodging, and occasionally no bad cheer. Amongst the remains are those of several temples of the Doric order. The Temple of Juno Lucina was hexastyle, peripteral, and formerly contained the celebrated statue of Juno by Zeuxis. There were some traces of the peribolus. The Temple of Concord was similar in plan to the Temple of Juno. The Temple of Esculapius, the only remains of which is a part of the cella, and fragments of the columns of the roof; but it had been ascertained, that it was a temple *in antis*. The temple of Hercules was the largest after the temple of Jupiter Olympius; one column was standing, but a restoration had been published by the Duke of Serradifalco, who had found traces of polychromy. The Temple of Jupiter Olympius was the second in magnitude, of all the temples of ancient Greece; it was never completed, not having had a roof. The Greeks had two modes of arrangement in the plans of their temples; one was that of the *naos*, with columns in front, or portico at the end, and the other, where the *naos* was surrounded by columns. The temple under notice partook of both arrangements; the columns being, as it were, built into the wall, appearing circular without, and square within. The structure was of vast size, the diameter of the columns being, as described by Diodorus, wide enough for a man to stand between; they were feet at the lower diameter. Mr. Cockerell's restoration, in the fifth volume of the "Athens," has seven columns in the front, the telamones, or Persians, being placed between the naos for the support of the roof. These figures were twenty-five feet in height, and represented the giants conquered by Jupiter. In style of art they resemble the Eginetan marbles, though the pediments were enriched with work of a better description. Sig. Raffaello Politi, corresponding member of the Institute, had made a restoration entirely different from that described, though he now admitted the probability of Mr. Cockerell's. The restoration was not, however, entirely unfounded, as fragments of but three telamones were found, and there was a passage in an author, describing a building with three columns forming the portico; which figures had been inserted in the arms of the modern city. These figures remain in the arms, Sig. Politi considered he had sufficient authority for constructing the temple, originally built with a Peristyle. Besides the above, there are remains of the temples of Castor and Pollux, Vulcan, and in the modern city, which was formerly the Acropolis, of the Temple of Jupiter Atabenus. There was also a Temple of Ceres and Proserpine, and, in the modern cathedral, a sarcophagus, enriched with sculpture. Other remains in the city were those of the oratory of Phalarides, and of the tomb of Theron. The latter was one of those singular monuments, which the Agrigentines were in the habit of raising to their horses, and was the only one not destroyed by Hannibal. That general, finding that the monuments round the walls gave shelter to the besieged in their sallies, ordered them all to be cleared away; but a flash of lightning deterred the soldiers from completing their work. The monument is a singular edifice; it has Ionic columns, but a Doric entablature, and stands upon a lofty basement. In the intercolumns are recesses or doorways, diminished upwards. The piscina was a large basin, nearly a mile in circumference; it was used for the supply of the city with fish, and afterwards for bathing. Mr. Angell concluded his account with some interesting remarks on the former state of the city, and, quoting the words of Pericles, said that "the Agrigentines built like men who expected to live for ever, and lived as if they expected to die to-morrow."

Mr. Donaldson drew attention to the fact, that in Great Britain we were reproached for our restricted pursuit of wealth, and for our assumed inability to execute great works of art, whilst the people of Agrigentum, with a small territory, as well as all the cities of ancient Greece, depended solely upon commerce, and yet had produced works of unequal magnitude and beauty. He also made some interesting remarks upon the "hepta-style" arrangement of the columns, and said that there were other examples at Pœstum, and probably in the Temple of Hercules at Pompeii, and observed, that the Greeks often set at nought many of the rules, which we are accustomed to observe, when they thought, that in so doing, other advantages might be gained. In large temples, if there had been a centre intercolumn, there would have been a doorway, but in this case they preferred to put a column in the middle, and place a door on each side. The Duke of Serradifalco said, that he considered this was not the principal entrance, and shewed, from his work, that he had given six columns and a central doorway in the other front. Mr. Donaldson exhorted the members to greater activity in contributing to the interest of the meetings; and after thanks to the chairman, the meetings were adjourned to November next.

* *

* here mention, that letters, which we have received from a corespondent in Syria, quite corroborate the statements as to the existence of many architectural fragments undescribed. They are built into the walls of houses, hollowed into water-troughs, and the carved stones which the hand of genius revelled in ornament, is now turned into a receptacle for filth and ordure.

"Imperial Cæsar, dead, and turn'd to clay,
Might stop a hole, to keep the wind away:
O that that earth, which kept the world in awe,
Should patch a wall to expel the winter's flaw!"

† From Jerusalem, the writer says, "I am sending curiosities found in digging foundations here; one is a Doric order; the echinus is quite straight, and is cut under the abacus, as we find it in the best examples; there are two of these; the others are Corinthian capital of a small column; the capital is, I think, of Jerusalem is not the place for an architect, or for a general antiquary; there are few ruins, and the whole city is buried in filth to an immense depth. At the end cornices, capitals, and other fragments, indicating something of interest there at a previous period. The moulding of a cornice was enriched with oves, and with the ornament of the reversed cyma; it was in white marble. I fixed to mark the last resting-place of a Turk. He has a capital of no decided character. I saw a piece of a Corinthian capital at Tyre, it was of white, hollowed out for the purpose of holding refuse matter. I have much to tell you of other antiquities in

THE HEIGHT OF CHIMNEY SHAFTS.

AWARD UNDER THE BUILDINGS ACT.

It is necessary builders should bear in mind that in schedule F. it is declared, that any chimney-shaft (except that of a steam-engine, brewery, distillery, or manufactory,—subject to special supervision) must not be built higher than 8 feet above the slope, flat, or gutter of the roof which it adjoins, measured from the highest point of junction, unless such chimney-shaft be built of increased thickness, or be built with and bonded to another chimney-shaft, or be otherwise rendered secure.

Messrs. Grissell and Peto recently carried up the chimney-shafts of three houses in Greyhound-place, Grange-road, to a height of 12 feet 7 inches above the adjoining building, without what the district surveyor (Mr. Hesketh) thought the necessary additional precautions.

The matter was sent to the referees, and the award was, that the chimney-shafts were contrary to the Act, and that the same must be made conformable thereto. The expenses of the award and 2*l.* 2s. for the district-surveyor's time were charged to the builders.

EFFECT OF NEW RAILWAYS ON THE PRICE OF COALS IN LONDON.—Mr. Mahon, in giving his evidence before the committee on the Cambridge and Lincoln line of railway, stated that he had had the management of coal-mines in Derbyshire for twenty years past; that the coal-fields of Clay Cross, Wingerfield, and Staley, were capable of unlimited supply, and he believed that the Clay Cross and Staley coals were quite equal to the Durham. By the proposed new lines of railway these coals could be delivered in London at 14s. 10d. per ton; Erewash coals as low as 10s. 6d.; while the Wingerworth, which were not so good in quality, could not be delivered in London under 14s. 6d. per ton.

HOWDEN CHURCH, YORKSHIRE.

YORKSHIRE ARCHITECTURAL SOCIETY.

The quarterly meeting of this society was held in its rooms, Minster-yard, York, on Thursday, July 17th, the Venerable Archdeacon Wilberforce in the chair.

After the election of several new members, the presentation of works of archæological and architectural interest, and other business connected with the society, the following report of the restorations going on in the parish church, Howden, Yorkshire, was read:—

"Howden, July 16th, 1845.

To the Secretaries and Committee of the Yorkshire Architectural Society.

GENTLEMEN,—We beg leave to lay before you an account of the progress of the work of restoration of the parish church of Howden, towards which your society liberally granted us the sum of 40*l.*

1. As to the tower, the *upper* story has had all its louvering (lately composed of wood) restored. The wood has been removed, and blue slate, of the best and strongest quality, introduced in its stead. The second story has been *partially* reglazed. The stone work has been completely repaired, and the glazing done in a most substantial and workmanlike manner. The architect superintending the work has expressed his entire satisfaction in this department of the restoration. The work now effected only shews more fully the necessity of opening and glazing the whole of the windows in this story, which can only be effected at an additional cost of 60*l.* A floor which originally divided these windows in half has been removed, and the effect is truly imposing.

2. The east window is now in the course of insertion over the screen, which originally separated the choir from the transepts; the stained glass to fill it has been contracted for, and is in the course of execution by Mr. Wailes, of Newcastle, and in a short time this department of the work will be complete.

The screens to separate the new chancel from the transepts are of carved oak, and will be ready for fixing as soon as the masonry is perfect. When this is done, the new church will be thrown open to the nave; the pulpit removed from the centre aisle to the first pier of the nave, on the south, and the reading pew to the south pier of the church arch.

Other restorations have been effected, which, in the opinion of our architects, Messrs. Weightman and Hadfield, add much to the beauty and character of our church.

Having completed these restorations at a cost of 400*l.*, in addition to what your society so liberally granted, we hope there will be no hesitation in allowing the payment of 40*l.* to be now made to us on behalf of the object for which that sum was specially granted.

Whilst we feel deeply indebted to the Yorkshire Architectural Society for its past liberality, we trust we shall not be thought too encroaching if we ask a further donation to help us in carrying out to perfection the whole of the masonry and glazing of the tower, we pledging ourselves to make up the remaining money, and complete the work to the satisfaction of the society.—We beg leave to remain, your obedient and faithful servants,

T. GUY, Vicar,
W. SUGDEN, Churchwarden."

After the reading of this report, one of the secretaries of the society, who had previously visited Howden, made his official statement, which was as follows:—

"Howden, July 16, 1845.

To the Committee of the Yorkshire Architectural Society.

GENTLEMEN,—I have this day visited Howden, in order to inspect and report upon the restorations now going on in its parish church. I have carefully examined every part, and can most conscientiously state that the work so far accomplished has been of the most satisfactory kind. The zeal and skill displayed by the vicar, churchwarden, and architects are beyond any praise of mine; and whilst the Yorkshire Architectural Society cannot but feel gratified in having been the means of encouraging such a restoration by a liberal grant of 40*l.*, it will do well to meet any future appeal for further help by such assistance as may be in its power. In a few words, the work is most creditable to all parties concerned, and has excited in the

breasts of the parishioners of Howden an honest pride and desire to see their church restored to something of its original integrity. I remain, yours truly, JOSHUA FAWCETT."

The committee felt so perfectly satisfied with the work of restoration thus far advanced, that notice of a motion for an additional grant of money towards completing the glazing of the tower was given by the venerable chairman.

The antiquary and archæologist cannot better bestow his mite than by assisting the vicar and churchwardens in this spirited undertaking. We hope very shortly to see their most anxious wishes fully realized.

At a meeting of the society, subsequently held the same day, a paper was read on "The History and present Condition of the Churches of York."

GLASS.

AT a meeting of the Decorative Art Society, held July 9th, "a general view of the history and application of glass" was read by Mr. Cooper, and afforded considerable interest. He remarked on the 18th verse of the 37th chapter of Job, the translation of which has been rendered differently in some recent editions of the Bible,—on the construction of the Portland vase, as of layers of glass of different colours, cut away by drills in the manner of cameos; he exhibited drawings of Roman glass from examples in the British Museum, found at Reculvers, Canterbury, Hemel Hempstead, and elsewhere, and observed that the Romans were the first to introduce glass into this kingdom. He contended that plate glass was first made by the Venetians, and that they supplied Europe till nearly the end of the seventeenth century: and he noticed the manner in which Colbert assisted in establishing a manufactory for plate glass at Cherburg, in 1664, and that in 1668 the French produced plates 84 by 50 inches.

In 1673, Villiers, Duke of Buckingham, established some Venetians in the manufacture of plate glass at Lambeth, and this afterwards led to the formation of the British Plate Glass and other Companies. The injurious effects of different restrictive duties and excise regulations at the respective periods of change therein were also explained.

The process of enamelling was illustrated, also a peculiar property in the coarse bottle-glass, by which when brought a second time to a red heat it will bear to be thrown into cold water, without change of form; a knowledge of this fact may possibly lead to a method of soldering joints in its application as water-pipes, which has been recently spoken of.

Malleable glass and glass produced from the bones of skeletons and formed into a commemorative statue were incidentally noticed. Specimens of some continental glass, not at present equalled or produced by our manufacturers, were shewn, and conjectures offered as to the processes adopted in their formation.

The *Mercure Ségusien* speaks of a marvellous invention which has come to light within the walls of Saint-Etienne—the production of a sort of glass as malleable when cold as while red-hot. The *Moniteur des Arts* says, in reporting it:—

"This new metal, which ere long will be of more value than gold, and which the inventor has called *Silicon*, is of a white colour, very sonorous, and as brilliant and transparent as crystal. It can be obtained, with equal ease, opaque or coloured; combines with various substances, and some of these combinations produce shades of extraordinary beauty. It is without smell—very ductile, very malleable; and neither air nor acids affect it. It can be blown like glass, melted, or stretched out into long threads of perfect regularity. It is very hard, very tough, and possesses the qualities of molten steel in the very highest degree, without requiring to be tempered by the existing process, which, as is well known, offers no certainty—while the result of the new method is sure." * * A variety of objects have been manufactured with this silicon; which are about to be submitted to public exhibition on the Place of the Hotel de Ville, at Saint-Etienne.

DECORATION OF THE NEW HOUSES.—Mr. Herbert, A.R.A., has received a commission for the Hall of Poets. Mr. Dyce has been commissioned to execute a work for the House of Lords.

RESTORATION OF ETON COLLEGE CHAPEL.

WE mentioned some time since that a limited competition was going on for the commission to restore and decorate this chapel. The roof, amongst other things, is understood to be constructively so defective, as to render alteration absolutely necessary. The competitors were five in number, and Mr. Shaw, Mr. Benjamin Ferrey, and Mr. Nesfield were appointed to select and recommend the best plan. They met on Monday last, and after due consideration pronounced unanimously in favour of the design submitted by Mr. Deason.

Mr. Ferrey was originally included in the list of competitors, but declined sending in.

A second portion of stained glass has just been placed in the large altar window. The whole of the three compartments are now filled with the Crucifixion and Resurrection; the twelve apostles are to occupy the remaining lights. Painted glass is in progress for the two side windows next the altar. The whole of the interior of the chapel will no doubt be highly decorated.

THE PILE DRIVING MACHINE.

The *Devonport Telegraph* has the following notice of the application at Morice Town of the invention which we described in a recent number.

The application of steam power to the purposes of pile driving, which the extremely ingenious, but at the same time simple invention of Mr. J. Nasmyth has secured, renders what was the most tedious and laborious portion of works on the sea-shore the most commonplace; and, in its application at the new works at Morice Town, we understand effects a saving of time equal to nearly two years, and in the amount of expense no less a sum than fifty thousand pounds. But for this invention the great sea wall would have had to be built in several compartments, as with the power before used it was found impossible to erect a coffer-dam of the required length strong enough to resist the force and immense weight of water without. The fears of the Admiralty and their engineers on this point were so strong, that they were with some difficulty overcome; hence the length of the delay in proceeding with the works, which at one time gave rise to reports of the site being abandoned by the Government; and not until the contractors offered bonds of indemnity, such as could not fail to convince Government of their great confidence in the plan proposed, was consent given to the required deviation from the specifications. The length of the great coffer-dam or sea-wall now forming will be upwards of 1,600 feet, and will be composed of a double row of piles, varying from 55 to 66 feet in length, and from 14 to 16 inches square, driven as closely together as possible, so as to form two vast impervious walls of timber, which will effectually exclude the sea during the period occupied in the excavation of the soil within, and the formation of the granite walls of the great steam dock. The dimensions of this coffer-dam are quite unprecedented, and its gigantic proportions have resulted from the high opinion of the powers and capabilities which Messrs. Baker and Son, the contractors, had formed of Mr. Nasmyth's invention before it had been put to the test of actual trial; and to these gentlemen too much praise cannot be given for the enterprising spirit which they exhibited in this matter, and we sincerely trust they will reap the most substantial advantages as their reward, in being the first to introduce so important a machine to the notice of the world. There are two features which most remarkably distinguish this important invention from all pile-driving machines. These consist, in the first place, in the direct manner in which the elastic power of the steam is employed to lift up the mass of iron by whose fall on the head of the pile it is driven into the ground; and, secondly, in the peculiar manner in which the block of iron and its guide, case, and cylinder, are made to sit, as it were, on the shoulders of the pile, so as to predispose and assist it in its descent into the ground. In this manner the entire dead weight of this part of the apparatus is rendered available, and made to act in a most important degree as a portion of the pile-driving agency; and as the entire part of the apparatus follows the pile down, it never ceases for one instant to yield a most important assistance towards the attainment of the desired object. The energy and rapidity of the blows, which are dealt out on the head of the pile at the rate of upwards of seventy per minute! is such that, assisted by the dead weight of the apparatus sitting on the shoulders of the pile, it is seen to sink into the ground in steps varying from 6 feet to 3 inches per stroke, the whole operation of driving the pile, 60 feet in length, occupying little more than from two and a half to four minutes; in fact, such is the ease and rapidity with which these enormous piles are driven into the ground by this powerful machine when compared with the old system, that the spectator is as much inclined to laugh at the ridiculous contrast, as to be astonished at its vast powers and the perfect control under which it is placed. The whole movements are governed by one handle, regulating the supply of steam from the boiler to the cylinder and piston, which yields the exquisite rising and falling motion of the monkey or hammer that drives the pile. We were particularly attracted by the simple and efficient contrivance which Mr. Nasmyth has adopted for carrying the steam from the boiler to the cylinder on the head of the pile, namely by wrought-iron jointed pipes, which fold in the most beautiful manner in a succession of joints or lengths, so as to accommodate the length of steam at all the various heights the apparatus, which having to descend through a perpendicular space of upwards of 50 feet, in following down the sinking pile double up or fold together in the most perfect yet simple manner. The same boiler which supplies steam to the actual pile-driving apparatus, likewise affords steam to a small engine which is employed to give the requisite lateral motive action to the whole apparatus in either direction, so as to cause it to move from pile to pile. This same small engine "hoists and pitches" the piles in the most perfect manner, also raises the pile-driving apparatus to the head of the highest pile, some of which are 80 feet in height, and places it on the shoulder of the pile with the utmost ease and exactness. Some idea of the performance of this machine may be formed, when we state that it drove a pile of 66 feet in length in four minutes, which with the ordinary machines upwards of five or twenty hours would be occupied in doing the same work; to say nothing of the entire absence of all damage to the head of the pile, which, in the case of the employment of Nasmyth's machine, is not in the slightest degree injured, while driving such a pile by the ordinary machine the head of the pile is shattered and split by the repetition of its destructive and ineffective blows, as to require to be cut off and reheaded several times during the operation. Practical pile drivers will have some idea of the remarkable superiority in the action of Mr. Nasmyth's machine, when we inform them that the iron hoop, hitherto employed to preserve the head of the pile from being split into matches, in the steam pile-driver is entirely dispensed with, and the heads of the piles, after driving, bear scarcely any evidence of force having been applied to them. It is almost impossible to form a conception of the vast and important results which will issue from this new and powerful agent in the construction of great marine works, harbours of refuge, piers, embankments, the recovering of land, timber embankments for railways, and a vast number of other important works, which will now be as easy of execution as the most ordinary of undertakings, and the most extensive and tedious of processes be reduced to one of the most simple and rapid of operations.

BURNING GLASSES EXTRAORDINARY.—On Sunday week, Mr. Morgan, draper, of Abergavenny, on going to his counting-house was surprised at smoke arising from a bale of shawls, of first-rate quality, which had just arrived. The skylight of the room is composed of panes of glass, the centres of some of which present that protuberance, technically denominated "bull's eyes;" these form a focus, concentrated the rays of the sun, and the consequence was, that a large and unsightly hole was burned through the pile of shawls, whereby considerable damage was sustained; fortunately the goods were insured.—

EXAMINATION IN LINES AND CURVES.*

17. What is a parabola, and in what does it differ from the hyperbola? Give the description of the difference in words that an artist can understand.

18. Point out examples of applications of the parabolic form in architecture.

19. How are the terms convex and concave applied to lines?

20. What is a point of contrary flexure in a curve? and point out instances of different forms of inflected lines used in architecture.

21. What is a cusp of a curve or line, and what are their different varieties and modes of tracing them, or lines having them?

22. What is a node of a curve or line, and what are their different forms, and the simple means by which they may be traced? and shew also how parts or the whole of different nodes may be applied in architecture.

23. What is a waved curve or line, and what are their different varieties? Point out instances of their application in architecture.

24. Shew how by continuous motion a wave line may be drawn, having the quickest part of each convexity, and the quickest part of the concavity, of the same degree of curvature.

25. Shew how by continuous motion a gradation of waved lines may be drawn between a given form of a deep wave and a shallow one, and shew when such means would be useful in architecture.

26. Shew another example of a wave line when the curvature of the quickest part of one convexity is large, the quickest part of the concavity is less, and the quickest part of the next convexity still less.

27. What is a spiral line, and what are their different varieties? JOS. JOPLING.

STIMULANTS FOR ARCHITECTURAL STUDENTS.

THE Society of Arts offer their gold medallion for the best original design for a national edifice for the reception of monuments, statues, and busts of eminent public men deceased, with galleries to contain pictures commemorative of their deeds. The building to be designed in a classical style of architecture, and to be supposed to be placed on an eminence in the vicinity of London, as, for instance, Primrose Hill. The drawings to consist of a plan, elevation, and a transverse and longitudinal section to a scale of three-quarters of an inch to 10 feet, and a perspective view. Also a gold medallion for the best design for a hemispherical timber-roof, circular base plan 100 feet diameter; framed to admit of an aperture for light, in the centre, of 25 feet diameter. The quantity of timber to be specified in cubic feet, and likewise the weight of wrought and cast iron respectively. The design to consist of a plan and section, with such parts shewn as large as may be necessary to fully explain the mode of construction, and to be accompanied by a model of one quarter of the roof to a scale of not less than three-eighths of an inch to a foot. The model and drawings to be sent in on or before the third Tuesday in January, 1846; and, if rewarded, to become the property of the society.

They further offer rewards for

1. Any improvement in the construction, drainage, or ventilation of barns, stables, and other farm-buildings, or in the arrangement of a farm-yard, or in the construction and hanging of gates.

2. For the best method of constructing economical and durable fencing for agricultural puposes, particularly as relates to the preservation of posts and other timbers inserted in the ground.

3. For any improvement in the method of building, heating, ventilating, and managing hot-houses, conservatories, or other constructions for similar purposes.

TENNIEL'S CARTOON.—We are glad to learn that the coloured sketch exhibited by Mr. Tenniel in Westminster Hall, to which in our review of the cartoons much commendation was awarded, has been purchased for 100 guineas by Mr. Lewis Pocock, F.S.A., the able honorary secretary to the Art-Union of London.

* See page 340 *ante*.

DOMESTIC CHAPELS.

THE retention of domestic chapels was one of the last vestiges of old piety to yield to modern indifference. The custom of attaching chapels to mansions of commanding dignity survived even the shock of the outbreak of 1688: nay in the palaces of Blenheim and Chatsworth, built by two of the chief actors in that scene, they are to be found; while, to quote a still later case, when during the last century a modern dwelling was reared within the walls of Warwick Castle, the chapel was not forgotten. Such chapels of course are quoted not as models, but as instances. It was reserved for another generation utterly to alienate private pomp from gratitude to The Giver of all good things. Now, as may be supposed, people are again beginning to require them, and we may be reasonably accused of neglect for not having sooner treated on the subject.

Regarding the stile of the chapel, if the house be of any period of pointed architecture, or if it be of that no-stile so frequent in our rural abodes, there will, we trust, be little doubt that the only style in which it can possibly be built is the middle pointed. If, however, the chapel have to be attached to an Italian villa, there is less unreasonableness in questioning whether or not it should correspond with the style of the mansion to which it is to be adjoined. But we have no doubt as to what ought to be done. We should say to the proprietor: boldly acknowledge the former mistake, and let your chapel at least be in correct style, and the first fruits of your amended taste. (?) It is no part of our office to recommend second-best courses, and therefore we shall say no more about style. Ancient canons forbid the placing of living apartments *over* a consecrated building, and reverence would equally counsel against their standing under them, when, as in the case of a country house, there is no lack of surrounding space to occupy. Therefore our chapel must be detached from the adjoining buildings, and if possible should be further separated from the rest of the house by a sort of cloister; and the chaplain's apartment too (which may be adapted to serve also as a sacristy) should rather range with the sacred building, than be merely one or two rooms of the secular portion of the house; if, that is, it be intended that he should not degenerate into a carpet-parson,—a risk very possible,—one which has innumerable times occurred, and should in every legitimate way be avoided.

Domestic chapels form, just as much as cathedrals, parish churches, college chapels, cemetery chapels, a distinct genus of places of worship, and like other genera have their own peculiar rules, to be deduced from the nature of the case, to govern their construction and arrangement. At first sight it might be imagined that the college chapels would be a safe guide to follow in their arrangement: there is, however, this cardinal difference between the two, that college chapels are for the use of a community in its nature religious,—domestic, for one in its nature lay. Thence it arises that the internal disposition of the one will be totally different from that of the other. College chapels, being for the sole use of a religious body, are all choir, the nave being reduced to the functions and dimensions of a mere ante-chapel. Domestic chapels, on the other hand, only require, as a general rule, the chancel of one priest, the congregation being disposed in the nave, and therefore the chancel should not bear a greater proportion to the nave than the one does to the other in a parish church. We do not here refer to episcopal chapels, which should be treated separately, but of which we may venture to assert that they bear, or should bear, considerable affinity to college chapels, and that therefore while accommodation is provided for the lay members of the household in the nave, ample room should be afforded in the stalls for the bishop and his clerks. Again, from the limited dimensions of the domestic chapel, coupled with the privacy which invests it as a place of family worship, it is unnecessary for the distinction between the nave and the chancel to be indicated by any external difference of size.

Externally the lofty roof should be crowned with a cross, and the whole architecture should be of an ornate cast. Internally the architect must be especially careful not to make the building toy-like, and a Lilliputian imitation of more vast religious structures. The desire of giving the greatest satisfaction to his patron, may not improbably make him incur the risk of doing this. For instance, the roof need not always be groined. On the other hand, he should be still more careful to admit nothing that was not, in proportion to the means of the householder, very costly. The chapel should always be the richest apartment in the house, and this in these days of exceeding luxury is not saying a little.

The chancel, which should be raised at least a step, will of course be screened off from the nave, and contain all the requisite furniture, including stalls for such clerks as may from time to time be inmates of the house.

The ancient distinction of the sexes should be invariably maintained in the arrangement of the nave, the men occupying the south, and the women the north side. The chapel of Haddon Hall has aisles to the nave, of which the north is very narrow and unoccupied, but the south still retains its open seats. This chapel is in itself very picturesque, but we should not recommend it as a model; it is far too like a parish church in miniature. Aisles are both cumbersome and unnecessary in domestic chapels.

The nave will contain both lettern and litany-stool; on *no account* however a font. As an article of general use a font is unnecessary in a private chapel, as an ornament worse than meaningless, as a provision for cases of emergency a dangerous temptation.

The entrance, if possible, should be either on the north or south side, and as we have before said, from a sort of cloister. The arrangement of the belfry, and its nature, must depend upon circumstances. We need not say that orientation must be attended to.—*Ecclesiologist, New Series.*

IRON AND THE IRON TRADE.

A VERY important improvement in the manufacture of iron has been made by a Mr. Green, of New Jersey, effecting a saving in labour and material of 33 per cent. The process is a modification of Mr. Clay's patent for the production of iron direct from the ore by the use of anthracite, and is as follows:—six tons of pulverised iron ore are mixed with two tons of anthracite coal dust, and the whole poured in at the top of a reverberatory furnace upon the slag bed below; it is then to be worked into a loose granulated mass, and pushed to the furthest end of the hearth: four tons of cast pig-iron are then to be introduced, and, when at a white heat, it is to be heaped on the already half fused ore, and worked up into balls, to be treated in the same way as if the whole were pig metal. It is expected the process will enable every furnace to double its make, and, of course to render the metal much cheaper.

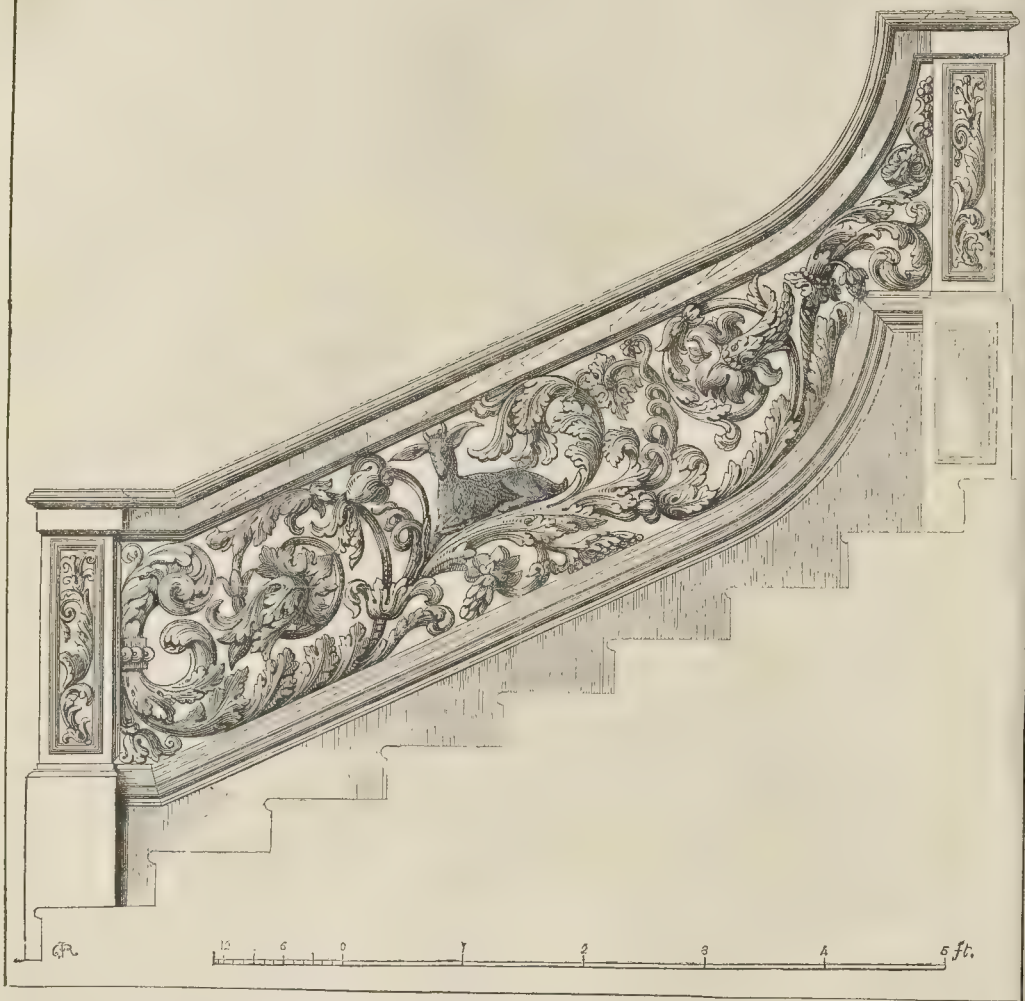
At the late meeting of the British Association, at Cambridge, Mr. Watt read a report on the Iron Trade in Scotland, from which it appears that at the present moment there are extensive new iron-works erecting in Scotland, especially in Ayrshire and in Renfrewshire. At several of the old works considerable additions are being made to the number of furnaces now at work. The increase in the annual quantity of pig iron smelted in that country in April, 1845, amounts to 37·4 per cent. And there is every appearance that before another year expires, a similar increase will be made in the amount of iron produced in Scotland.

Sir J. Guest, of Dowlar's Works, in evidence before the Import Duties Committee, 1840, stated that—

The iron made at the beginning of this century amounted to....	150,000 tons.
In 1806	258,000 ,,
In 1823	452,000 ,,
In 1825	581,000 ,,
In 1828	703,000 ,,
In 1835	1,000,000 ,,
In 1836	1,200,000 ,,
In 1840	1,500,000 ,,

Mr. Jessop, of the Butterley Works, estimated the annual produce in Great Britain, exclusive of Ireland in 1840, at 1,396,400 tons, and the quantity of coal used for smelting that quantity was 4,377,000 tons, besides 2,000,000 tons for converting into wrought-iron.

CARVED STAIRCASE, BELSIZE HOUSE, HAMPSTEAD.



CARVED STAIRCASE, BELSIZE HOUSE, HAMPSTEAD.

The richly-carved staircase still remaining in the old portion of Belsize House, Hampstead, is well deserving a careful inspection; it is a more elaborate, but certainly not so elegant a specimen as the one by Inigo Jones, given in a former number of the Builder;* but this staircase is of late date, either that of the reign of James II. or the one following, when the architecture of the day was overflowing with heavy and senseless ornament. Belsize House was at that time in the possession of the Earl of Chesterfield, and we can imagine that the greater portion of the old building having been pulled down, some new parts and rich decorations were added to it by that nobleman. The staircase is of considerable size; there are four large compartments, of which the print shews the first on the ground floor, and four smaller ones: the whole of these are varied in design, and the carving perfect on both sides. The effect of it at present is rather injured by being painted to imitate bronze.

Belsize House was, a century back, a celebrated and rather depraved place of amusement; the accounts respecting it are very curious. It was necessary for the protection of its visitors, to have first twelve and afterwards twenty "s'out fellows compleatly arm'd, to patrole betwixt London and Belsize, to prevent the insults of highwaymen or footpads, which may infest the road." A comic poem of the date 1722 declares—

> ——"that thirty men shall be
> Upon the road for their security:
> But whether one-half of this rabble-guard,
> (Whilst t'other half 's asleep on watch and ward,)
> Dont rob the people they pretend to save,
> I to the opinion of the reader leave."

Full accounts of this place will be found in Lyson's "Environs" second volume, in Park's "Topography of Hampstead," or in the fourth volume of the "Pictorial History of England;" the latter work gives a representation of the front of the house, copied from a very rare print. C. J. Richardson.

* See Vol. II. p. 554.

PROPOSED NEW UNIVERSITY OF LONDON.

In consequence of the great increase in the number of candidates for matriculation in the University of London this year, the chambers of the University at Somerset House not being sufficiently spacious to accommodate the whole of them, the principal of King's College, on being applied to, placed one of the lecture-rooms of that institution at the disposal of the senate during the examination. This want of room shews the necessity, and suggests the propriety, of erecting a structure, that shall be ornamental to the first city of the empire, worthy of the age in which we live, and suitable to the present and future wants of a Metropolitan University. The editor of the *Morning Chronicle* has recently penned a few remarks on the subject. He says: "The present 'apartments' have become ludicrously insufficient for the purposes for which they are required. What must be the impression on the mind of a stranger (drawing his idea of the appearance of an English university from the noble piles of building which adorn our ancient seats of learning) when he asks for the University of London, and is directed to a staircase (which he of course takes for the porter's-lodge)—and, on entering, sees written up in large characters, 'University of London on the second floor!' The second floor might indeed do well enough for the cradle of the University; but seeing that this institution is no longer an infant, but now in the eighth year of its age—that it is already fed by twenty-five colleges, and threatens to become a very giant in stature,—it does seem but common justice to give it room enough to stretch its limbs in. It has been 'cabin'd, cribb'd, confin'd' long enough. It ought to have a proper 'local habitation' now that it has acquired a 'name.' And, seriously, now that the legislature are providing so handsomely for the Irish colleges, we think that something ought to be done for the benefit of colleges in England."

ANCIENT IRON-WORK, DARTMOUTH CHURCH, DEVONSHIRE.



IRON-WORK TO DOOR OF DARTMOUTH CHURCH, DEVONSHIRE.

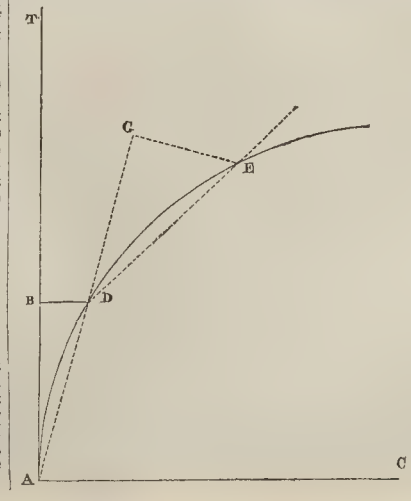
Considerable taste and skill in ancient times were displayed in all kinds of iron-work; this has been already most efficiently pointed out in these pages. The subject represented above, is a striking example of the boldness of ancient designers and workmen, and such that is indeed calculated to make their modern representatives stare. The style of the iron-work on the door at Dartmouth Church, is that of the reign of Edward III. The date, which appears 1631, is a puzzle; it either proves that in some parts of the country the different styles lingered for a considerable period longer than we now please to allow, or it proves that the iron-work belonged to an older door, and was brought there in that year. This latter supposition is the more likely to be correct, as it appears imperfect towards the lower portion, as if it had been made for a taller door; the style of the church is that of the reign of Edward III.

C. J. Richardson.

SETTING OUT CURVES ON RAILWAYS.

Your correspondent, "Amateur," in a recent number (June 14) of The Builder, requested to be furnished with a method for setting out curves on railways. In the absence of any answer being yet afforded to his inquiry, I venture to give the one I have usually adopted, and which in practice I have found to be simple and expeditious.

It is obvious that from the great radii of railway curves in general it would be impossible to strike them as in the usual manner, from a fixed centre. But the known relation between the sine and versed sine of an arc affords a ready means of effecting the same object.



For instance, in the annexed diagram, let A be the point whence the curve is proposed to commence with a radius, A C, of 60 or 80 chains, as the case may be. From the point A set off on the ground any convenient distance A T, of say 10 chains, marking each chain in its length. Then at the point B, the end of the first chain, set off B D at right angles to A B. Now if the ordinate B D be taken equal to the versed sine of an arc of a circle of the given radius, with a sine of one chain D, is the locus. of the curve to be described at that point. The formula for calculating the value of B D is of easy application, being always equal to radius $-\sqrt{\text{rad.}^2 - \text{sin.}^2}$; and the same process will apply to any other required point in the curve, merely substituting the value of sin^2 in the expression, as the distances in the tangent, A T, increase from the point A. It is advisable, more particularly in uneven ground or where the space is confined, to recommence the operation at about every 8 or 10 chains, which is effected by setting out a new tangent to the curve. This may be done by joining the last ascertained point to the next but one from it in the curve, viz., that cor-

responding to the ordinate on the tangent at two chains back. Then a line ranged forward parallel to this chord, and touching the curve at the middle point, will be the tangent required.

The above method will be found convenient, as it affords a facility for calculating tables for the versed sine of an arc of any radius from the one already obtained; for since the curvatures of circles vary inversely as their radii, a simple proportion will give the value of the versed sine of any other required. There is another method which is sometimes adopted by engineers, and recommended by its apparent simplicity, it is as follows: —Upon the tangent, A T, is taken any length, A D, as before; and from B is set off B D $\left(=\frac{A B^2}{\text{diameter}}\right)$ perpendicular to A T, then the chord A D is produced to G, making D G equal to A B; and from G is drawn the perpendicular G E equal to 2 B D, whence the points A D E are assumed to be in the circumference of the same circle, and other consecutive points are found by producing the chord D E as before, and setting off perpendiculars each equal to 2 B D.

It is scarcely necessary to observe that this method is not only erroneous in principle, but the curve so obtained is not a segment of a circular arc, but, on the contrary, one where the radius of curvature is continually increasing.

In the *Mechanics' Magazine*, No. 801, for December 15th, 1838, I gave an investigation of the principle, wherein it was shewn that in arcs of small radii the error would be serious.

G. Hawkins.

IMPROVEMENT OF THE KING'S SCHOLARS' POND SEWER.

Having frequently observed considerable quantities of sewerage matter, as also silt, sand, stones, and other substances, lying upon the channel of the King's Scholars' Pond Sewer, between the outlet next the Thames, and Elliott's Brewery, at Pimlico, and as this accumulation creates not only an abominable nuisance to this improving neighbourhood, but also cost a considerable sum of money during each year in removing it, I beg to suggest a simple method by which very much of the nuisance so frequently complained of may be obviated, and at the same time the great expense which now attends its removal may be entirely done away with. But in the first place I will explain how these deposits and accumulations are produced.

There are two pairs of flood-gates at the outlet, which is 18 feet wide, one pair being scarcely or never used, but is intended to supply the place of the other should this ever get out of order. At every flux of the tide, and when it rises to the *sill* of the outlet, one pair of these gates is closed for the purpose of preventing the river-water from flowing into the sewer, which is by this means formed into a simple reservoir, and retains the whole of the sewerage matter, &c., that flows into it, from the time the gates are shut, till they are again opened, this being from four to five hours during every tide. Now as the sewerage-water accumulates or rises in the reservoir, the animal and vegetable refuse, and other substances, which are carried along in suspension by the velocity and action of the descending water, are thrown down, and thus become deposited and accumulated upon the channel; these substances being for the most part of greater specific gravity than that of the water; and, therefore, when it is still they settle and subside to the bottom. The gradient all along this portion of the sewer being very little, the water flowing down it here soon increases in height, and thus the action and force of the stream becomes very much expended at a considerable distance up the sewer; the lighter particles of matter being carried forward, while the more bulky and heavier, become deposited where the water loses its principal velocity.

Had scientific and proper principles of drainage been observed when this portion of the sewer was arranged and constructed, at least 5 feet more fall could have been given to it, so as to have brought the discharging sill of the outlet somewhat under low-water mark in the river, and which would not only have greatly improved the drainage of the lower portion of Westminster, by allowing the collateral sewers a greater gradient than they now have, but the increased fall would have imparted such an amount of velocity and action to the descending stream at this part as would have prevented the deposition of matter, and consequently would have carried it direct into the Thames. The height of the water at each pent in the reservoir varies considerably, it rising higher on those days when the water companies' mains are charged for the service of the public, and also during rains and storms. But it scarcely or never rises so high as high-water mark outside the flood-gates, and when the tide recedes to, or a little below, the level of the accumulated water in the reservoir or sewer, the gates are forced open by the superior pressure inside, and thus the water gradually and slowly sinks and flows out with the ebb tide, leaving the deposited matter upon the bed of the sewer.

Now what I propose in order to prevent these accumulations for the future is this: that the gates at the outlet be kept closed during each ebb tide, *until it leaves the sill* of the outlet. Then they should be opened and the descent of the current not having any thing opposed to it, such a high degree of velocity and scouring action would be by this means imparted to the stream, that it would raise up and carry along with it the substances which were deposited during the time the water was accumulating in the reservoir, and thus much of the stench which now infects this locality would be done away with, and great expense to the public saved also.

An Observer.

THE GILLESPIE MONUMENT IN COMBER.

On the 24th ultimo the monument recently erected to the memory of Major-General Sir Robert Gillespie, was publicly opened, upwards of 25,000 persons being present, including the members of 119 masonic lodges, many of whom had travelled miles to attend the ceremony. The monument consists of a well-proportioned square pillar and pedestal 55 feet high, divided into compartments on the four faces, on each of which is sculptured a representation of one of the principal scenes of Gillespie's career; and it is terminated by a statue of the General himself, holding his sword in his right hand. Gillespie having been distinguished as a freemason, the south side of the pedestal is sculptured with masonic devices. "Brother" Johnston, the architect, received much praise for the manner in which he had carried out the intention of the committee. The proceedings took a masonic character, and one of the speakers, Alexander Grant, Esq., of Derry, made some lengthened observations on the value and purpose of the institution. He remarked especially on the manner in which it had withstood the destroying hand of time, and that its tendency was to effect good. "As Masons," said he, "we consider the entrance of a candidate into our order as typical of the entrance of all men on this their mortal existence. It inculcates the useful lesson of natural equality and mutual dependence—it instructs us in the universal principles of beneficence and charity, to seek the solace of our own distress, by affording relief and consolation to our fellow-creatures in the hour of distress and affliction. Above all, it teaches us to bend with resignation and humility beneath the chastening hand of the Almighty, at the same time to engraft his law in our hearts. Further, it instructs us to cultivate the intellectual faculties, and to trace it through the paths of heavenly science, even to the throne of Omnipotence. To our minds, thus modelled by virtue and science, masonry, however, teaches one great and useful lesson more; she leads us, by contemplation, to the closing hour of our existence. Masonry has been not only mental wealth to the poor man, but softened the asperities of life and lightened the dark shadows of adversity with a smile."

Old Greyfriars' Church, Edinburgh.—On the 10th instant, the preliminary operations for the demolition of this church were undertaken in the presence of the lord provost, and several other of the city authorities. By means of a large beam which was employed as a battering-ram, the large pillars which separated the southern aisle from the main one were levelled with the ground, bringing with them the whole of the roof which they supported, and leaving only the small portion covering the northern aisle standing.

ST. WILFRID'S ROMAN CATHOLIC CHAPEL, HULME.

A fortnight ago, the anniversary of St. Peter and St. Paul, the chancel of St. Wilfrid's, Bedford-street, Hulme—which had been for some time closed for decoration—was re-opened. According to a local paper the eastern end of the church has a spacious chancel, and two lateral chapels, one dedicated to the Virgin, and the other to St. Thomas of Canterbury. The chancel is between these; and it is to the decoration of this portion of the church that the congregation has been directing its efforts; and to aid in defraying the expenses of which, the collections of the day were made. The chancel is divided from the nave and lateral chapels by open screen-work of oak, the cusps and mouldings gilded and picked out with crimson. The screen next the nave is surrounded with a large rood or crucifix, with figures of the Virgin-mother on one side, and St. John the Evangelist on the other, and on either side of these, three massive gilt standards bearing large wax lights. The chancel is of large dimensions, about 25 feet square, with an open timbered roof. To ensure the stability of the work, this, from rooftree to floor, has received five or six coats of oil-paint, upon which the decorative work has been done, forming one glowing mass of gold and colour; and in design and execution it is described as being, for its extent, the richest specimen of polychromic painting in England. The eastern end is adorned with four windows of stained glass, and the south side with one, all executed by Mr. Wailes, of Newcastle-upon-Tyne. The roof of the chancel is of azure, thickly sprinkled with gold stars; the rafters of crimson and gold, with rosettes and scrolls. The walls are covered with a simple diapering of blue, white, and red, down to the level of the rere-dos (or screen at the back of the altar), when the pattern increases in intricacy of design, richness of colour, and the more profuse use of gold. At the extreme height of the eastern gable, on a gold ground enclosed in the mystical *vesica piscis*, is the figure of the Lamb, and below, in round medallions, are two angels in attitudes of adoration, clad in white robes, and bearing tapers. At the same level, along the side walls, are five other angels in robes of gold and crimson, bearing labels inscribed with sentences from the hymn, "*Gloria in Excelsis Deo.*" On either side of the eastern window is a large full-length figure, one of St. Wilfrid, in whose honour the church is dedicated; and the other of St. Edward the Confessor. The upper part of the rere-dos has shields alternately bearing the family cognizance of St. Wilfrid, and the arms of the diocese of York, of which he was bishop. Beneath these again are seven medallions containing the heads of as many Anglo-Saxon bishops. The corbeils are of crimson, with the emblem of our Lord's passion and death blazoned in gold; the reveals of the windows and arches are of a rich pattern; the mouldings of the arches, piscina and sedilia, the pillars of the reredos, and of the altar, are of burnished gold, which, mingling with, heightening, and relieving the rich profusion of colour with which the whole abounds, produces a gorgeous *coup d'œil*. The design was furnished by Mr. Welby Pugin, and executed by Mr. William Boardman, of Manchester; the heads and figures being painted by Mr. Keeling, of Manchester. No cost appears to have been spared upon the work.

St. James's Church, Norland, Notting-Hill.—This edifice was consecrated last week by the Bishop of London, but at present it is minus the steeple, a deficiency which necessarily detracts from its appearance. A subscription is, however on foot, to enable the trustees to erect the steeple; and as the sum of only 250*l.* is wanting, it is expected that the object will be speedily accomplished. The seats, which are constructed very low, will accommodate 750 persons, and one half of them are free.

Fine Arts in Egypt.—We learn from Paris, that the Pacha of Egypt proposes to establish an academy of the fine arts in Cairo, and that a number of young men have been sent at his cost to Rome to study painting and sculpture there, with the view of acting as the first professors.

LONDON STONE.

"It is so sure a Stone that that is upon sette,
For though some have it thretteWith Menaces grym and grette,
Yet Hurte had it none:
Cryst is the very stone
That the Citie is set uppon,
Which from al his Foone
Hath ever preserved yt."

So singeth Master Fabian, with more good will, belike, than harmony, and possibly among the several characters ascribed to this mysterious stone, whereof many have conjectured, but none professed to state precisely, the origin, that of a Christian monument, according to the old City chronicler, may have likewise appertained to it.

But it is to an earlier period that we are to carry our inquiries as to its original use and destination.

Wren, who had opportunities for practical investigation, which might have done much toward the knowledge of ancient London, in the hands of a better antiquary, found, in the immediate neighbourhood of this stone, such extensive remains of buildings, evidently Roman, as led him to assert, supposing it to be the milliarium or standard milestone, similar to that in the Forum at Rome, that it partook of a more extensive form, and appeared, in some degree, to have imitated the Milliarium Aurem, at Constantinople, which was not merely a pillar like that at Rome, but a roofed building.

Now, granting the roof, which is, indeed, a thing quite probable, we may suppose an edifice very much like an old market-cross. The goodly stone, of which but a morsel now survives, would form the central pillar; conceive this, surrounded by a platform with steps, and having a pent or roof, supported by a series of inferior columns, and you have a building of a Roman character, and withal the model, perchance, of those central crosses which date from a period as early, for aught that is known, as that of the Saxons, who learned the forms of architecture from their Roman predecessors. And now, good reader, you may set up statues of Fortune and Mercury, for we will conclude this not only to have been the point whence branched off the principal highways, but that it was likewise the place of eloquence, where proclamations were addressed to the populace. You may add, likewise, if it seemeth so to behove you, the statue of the Emperor Theodosius, in whose honour the name of the ancient city, Latinised into Longidinium, according to Antininous, or otherwise Londinum and Londinium, from the elements of its Celtic denomination, was for a time suspended, and that of Augusta bestowed upon it instead.

But — for we have begun somewhat before the beginning, so far as matter of surmise is concerned—let us now take an earlier view of this renowned city. Imagine we, then, a space cleared from the primeval forest. The various tribes of the early inhabitants living in a state of a predatory warfare, some natural defence was necessary to a people who had not learned the art of building walls, or constructing artificial bulwarks much more efficient than the stockade or fence of felled trees surrounding the village. The site of this primitive city is accordingly chosen so as to be protected on all sides: the Thames on the south, and on the north the marshes, afterwards known as Fensbury, were traversed by certain rivers running into the former, and forming the boundaries of the settlement.

A street of hovels runs east and west, leaving a space in the centre, and in this space stands a perpendicular mass of unhewn stone, even such as they of yore set up for worship and sacrifice in the East, and similar to the grey and solitary pillars which appear inthose waste moors of Cumberland and other parts of England, and furnish the untaught peasant with the theme of many a wild tale and fabulous legend. This particular stone, standing in the midst of Lon-dun or Llwn-thun, the unhewn altar of the Druidic hierarch, was then, gentle reader, upon the authority of, "it has been supposed," no other than the identical London Stone.

And, verily, it is a pleasant supposition; and let us only adopt it as such, and belike it will soon amount to a belief; and why should not the judicious antiquary have his pet weakness to cherish like a foundling, hugged all the more closely the more it is rejected of others? Marry, good friend, the thing is wholesome, and in this shrine will we lock up all our credulity. The Romans took, then, this venerated monument, and dedicated it to those tutelary deities who presided over the destinies of wayfarers, and all such as would propitiate the goddess Fortune.

Having made this declaration of faith, it now behoves us to descend from our altitudes, and betake us to some inquiry concerning what history sayeth touching this, our subject, and eke what tradition, which latter is but an unwritten history, and therefore unsophisticated, and oft-times nearer to the naked truth. Before the time of the Conquest, then, and that is a fair starting-point to begin with facts, thus sayeth worthy John Stowe:—"In the end of a faire written Gospell booke, given to Christ's Church, in Canterbury, by Ethelstane, king of the West Saxons, I finde noted of Lands or Rents in London, belonging to the said church, whereof one parcell is described to lye neere unto London Stone."

London Stone, be it said, stood not, of yore, in its present place, but on the other side of Watling-street, which was formerly one of the three great thoroughfares running east of Roman London. There was an open space where several streets met, and surrounding which were the markets which supplied the city with provision, such being the only legal markets according to a decree of Hammond Chickwell, in the reign of Edward II., which sets forth that "none should sell fish or flesh out of the following places, viz., Bridge-street, Eastcheap, Old Fish-street, St. Nicholas Shambles, and the Stocks-market," the latter so designated by virtue of the provision made there in order to chastise and expose all cheating huxters, and such cozening knaves as dealt not honestly in their wares, according to the law of the Pied Poudre Court. This was the region of good cheer, for here, said Lydgate,

"Pewter pots they clattered on a heap;
There was harp, pipe, and minstrelsy."

There were ribbes of beef rosted, and pies well baked, and, while the substantial and strong-flavoured meats were ever ready to appease the hunger of the churl, the more dainty and appetising vivers, such as spiced frumetye, carpe in foile, larks ingraylede, and many other toothsome refections, were forthcoming at the call of gallants from the patrician purlieus of St. Catherine's Tower Royal, and Baynard's Castle.

Nor was good sack lacking to boot, be thou witness, shade of fat Jack! but thou never could'st become a shade. Here revelled, if Will Shakspere speaketh sooth, hotheaded Prince Hal and his frolicksome playfellows. The atmosphere is still redolent of canaries, and the nose of Bardolph sheds a fiery splendour over the spot like the livid effulgence of a stormy sunset.

But the glory of Eastcheap is departed, the Boar's Head is no more, and they who would behold its former site may seek it well nigh, even at the feet of King William's statue.

In the Saxon times and downwards, ere London had a Bourse, or Exchange, the font of St. Paul's and London Stone seem to have been resorted to for the ratification of various transactions; and a promise to pay a debt upon London Stone appears to have imparted an additional solemnity to the obligation, by the nomination of the locality where it was to be fulfilled, the shadow of its early sanctity probably taking the colour of the successive religious changes it had witnessed, until it was finally invested with a degree of Christian reverence, according to the spirit of the times.

Moreover, its great antiquity, for few men are without something of the spirit of antiquarian veneration, however little they may be conscious of it, may have given to it, in the minds of the citizens, something of that importance which is supported by an indefinite superstition.

It had thus become in the eyes of men, as it were, in some sort, the foundation-stone of the city, even as Fabian suggests, being the oldest visible object there existing—a thing by which the city and its greatness were to stand or fall, wherefore, as it hath been recited, treaties were there ratified in good faith between man and man, proclamations made, and all matters relating to boundaries begun and ended there.

In the same spirit, that arch rebel, Jack Cade, when he entered London at the head of the Kentish insurrection, marched to this place, and, in the presence of a great concourse of people, struck his staff on London Stone, exclaiming, "Now is Mortimer lord of this city!" "And here, sitting upon this stone," &c., adds Shakspere, who wist somewhat of the gnostic meanings of things, thereby implying, that, although a more dignified orator would have stood upon the stone or the platform thereof, if such existed, the would-be Mortimer, inspired, forsooth, with the putting down kings and princes, must loll at his ease, while he addresses a swaggering oration to his quaking worship, the mayor, and issues this lordly ordinance,

"I will make it felony to drink small beer."

The last notices of this ancient and solemn monument appear in this wise: — "On the south side of this high street, near unto the Channell, is pitched upright a great stone, called London Stone, fixed in the ground very deepe, fastned with barres of iron, and otherwise so strongly set, that, if Cartes doe runne against it through negligence, the wheels be broken, and the stone itselfe unshaken." This is its appearance according to Stowe.

And now the latter days fell heavily upon the venerable relique, which was at length overthrown, and in a dark age, and by the sentence of wicked men, without awe or veneration, doomed to destruction, as a nuisance!

But at this crisis there arose a bold and goodly hero (upon whose memory be every honest antiquary's benison), by name Thomas Maiden, of Sherbourne-lane, printer. This worthy moved the authorities, even the parish officers, to its preservation, which act of righteousness was fulfilled in the year 1798, whereby London may be said, in a figurative sense, to continue standing upon its ancient foundation.

And now, worthy reader, having detailed for your instruction as much as is chronicled of London Stone, and, perchance, somewhat more, in the process of this discourse, behold it shifted, and degraded from its dignity and uses, even where it hides its diminished head, curiously enshrined in a case of freestone. It seemeth but a little bit of what would appear to have been of a goodly bulk formerly; but remember that the unsparing wheels of fifteen centuries, if not many more, have passed over it, and even still it may be bigger than you wot of, for though we peep thus at its venerable crown, which is somewhat greater than your head though by no means as large as the dome of St. Paul's, yet may there be much more below ground, and enough, perchance, to serve as a goodly bulwark to that part of the church wall against which it standeth.

In curiously surveying the site there will, likewise, be seen another object which partaketh somewhat of the spirit of the earlier time, yea, the days when labouring men might rest awhile on their wayfaring, under heavy burdens, ere it had been ordained that all things had to be done in breathless speed and haste. This is a porter's shelf, many of which are now removed, but which presented formerly numerous invitations to the weary, accompanied by certain sage admonitions to boot, daintily imprinted to this effect, "Don't forget your parcels." Underneath we may find, lazily prolonging his rest even unto the pitch of snoring, an unthrifty member of the fraternity of London porters, who has, mayhap, essayed to carry too much of his namesake, over and above the sufficient load upon the shelf, and now wots but little of things ancient and modern, nor even of the preservation of his shins in a populous thoroughfare.—*Illuminated Magazine.*

STIR IN THE SCHOOL OF DESIGN.—The papers which have appeared in our columns on the state of the School of Design have excited very lively interest, serving to shew that a large number of our readers consider it as it really is, a subject of considerable importance. We have now before us statements of an extraordinary character bearing upon it, but feeling the possibility of committing injustice, both correspondents and readers must pardon us for postponing the consideration of them for another week.

INFLUENCE OF NEWLY-BUILT HOUSES ON THE HEALTH OF THEIR OCCUPIERS.

Dr. Sutro, in a recent number of the *Medical Times*, draws attention to the intimate connection kept up between the external air and the human organization, through the medium of the skin and lungs, and then he refers to experience to shew the slow and dangerous diseases to which inhabitants of newly-built houses are exposed, and he considers it, therefore, to be the duty of the sanatory police to remove or check these evils, by means of decisive prohibitory measures. The normal composition of the air is changed in newly-built houses, and thus diseases are created:—1st. *by an increased proportion of water* in the atmosphere; (*a*) from the wooden materials, which may be too new and damp, and which, therefore, fill the inclosed spaces with humidity, from evaporation; (*b*) from the stone materials, of which burnt bricks contain and attract the smallest proportion of humidity — field-stones more—sand-stones, and those prepared from dried clay, most; (*c*) from the materials used for cementing the stones, and for colouring and varnishing the walls. The mortar used for cementing the stones, consists of hydrate of lime, which gradually loses its water, and hardens by attracting carbonic acid from the atmosphere. The walls of those houses remain damp longest which have been plastered immediately after their completion, because the dried lime forms an external layer very difficult of penetration. As accidental causes, which may render houses damp, it is necessary to mention wet weather when building, damp situations, large cellars, and enclosure by other high edifices, which prevent the free access of sun and wind. 2nd. *The proportion of carbonic acid in the air* is diminished by the mortar which attracts it from the air, as before mentioned; it may also be attracted by colours containing acetate of copper, in which case the acetic acid escapes. No direct injury would, however, be caused by the diminution of carbonic acid, as it belongs to the matters excreted by the skin and lungs. 3rd. *The following foreign substances are mixed with the air:* — (*a*) *particles of lime*, which have been proved beyond doubt to exist in the atmosphere of new habitations, being suspended by the evaporation of the moisture; (*b*) *evaporation* of oil and metallic colours. Combinations of lead, copper, and arsenic are employed in the preparation of painter's colours. Lead volatilizes at the increased temperature of the rooms, copper does not, but wherever arsenical colours have been used, the air may absorb arsenious acid, and arseniuretted hydrogen gas may be formed by combination with hydrogen; (*c*) different chemical evaporations of damp new wood, mould, fungi, and grasses, which arise and putrify in damp habitations. P. Frank has already directed attention to the mould with which the furniture of newly-built houses is covered, and to the constant moisture of the clothes and linen, from which circumstance alone influences injurious to the inhabitants may be expected; for on account of the increased humidity of the surrounding atmosphere, not only is the skin prevented from free transpiration; but it is even induced to attract more moisture. This is also the case with the lungs, and thus the composition of the blood is rendered abnormal, and hydræmia of the whole body is produced; this is shewn by a pale anœmic face, wasted muscles, decrease of strength, sluggishness of all the functions, difficult respiration, and soft small pulse, which symptoms frequently terminate in external or internal dropsy. In other cases, protracted rheumatisms, articular inflammations, contractions or paralyses, are produced. In addition, the sojourn in a damp atmosphere is a frequent cause of the development of scrofula, intermittent and typhoid fevers, scurvy, quinsy, croup, pulmonary gangrene, puerperal fever, &c. Wounds and ulcers easily assume an unhealthy appearance, and have a tendency to take on gangrenous inflammation. The evaporation from organic substances favours the production of miasmata and contagions, for in no situations did the cholera occur more frequently, than in new, damp habitations. The inspiration of lime particles may predispose to diseases of the chest, or apoplexy. There can be no doubt, that the lead employed in painting the walls, evaporating at a higher temperature, may produce in those who are constantly exposed to its injurious exhalations, symptoms of chronic poisoning, disturbed digestion, colic, or paralysis, but this may be less feared from paints coloured by acetate of copper, inasmuch as it does not volatilize, and could, perhaps, at most by attracting carbonic acid, allow its acetic acid to escape. Chronic poisoning by arsenic may be produced by being exposed to the evaporation of Scheele's or Schweinfurt's green, from which arseniuretted hydrogen and arsenious acid often escape for a long time. Lastly, the constant moisture of the clothes and beds, and the frequent effect on the food causes certain injurious consequences on the constitutions of the inhabitants. Since then the early occupation of newly-built houses and recently plastered rooms cause so many diseases, and impart to children the germs of prolonged sickness and misery, it becomes the duty of the state to prevent these evils by all possible means. In order to guard against the perils and injuries enumerated, the author considers the following measures to be necessary. 1° Official examination of the materials before the commencement of the building, the enforcement of proper arrangements as regards the building itself. Thus, in public contracts for any building, to be erected in summer, the condition ought to be made, that the materials should be procured and dried during the preceding winter, and the term of completing any edifice should always be regulated according to the weather. Lead and arsenical colours for painting the walls should be entirely forbidden. 2° A house should not be inhabited before a fixed time after its completion had elapsed. Some authors think a year should be the period fixed. Considering the different effects of different localities, a house in town should remain uninhabited for a year, and in the country, where sun and air have free access, for half a year, after it has been finished. Should any house be dried before the time appointed, the proprietor might request the sanatory commission to examine it, when, if sufficiently dry, it might be inhabited. 3° A commission should be appointed for the purpose of examining every newly-built house, and testifying to its soundness before it is inhabited. Austria presents evidence of the feasibility of such an arrangement. 4° Instruction of the people as regards the injuries caused by inhabiting newly-built houses, &c., and as regards the means to be taken for the purpose of counteracting these injuries. The above commission not being generally introduced, nor put in force in cases of repairing, painting, &c., people ought to know to what diseases they are liable by exposing themselves to such injurious evaporation, and if compelled by circumstances to submit, they ought to use the following precautions: — first, drying should not be confined to one room, but to all the adjoining rooms. Mould, fungi, &c., should be rubbed and washed off with the greatest care. Fires of dry brushwood should be frequently lighted, and the windows should be opened. Muriate of lime or sulphuric acid should be put in different places to attract the moisture. To purify the air from other injurious matters, the following substances are recommended, chlorine, nitric acid vapours, fumes of sulphur, evaporation of vinegar, coarsely powdered and moistened charcoal put in different places, fumigations with the vapours of elder berries. For rooms already inhabited a solution of chloride of lime is the most proper substance. Drawers and other furniture ought not to be placed too near the damp walls, and if the latter should be covered with mould, they ought to be touched with a solution of chloride of lime. In addition, warm and dry clothes must be provided, and the bed must not stand too near the walls. Straw or feather-beds must be changed frequently, or exposed to the sun.

Birkenhead Market.—The new market-house at Birkenhead was opened on Saturday week for the first time. The building is one of the largest in the kingdom, and is said to be superior to any thing in its admirable arrangements and accommodations. Large quantities of eatables of all sorts were displayed at the various stalls, and the purchases made were such as to ensure success to the renters of the shops and stalls. The entire cost of the building is about 24,000*l*.

PURIFYING WELLS, &c.

Sir, — Seeing an extract from The Builder respecting a suggestion of mine for purifying wells, cesspools, &c., I beg to state that the method communicated by me to the Society of Arts and Sciences, and rewarded by them by an honorary testimonial, was quite different to throwing a quantity of lime into the well. If there is a depth of water in the well the lime will be absorbed by it; if thrown into a dry well, it will be of no use whatever. The process is simply this:—On finding a well contaminated with carbonic acid gas (and no man ever ought to descend a well before this is ascertained, by lowering a lighted candle, which will be extinguished, if there be foul air, on coming in contact with the vapour), take about half a bushel of fresh burnt lime, put it in a bucket or kettle, pour water on it sufficient to slake it, but no more. When the lime has steamed a short time, lower it down in a steaming state, so that the bottom of the bucket is close to or rests upon the surface of the water in the well. By lowering it to this depth, if the well is foul near the bottom, it will be the more effective. It is by the affinity existing between the lime and the carbonic acid gas that the vapour is destroyed; by that affinity the carbonic acid gas seizes upon the lime, and is incorporated with it, and forms a carbonate of lime, which is perfectly harmless. In ten minutes the well will be in a pure state. I might add much more upon the effects of lime, used similarly, in vaults, graves, and vats, but, fearing to be too prolix, I conclude for the present. I am, Sir, &c.,

A. J. Green, Bricklayer.

Sudbury, July 19th, 1845.

SUSPENSION PIER AT WESTON-SUPER-MARE, BRISTOL.

It is proposed to annex the Island of Birnbeck to the main land, by means of a suspension-bridge on the principle invented by Mr. Dredge, of Bath. In opposition to this, it has also been proposed to approach the island by means of a roadway, formed of loose stones at the base, with a crown on the top of solid masonry; but as the difference in the cost will only be a few hundred pounds, it is not likely that the latter will find much favour.

Mr. Dredge has furnished the committee with several designs for the suspension-bridge. The whole length to be crossed is about 1,400 feet; of this he proposes that about 1,100 should be accomplished by means of the bridge to be composed of iron, the central span of which would be 545 feet, and the outside openings 272 feet. The remaining 300 feet he proposes should be solid masonry. The height of the towers above the roadway is intended to be 42 feet. The platform is designed to be hung on two main suspending chains.

President of the Royal Academy.—The academicians find the selection of a new president so difficult a task, that they are unwilling to accept Sir Martin Shee's resignation, although it is certain that the state of his health even if he accede to their request that he should retain the office, will prevent him from performing its duties. An address was presented to Sir Martin a few days since, soliciting him to retain the presidentship, but we have not yet heard his reply.

The Association of Architectural Draughtsmen.—This association seems now to be very satisfactorily organized, and promises to be useful amongst other ways, in facilitating communication between its members and the profession generally. Architects may here at once learn the addresses of draughtsmen who are unemployed, and see their works. The place of meeting is 33, Southampton-street, Strand.

Reduction in the Price of Gas.—In addition to the cases we gave last week of provincial companies having resolved to reduce the price of gas, we have heard that at Bristol both companies have lowered their prices to 7*s.* per 1,000 cubic feet; at Aberdeen 4*s.* satisfies the rival companies; and at Doncaster a reduction of 10*d.* on the same quantity has been effected during the past fortnight. With respect to the reduction at Aberdeen it is worthy of remark that the far more extensive companies of Edinburgh, Leith, and Glasgow, having the coal at their very doors, charge six shillings and sixpence.

New Books.

The Natural System of Architecture, as opposed to the Artificial System of the present Day. By W. P. Griffith, Architect, F.S.A. Published by the Author, 9, St. John's-Square.

The principal object of the ingenious work before us is to establish, or rather re-introduce, those laws relating to proportion which the author maintains were acted on by the early and middle-age architects. Ancient edifices, he asserts, were the result of pure geometry, and he gives the following table to shew that the most perfect examples of Greek art were produced at a time coeval with the most celebrated Greek geometricians;—

Geometricians.	Eras.	Temples.	Eras.
	B. C.		B. C.
Thales	600	Delphos—Apollo	600
Pythagoras	550	Athens—Theseus	469
Eutocius	540	Athens—Parthenon	448
Hippocrates	450	Athens—Propylæa	435
Proclus	440	Olympia—Jupiter Olympius	435
Pappus	390	Athens—Erectheum	390
Serenus	390	Priene—Minerva Polias	340
Aristæus	350	Ephesus—Diana	340
Plato	310	Eleusis	315

"To teach weak mortals properly to scan,
Down came geometry and formed a plan."

Another portion of the work treats of the connection between architecture and music, and is to the effect that the laws which regulated a measured musical production regulated in like manner just proportion in architecture. On both these points much has been written and thought since Archimedes, who demonstrated that the proportions of certain solid bodies are the same as those of the musical consonances. René Ouvrard, a learned French ecclesiastic of the sevententh century, published a work entitled *Architecture Harmonique, ou application de la doctrine des proportions de la Musique à l'architecture* (Paris, 1679, 4to.), and afterwards a supplement (1682) called *Calendarium novum perpetuum et irrevocabile*, but this he was prevailed on by M. Arnauld to suppress.

Upon the forms of the five platonic bodies, viz.:—the *Tetrahedron*, or regular pyramid, which has *four equal* triangular faces; the *Hexahedron*, or cube, which has *six equal* square faces; the *Octahedron*, which has *eight equal* triangular faces; the *Dodecahedron*, which has *twelve equal* pentagonal faces; the *Icosahedron*, which has *twenty equal* triangular faces, Mr. Griffith endeavours to shew that the arrangement of all the Grecian buildings was based, and some of the plans do certainly present very singular coincidences if nothing more. The subject however is still obscure to those who now give their attention to it for the first time, although we dare say to our author, who has long dwelt upon it, the whole is so clear, that he will be surprised to hear us say so. We suggest that he should in the next edition of the book describe in words the construction of the various diagrams, step by step, and shew how the plan of the building is produced by them.

The Art of Land Surveying, explained by short and easy rules. By John Quested, Surveyor. Relfe and Fletcher, Cornhill.

This little volume, the author modestly says, is arranged for the use of schools, farmers, stewards and others, who may want just such a knowledge of surveying as will enable them to do all that is needful in that art on the farm. There are many others, however, to whom it would be more useful than some larger and more pretending works; and we recommend it to all who wish to obtain a knowledge of surveying and plotting land with the chain or cross-staff. The language is plain, and the directions clear.

Hunt's Improved Patent Urinals.—Mr. Hunt, of Queen's-row, Pimlico, has invented a basin of highly vitrified porcelain, which is admirably adapted for its purpose, and cannot fail to be extensively adopted in railway stations and other public places. Water is admitted to cleanse it through a series of small holes all round the rim. It is superior to any thing of the kind we have seen, and deserves to be generally known.

Correspondence.

THE ROUND TOWERS OF IRELAND.

Sir,—In my observations on the round towers the principal point aimed at was to assign the tower to the same date as the adjoining church. In this opinion your correspondent, "Veritas," seems to agree, but states that "he found them near the castle quite as often as the church." This statement is correct, but "Veritas" ought to have mentioned *how many he did find*.

Now out of 118 round towers upwards of 100 still exist; and it is no proof of the point he endeavours to establish, "that they are found near the castle quite as often as the church," because he happens to find a round tower and an old castle adjoining, *minus* the church; such a fact *at the present day* is no proof, far from it, that there never was a church in the vicinity.

It so happens the old tower I particularly referred to (Aghadoe) stands within 57 feet of the dilapitated church, and at a distance of about 200 feet stands an old castle.

Again, we have Ferns, once an ecclesiastical city of great note, having at the present day the ruins of an ancient abbey, the remains of a fine cathedral, and the mouldering walls of the once proud castle of the Kings of Leinster, whilst not a vestige of its former lofty round tower can be traced.

One thing I candidly admit, my powers of vision are not equal to that of "Veritas;" rocks, hills, or mountains, in nine cases out of ten, form a complete screen to their being "within sight of others." Parties taking a trip in an air balloon, or the "aerial machine," would at once contradict this assertion.

There are no examples of these towers in any part of Europe at the present day except one at *Aix-la-Chapelle*, close by the celebrated cathedral (built by an *Irish* architect at the close of the eighth century), and two in Scotland.—I am, Sir, &c., J. K.

Gorey, July 16th, 1845.

THE COLOSSAL STATUE AND THE UN-COLOSSAL TRIUMPHAL ARCH.

Although we entertain for H. G. the Duke of Wellington every respect due to his high position, we cannot help remarking, that our forefathers hardly ever erected monuments to living men. Joseph II. and Goethe declined it most peremptorily. Besides, there is some anomalous inconsistency in placing the *image* of any one in the public streets, whom every one may see *in propria personâ*. In fine, every monument implies something sepulchral, as it were; viz. the preserving of some one's *memory*, which is incongruous with a person who does yet *exist*. However this may all be—monuments *have* been erected to the living now-a-days.

Turning our attention to the colossal statue to be placed on the triumphal arch in Hyde-park—we perfectly coincide with what has been said in the last number of this journal; intending merely to throw out another remark, which, we trust, will have some *weight*. The statue, namely, is colossal (15? tons), but the arch does not seem to us of a solidity to bear any thing colossal—in fact, the architect never intended it for such purpose. The consequence, therefore, *may* or will be, that the arch will not be *able* to stand such a burthen. And then, somewhat in the year 1860 or 1870, the colossal statue will out-wear the arch—and on some fine day this will give way, and the statue come down, and of course, break to pieces. Then, both will have to be re-built and re-*cast*; in which way, however, this is to be done, will depend on the *cast* of character of the men of those latter days. J. L——y.

ARCHITECTURAL COMPETITIONS—CHURCH AT CAMDEN TOWN.

Sir,—Knowing that the columns of your valuable journal are always open for advocating the cause of justice, I take the liberty of troubling you with a few remarks respecting the late competition for the church at Camden Town. Some time since, a committee was formed who invited a limited number of architects to furnish designs for the church, the cost of which was not to exceed 6,000*l*. A design was at length fixed upon prepared with the usual showily-tinted foreground of competition drawings;* but on deliberation it was found that it would cost a very much larger sum to carry it out, and therefore I contend the decision should have been set aside, and the church submitted to a fresh competition, instead of which, the successful architects were desired to prepare a new design which could be executed for the stipulated amount.

Now, as any of the other competitors could have prepared designs of much more magnificent appearance than those they sent in (supposing no regard were paid to the cost of erection), and could afterwards very easily have made another which could be carried out for 6,000*l*., I think it was giving the successful competitors a most undue advantage, and I trust you will consider the subject of sufficient importance to occupy a corner of your journal.

I am, Sir, &c.

One of the Competitors.

London, July 19th, 1845.

*** If the fact be as stated by our correspondent, it was a fraud, and nothing better; a robbery of the time, skill, and money of those competitors who adhered conscientiously to the instructions of the committee. How long will architects subject themselves to these insults? Professor Hosking, in a lecture delivered at King's College some time ago, and afterwards published, exposed the degrading tendency of the system: we shall take an opportunity to bring it again before our readers.

ANNUAL DINNER OF MESSRS. BUNNETT AND CORPE'S WORKMEN.

Sir,—Coinciding most entirely as I do with your correspondent J. O., in last week's Builder, as to the highly beneficial results of occasional social meetings of large numbers of men engaged in the same occupation, I take the liberty of stating, that the same locality (the Greyhound, Dulwich), was on Saturday last, the resort of the workmen in the employ of Messrs. Bunnett and Corpe, patentees of the revolving iron shutters, &c. The men, to the number of eighty, sat down to an excellent dinner at 2 o'clock, Mr. Stuart, the foreman, in the chair, several master tradesmen doing business with the firm being also of the company. The afternoon was spent in various manly sports, for which that place is so admirably adapted, and in the evening the company were gladdened by the attendance of their respected employers—

"Whose easy presence checked no decent joy,"

and whose substantial addition to the means of convivial enjoyment was duly appreciated.

The respectable and intelligent appearance of the men, who started from the works at Deptford in four vans, the rational character of their recreations, and their orderly conduct throughout, impressed all who saw them with a very high opinion of their worth, and furnished incontestible evidence of the great moral improvement that has taken place in the habits and characters of this class of men.

I am, Sir, &c.,

A Visitor on the Occasion.

Miscellanea.

Leamington Cemetery.—At a preliminary meeting held at the Regent's Hotel, Leamington, last week, a resolution approving of the establishment of a public cemetery under the power and authority of a legislative enactment, with a chapel and all necessary vaults, catacombs, &c., was unanimously adopted, and a committee formed.

Prevention of Damp.—In reply to some inquiries under this head, which have appeared in our pages, a correspondent has directed our attention to the appendix to the 2nd report of the commissioners on the fine-arts, containing evidence of the efficacy in keeping down damps, of a layer of Seyssel Asphalte spread on the horizontal surface of the walls above the ground level.

Proposed Carlton Club-House.—There is a strong party in the club opposed to building, and they have succeeded in obtaining the postponement of the project till next year.

* I beg to refer to the advertisement in the first page of "Pugin's Contrasts?"—"Wanted a person to do showy foregrounds for competition drawings."—for I think the remark perfectly just, as some competition drawings are now so showily tinted, that one would almost imagine that colours, box, and all had been exhausted to attract the notice of the committee.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For Lighting the town of Woodbridge in Suffolk with Gas.

For certain alterations of the premises (formerly the Post-Office), in Crown-street, Bury St. Edmunds, and for a New Building.

For supplying her Majesty's several Dockyards with Canada Red and Yellow Pine Timber, Rock Elm Timbers, Spruce Deals, and Ash Oar Rafters.

For the restoration of the Norman Tower, Bury St. Edmunds.

For the erection of three additional wards at the Bedminster Union Workhouse, situate at Long Ashton.

For the executing the skeleton of Glenorthy Castle, County of Limerick, Ireland.

For building sewers in Gray's-Inn Lane, from the end of Elm-street to Liquorpond-street, and along Liquorpond-street to Crown-court, being about 800 feet in length: also, for a sewer in Red Lion-street, Clerkenwell, being about 480 feet.

For supplying her Majesty's several Dockyards with Dantzic Oak, Thickstuff, and Plank.

For Building a Sewer in Fleet-street, from Temple-bar to Water-lane.

For Lighting the Parish of St. Mary, Rotherhithe, with the Essential Oil of Tar, for One Year, from the 24th of August next.

For Building a New Union Workhouse, to contain 1180 Persons, for the Guardians of the Clifton Union.

For supplying her Majesty's Dockyard with Honduras Mahogany Timber and Polish and Italian Larch.

For the complete restoration of two Windows on the south-side of St. Thomas's Church, Salisbury; also, for Cleaning and Whitewashing the interior of the same Church.

For certain alterations at the Workhouse of St. Mary's Parish, Islington.

For the execution of Works on the Leeds and Thirsk Railway.

For Coupled Locomotive Engine and four-wheeled Tender, to contain 700 gallons, for the Manchester and Birmingham Railway Company.

For the execution of Works on the Newcastle and Berwick Railway.

COMPETITIONS.

Plans are required for Laying out and covering with Villa residences about 20 Acres of land having a frontage of about half-a-mile to the Queen's-road, Richmond, Surrey, extending from Spring-grove towards Richmond-hill. Premiums will be given of 25 guineas for the most approved plan, and 15 guineas for the second.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At the Crown and Anchor Inn, Ipswich: the Martello Tower (V), situate on the point at Bawdry, Suffolk, near the ferry, and within 100 yards of the sea.

At Ossington Woods, near Newark: a large quantity of superior Oak, Elm, Larch, Spruce, and Scotch Timber.

At Messrs. Westlake's Timber Ponds Wharf, Southampton: the entire and selected cargo of Red and Yellow Pine Timber and Deals; ex. "William" Hascroft, from Quebec.

At the Crown Inn, Frome: 307 Oak and Ash Timber Trees; the whole of large dimensions and superior quality.

At Little Bentley Hall, Essex: 200 particularly straight and good Larch Fir Trees.

BY TENDER.

In the Plantations of the Duke of Montrose, situate in the Parishes of Drymen and Buchanan, Stirlingshire: many Thousands of Larch Trees of some size, adapted for Railway Sleepers, Roofing and Joisting, and other purposes.

TO CORRESPONDENTS.

"St. Mary's Church, Nottingham."—*Having little authorized information on the matter, we cannot insert the anonymous communications we have received. We shall be glad to see the account in the* Nottingham Journal *referred to by one of our correspondents.*

"Q. Q."—*As the letter did not arrive in time for us to reply as desired, it would probably be useless now to do so.*

"P. C. A."—*We are obliged to our correspondent, but cannot promise at this moment to engrave the diagram.*

"Amicus."—*We are obliged by his communication, and have availed ourselves of the information contained in it. Opinions, however, we do not insert but on good ground.*

"Mr. B."—*The cards for Mr. Fraser's entertainment, at which the Spitalfields' School of Design attended, did not reach us in time.*

"W. B." (Guernsey.)—*General Pasley's work on limes, &c., is out of print, but a new edition will be published shortly. Vicat's work on the same subject, translated by Captain Smith, may be had at Weale's, High Holborn.*

"F. T."—*We regret that we have not time to enter into the question asked.*

"B. Green."—*The diagram is in the hands of our engraver.*

"Patent Glass Tiles."—*We have had several inquiries as to where these are to be procured: can any of our readers tell us?*

"J. G." (Oxford.)—*Gwilt's Encyclopædia of Architecture, published by Longman. Nicholson's Architectural Dictionary, 2 vols., 4to.*

"Hoisting Building Material."—*A builder wishes to know where the machine for hoisting materials by means of an endless chain may be obtained on hire.*

"W. S."—*We regret we have not space for the letter. Our correspondent is hardly correct in his dates.*

"B. B.,"—*Next week.*

Received: "M. R." "P. A. T. H." "T." "A constant contributor."

ADVERTISEMENTS.

PUBLICATIONS.

Just published, price 5s., neatly bound in roan, with tuck, gilt edges, and lettered, a Pocket Edition of

A CYCLOPÆDIA of the NEW METROPOLITAN BUILDINGS ACT, together with the Act itself, a Folio Table of the Metropolitan Districts (old and new), a List of the Surveyors, with their Residences and Offices, and a Table of Fees to be paid to the Registrar for services performed.

In the Cyclopædia all the details of the Statute are arranged Alphabetically, so as to be instantly found, and accompanied by extensive references and counter-references to the sections of the Act itself and its minute provisions.

By the late A. BARTHOLOMEW, Esq., F.S.A., Architect, Surveyor of the Hornsey District.

Published at the Office of "The Builder," 2, York-treet, Covent-garden; and to be had of all Booksellers.

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ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architecture and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application to MANN and CO., SOLE AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOUR STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the suction, thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, produceable by no other Paint whatever. It is cheap in its application,—and may be used by any Painter, in any climate, even in the most exposed Marine situations.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

Agent for Liverpool, Mr. WYLIE, 55, Gloster-street; ditto for Manchester, Mr. J. THOMPSON, Back King-street; ditto for Chester, Mr. J. HARRISON, Linen Hall-street.

MARTIN'S PATENT CEMENT.

TO ARCHITECTS, BUILDERS, AND PAINTERS IN FRESCO.

STEVENS and SON, PATENTEES and SOLE MANUFACTURERS, beg respectfully to announce that this beautiful cement has now arrived at a degree of excellence far surpassing their most sanguine expectations. For all internal work it possesses a great superiority over every article hitherto in use; it is now being used extensively by Government in the British Museum and other public buildings. IT DOES NOT THROW OUT ANY SALT, but presents a beautifully plain and perfect surface, which may be painted upon dry work within four days without peeling. It is equally applicable for walls or lath, for mouldings, architraves, skirting, or flooring; and is admitted to form the best ground for fresco painting, having been used for many of the prize frescos lately exhibiting in Westminster Hall. It will bear an intense heat without cracking, and for hardness, durability, and economy, cannot be equalled.

186, DRURY-LANE, LONDON.

Agent for Liverpool and Manchester, Mr. R. Part, 11, Atherton's-buildings, Dale-street, Liverpool.

TO ENGINEERS, ARCHITECTS, AND BUILDERS.

PATENT METALLIC SAND CEMENT.—The Metallic Sand, from its chemical qualities, forms, when mixed with blue lias lime, a metallic cement of great strength and density; the iron, which is one of its principal constituents, combining with the bed in which it is deposited, and communicating to it a greater degree of hardness than can be obtained by admixture with any other known material. Concrete and mortar in which the metallic sand has been used are more durable than any other, continuing to indurate with time, and not being affected by damp, otherwise than by increasing in hardness from the oxydation which is thereby occasioned. Employed as a cement to turn water from brickwork in tunnels, sewers, and other underground works, the Metallic Sand is found cheaper, and from its eminent adhesive qualities to form a more solid and hydraulic body, in combination with the brickwork, than any other cement at present known; and in all cases the Metallic Sand is found the best substitute for pozzolano that has ever been presented to the public. As an external stucco, the Metallic Cement assumes a rich stone-colour without the aid of paint or tint of any kind, does not vegetate, and is entirely free from cracks and blisters, and continues to improve both in appearance and durability by exposure to the weather. The Proprietors refer with confidence to works in which the Metallic Sand has been extensively employed as concrete and mortar, specified in the prospectus, where also will be found references to very extensive erections which have been stuccoed with the Metallic Cement.

Further information will be given, and specimens shewn, on application to Mr. C. K. Dyer, 4, New Broad-street; and at the Metallic Cement Wharf, King's-road, opposite Pratt-street, Camden New Town.

KEENE'S PATENT MARBLE CEMENT.—The Patentees of this composition beg to refer to the British Museum, the Royal Exchange, the new works at Bethlem Hospital, Greenwich Hospital, and the Coliseum in the Regent's-park, as buildings finished or in progress, in which Keene's Cement has been used as an internal stucco. Its superiority to common plastering consists in its extreme hardness, and the rapidity with which it dries, which qualities fit it to receive paint or other finishing sooner than other water Cement.

When employed for skirtings, architrave, and other mouldings, in place of wood, it checks dry-rot, is impervious to vermin, prevents the spread of fire, and is more economical in its application than the material for which it thus becomes the substitute.

Confirmation of these statements is to be found in the almost universal adoption of Keene's Cement for Skirting and Hall flooring in the new houses on the Hyde Park Estate, where its application is to be seen to the fullest advantage.

In Liverpool and Manchester, Keene's Cement has in several cases been used for the covering of the fire-proof warehouse floors, where its lightness and hardness give it the preference over tiles and flagging, which are much heavier, and necessarily leave the floor intersected with numerous joints, whilst Keene's Cement is laid down in one unbroken surface.

The high polish and marble-like hardness of which this Cement is susceptible render it the most suitable material for the manufacture of Scagliola.

Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

Depôt in Liverpool, 36, Seel-street; James Woods, Agent.

ATMOSPHERIC RAILWAY, carrying from SIX to EIGHT VISITORS at once, working daily at the ROYAL POLYTECHNIC INSTITUTION. This interesting model is lectured on by Professor Bachhoffner, at One o'Clock daily, and on the Evenings of Tuesdays and Thursdays at Nine o'Clock. The art of SWIMMING and DIVING illustrated by a Youth Eight and a half years of age, the Son of Capt. Stevens, the celebrated Diver, on Mondays, Wednesdays, and Fridays at Two o'Clock, and on the Evenings of Tuesdays and Thursdays, at half-past Eight. The CAUSES of EXPLOSIONS in STEAM-BOILERS, and the prevention of those arising from incrustation is the present subject of Dr. Ryan's daily lecture and on the Evenings of Mondays, Wednesdays, and Fridays. The other popular Lectures and interesting Works as usual.—Admission, One Shilling; Schools, half-price.

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PATENT QUAQUAVERSAL GLASS-STANDS for the toilet, on an entirely new principle, of great elegance, and free from all the practical inconvenience of ordinary Glass-stands.

At the works, 15, Wellington-street North, Strand.

The Builder.

No. CXXX.

SATURDAY, AUGUST 2, 1845.

THE importance of proper VENTILATION is more generally felt at this time than it was a dozen years ago; that is, larger numbers of persons have become convinced that bad air will kill as *certainly* as prussic acid, though not so quickly. Individuals have always understood this,—have always laboured to convince the multitudes of the truth of the assertion, and to induce the adoption of means to obtain the fullest supply of pure air; but it is only recently that the masses have been impressed with the fact, and have thought it worth while to employ the means suggested. The evidence that has been brought forward is most conclusive, and abundant: books of all sizes have been written upon it; commissioners to inquire into the state of large towns have recommended "that measures be adopted for promoting a proper system of ventilation in all edifices for public assemblage and resort;" and so, by repeated striking, the impression has been at last communicated to the general tympanum.

The great question now is, how can ventilation be best effected,—in what manner can the vitiated air be removed and fresh air supplied, without producing currents injurious or offensive to the human frame? And to tell the truth, notwithstanding the numerous experiments made within the last thirty or forty years, and the *tomes* that convey their results to the world, it is not easy to reply to the question. The same means cannot be uniformly adopted in all cases, but require to be adapted to varying circumstances. No exact rules can be laid down; much must depend on the intelligence of the persons to whom the structure is entrusted. A change in the temperature of the external atmosphere, or of the direction of the wind, may alter entirely the effect of a mechanical arrangement; and the presence of a larger or smaller number of persons than is expected, would require corresponding changes in the supply of air, and the temperature to be artificially given to it.

We have recently, on more than one occasion, directed attention to this subject, and our columns have been open for the particulars of every invention bearing on it, and for every suggestion likely to prove of value in the investigation of principles. We are forced, however, to recur to it by the letters of influential correspondents, pointing out the magnitude of the experiments which have been made, and are now being made, in the temporary Houses of Parliament, asserting the positive failure of all, and urging the necessity for other and totally different arrangements in the new houses. Our inquiries amongst the members of the House confirm, we are sorry to say, these assertions, and lead us to regard with fear and trembling the extravagantly expensive, and architecturally destructive, preparations for ventilating, which have been made by Dr. Reid. According to the "Brief outlines illustrative of the alterations in the House of Commons, in reference to the acoustic and ventilating arrangements," which Dr. Reid submitted to Mr. Hawes' committee in 1837, the principal object which he endeavoured to attain was,—"To introduce air equally over the whole floor, both in the galleries and in the body of the house; to sustain an equal flow at all times proportional to the number present, and to admit air either at natural temperatures or after passing through the heating apparatus, as might be required." This, one would suppose, with no limits as to expenditure, and no personal scruples about cutting and hacking a building whether old or new, was not a very difficult task; and when the enormous machinery by which it was to be effected was seen, including a huge shaft 120 feet high, the object was considered to be as good as effected. Alas! for the vanity of human expectations.

The present House of Commons, lobbies, committee-rooms, and galleries, with the three hundred thousand little holes in the floor, are no better than the old House,—rather worse,—the currents are most offensive and hurtful, and the escape of the vitiated air slow and uncertain. Members say their feet are in an ice-pail, and their heads in a vapour-bath, in direct contravention of the old advice, to keep the feet warm and the head cool. But so it is, and members get soon fatigued, and some fall ill; while in *all*, according to Mr. Wakley, the seeds of bronchial disorders are implanted. Things therefore look serious, and when we find the works at the new Houses stopped and interfered with, architect's plans altered, and supports cut away with the simple direction that some other means must be found (whether there be any or none) to carry superincumbent weight, it is surely time for the public, if not the members, to look about them. We have watched the mode of proceeding both at the Liverpool Hall and Assize Courts, where the architect's plans seemed to us sadly treated, and at the new Houses of Parliament, and to speak the truth, are satisfied at neither place.

A short time since a letter on this subject appeared in the *Times* reminding the honourable persons whose duty it is to superintend the arrangement of the new Houses, that a contrivance was in operation for many years by which the atmosphere of the House of Lords was kept in a pure state, and at an agreeable and uniform temperature. The writer said of the apparatus that "it was planned, without any charge, by the ingenious Adam Walker, the philosopher, and laid down by the late Mr. Moser, of Soho, and it was, and I believe still is, used in her Majesty's Theatre. Surely, Sir, it is the duty of hon. members at length to free themselves from the deluding trammels with which Dr. Reid finds it his interest to surround them. If a plan of known efficiency exists, is its adoption to be prevented because the pecuniary interests of a bungling experimentalist are in a different direction?"

In consequence of this letter, several requests were forwarded to us, that we should examine Her Majesty's Theatre, where lately great improvement in the state of the air had been found, and lay before the public some particulars of the mode of ventilation pursued there. We accordingly applied to Mr. Lumley, the present proprietor, and received from that gentleman every facility desired. We went over the building with Mr. Charles Marshall, in whose hands the arrangements for ventilating the theatre are placed, and were compelled to arrive at the conclusion that the improvements in the ventilation alluded to, were chiefly owing to the increased attention paid to the means under their control, whereby they are adapted hour by hour to the varying circumstances to which such a structure is liable.

Between the ceiling of the pit and the roof there is a very large space appropriated as the painting-room, and in the sides of the roof there are a dozen or more skylights, made to open, by means of which much of the heated air that accumulates in the roof, brought up amongst other causes by the chandelier, is got rid of. Now, as an instance of the necessity of constant attention, and of the difficulty of laying down rules to be followed without discretion, it may be mentioned that if when the wind is in a particular quarter some of these lights be opened, the hot air, instead of escaping, is kept down upon the audience.

Three or four years ago, the ventilation being considered defective, Dr. Reid was called in to improve it; which he attempted to do by forming a large *louvre* about 10 feet square, in the roof, with a cowl to close it at the side from which the wind blows; the object being, not to bring cold air in, but to allow the heated air to escape. The single advantage that could be expected of this over the windows already mentioned is, that it should be self-acting,—that, instead of having on a change of wind to close the windows exposed to it and open those on the other side, the wind should itself effect the same operation. This, however, is not found always to be the case, and the cowl is not considered of great value by those who are engaged in the house. Another of Dr. Reid's operations was to convey fresh air to her Majesty's box. Here he employed a "blower,"—ill-constructed as it seems to us,—in an aperture connected with the external atmosphere, and opening into the box behind the silk with which it is lined. This employed two men the whole evening, but so entirely failed to produce a good effect, that it is now no longer used.

With this exception, there is no mechanical arrangement throughout the house to bring in air, and of the system "invented by Mr. Adam Walker, and laid down by the late Mr. Moser, of Soho," there is no trace. Windows have been opened in every available position, and it is by constant attention to these, under the direction of the gentleman before named (Mr. Marshall), who has found pleasure in the subject, and is pursuing it *con amore*, that the frequenters of the Opera House owe much of the comfort which has been found there, notwithstanding the unexampled crowds which fill it.

What is now wanted there, is a controllable arrangement to bring in air at the bottom, independently of the doors, the means of getting rid of it at the top being ample.* To avoid unpleasant and dangerous drafts is of course the difficulty, as in all similar cases; but this would be lessened if it were oftener remembered that it is not so much *cold* air that is required as PURE AIR, and that by slightly raising the temperature of that which is introduced, even in summer, and bringing it in through numerous apertures, the chief end might be attained without the inconvenience described. In concluding this allusion to the Opera House, we cannot omit bearing testimony to the desire manifested by the present proprietor, Mr. Lumley, to increase the excellence of his theatre, as well in the particular to which our attention has been directed as in all others.† We shall return to the general question of ventilation before long.

* Double doors might then be placed in the pit corridor, so as to lessen the dangerous draft now found by those who sit near the entrances.

† Our thanks are further due to Mr. Marshall for the kindness with which he assisted us in examining the building.

MR. CHADWICK ON WANT OF SCIENCE IN OUR PUBLIC WORKS.

The week before last we mentioned the annual meeting for the distribution of prizes at the College for Civil Engineers, Putney, but from pressure of matter, were unable to do more than allude to the address of the Principal. We now return to it, and have the pleasure of placing before our readers a correct and, we believe, exclusive report of a speech made by Mr. Edwin Chadwick on that occasion, touching many points of much interest.

Mr. Chadwick said he had not been led to expect that he should be more than a silent witness of their proceedings, yet he could not hesitate to offer testimony to the great public importance of the promotion of the studies in practical science, for which the college was specially instituted. This country was pre-eminent for its great expenditure in public works, for its stores of practical science available for their direction, yet whenever a large proportion of those works were examined in their conception, their execution and the effects realised in comparison with the expenditure upon them, they too frequently failed to justify any claims to pre-eminence in the application of that science. In respect to one important class of works, the condition and effects of which it had been his duty to examine—the works for the sewerage and drainage of the metropolis and of other of our large towns, which had been frequently pointed out as a subject of public boast, but on irrefragable proof he had been compelled to pronounce them to be a vast monument of mal-administration, of lavish expenditure, and of defective execution, and this conclusion further inquiry had only served to confirm in every particular. That very form of sewers which had been presented to a committee of the House of Commons by a gentleman of high professional standing, as the most perfect in its form and connected arrangements that had been or could be attained in practice (the form with upright sides, nearly flat segmental bottoms, and spreading footings), was found to accumulate deposits of decomposing matter, and pollute the air of their houses and the streets with offensive and pestilential emanations. That form he had adduced as an example of weak, unscientific, and most expensive construction. Line after line of the sewers of this expensive construction had since fallen in in one large district, and its use was therefore silently abandoned. Now in the second volume of first report of the commissioners for inquiry into the health of large towns they would see in the admirably clear evidence of their professor of geodesy, Mr. Butler Williams (which he ventured to commend as a most important subject of their professional study), the demonstration that by a sewer of another and scientific construction, the egg shape, with precisely the same number of bricks three districts might have been sewered perfectly for the money lavished in sewering one, and that one imperfectly and injuriously. Their professor had demonstrated that all this waste of money, which though no less than 60,000*l.*, was levied in excess during ten years on the ratepayers in that one district, was of secondary importance to the noxious effects on the health of the population, must have been avoided had the works been planned and executed by persons who had gone through a proper course of study, and duly consulted such works as those of Young and Tredgold and others, containing the existing knowledge, to be found on the shelves of their college library. On inquiry into the history of a large proportion of these wasteful and deplorably inefficient works of our towns, it appeared that they had been superintended by ignorant authorities, and designed and executed piece-meal by common tradesmen, who did not understand the use of the spirit-level, and nothing more fully proved the ignorant reckless temerity with which such works were conducted than the defective nature of their plans, and often the entire absence of any plans or survey whatever. In one district, where a commissioner happened to deem it a qualification for the office of surveyor and succeeded in getting it recognised, and where, as a consequence, a properly qualified person happened to obtain the appointment, it was proved in a recent report of that same engineer that no less than one-quarter of a million of money must be expended for setting right the outfalls of the sewers of that one division (the Holborn and Finsbury) of the several divisions into which the general sewerage and drainage of the metropolis had been capriciously, ignorantly, and mischievously divided. Now he, Mr. Chadwick, ventured to assert without fear of disproof, that had the district which he had named or others, been originally placed under the guidance of any person who had gone through such a course of studies as the course provided in that college, with competent attention to their duties, it was impossible that such misery and waste could have been inflicted; a waste of capital in respect to levels only in that one district, which would, under proper direction, have sufficed for the complete drainage of upwards of 50,000 of the houses in the metropolis that are still left without any proper drainage. As a convincing proof in itself of the reckless or ignorant temerity with which such large expenditure in such important public works had been, and still continued to be made, it might suffice to state that neither in the metropolis, nor in any of the towns examined, was any accurate map with proper system of levels found to exist. Hence they saw large sewers which after all that had been expended on them were found with accumulations of stagnant refuse, acting as extended cesspools. To shew what might be done for amendment, he had asked and had obtained the aid of a detachment of the pupils of that college, and under the superintendence of their professor of geodesy, they had executed as a specimen the first plan of the city of London, and he believed of any town in Great Britain in which contour lines of equal altitude were laid down. That map (which had been followed by another specimen map of Windsor, executed under the direction of the Board of Ordnance) he displayed before the noble chairman, and stated that he had been assured by competent engineers, that if similar maps with contour lines had been executed for the whole country, that out of the two hundred and forty millions of probable expenditure for the railways to be constructed in this country, full twenty millions would be saved by the better direction which it must have given to the works. Lord Devon observed that he was fully impressed with the great importance of such well-constructed maps, with levels so exhibited, for the guidance of all such works, and he had used great exertions to obtain a map of Ireland with the contour lines, which would be found appended to the recent report of the commission of inquiry into the tenure of land in that country. With such a map, any one sitting in his own room might see what would be the best lines of drainage. Whilst the sewers and the general drainage works of large districts were found to have been executed without the rudimentary knowledge available for the efficient construction of such works, large masses of capital were expended in works for the distribution of water into our towns without such a competent knowledge of hydraulics, and other branches of science applicable to the collection, storage, purification and distribution of water, as a good scientific course of instruction must afford. Some of the consequences of this empiricism were, that after all the ill-advised and lavish expenditure of the companies' capital, the adoption and maintenance of intermittent supplies of water necessitating a double and treble expenditure on the part of tenants; the retention of water in butts and tanks in which it stagnates until it is wanted, and absorbs the dust and soot, and vitiated atmosphere, preventing improvements in the application of water to an efficient system of house drainage and cleansing, and the immediate extinction of fires, and the preservation of life as well as property. The course of the sanatory inquiry, and the examination of schools, and workshops, and large public as well as private buildings, shewed that they had been constructed by professional men, who from the condition of those buildings when occupied, and the sufferings of those who were kept in them, were demonstratably ignorant of such a practical knowledge of the settled principles of pneumatics, and the existing practical science applicable to warming and ventilation, as must have led to relief by arrangements for the properly regulated ingress of air, that was warmed as well as pure, and for its egress when vitiated. He might occupy the whole day, and fail to adduce all the proofs which indeed filled the volumes of reports now be fore the legislature and the public. In ther were to be seen the grounds on which th commissioners of inquiry, at the head of whic was the noble duke, the president of th college, came to the concurrent and unanimou conclusion, in solemnly recommending to th legislature that securities should be taken fo the public safety, that all such works shoul be superintended as well as planned by me of tried competency as engineers, from th possession of such science as the founders that institution were anxious for the publi advantage to impart. But it was not in thos volumes that the public need seek proof, i waste of life and property, of the deplorab deficiences of practical science for whic public provision and securities were requisit The proofs were displayed to them in spe tacle after spectacle of the ruins of falle bridges, factories, and large buildings, i horrible deaths, and shocking mutilations o curring again and again from the like pr ventible causes. From the direct inform tion of competent inquirers, as well as fro the published evidence, he might confident assert, that where full inquiry was mad there was not one recent instance of suc destruction in which the cause was not assig able and distinctly assigned to a culpab omission of the application of existing know ledge or science. In the instance of th failure of one edifice, he was assured upo competent authority, that the cause of the d struction, attended by loss of life, was occ sioned by the breaking of a sound bar of iro just of the size at which the architect, if h had consulted the works of Tredgold, wou have found it shewn on actual experiment th such a bar would break under such a weigh as had been ignorantly placed upon it. another instance, of the destruction of li from the falling of a factory, the cause w clearly proved to be the unskilful dispositic of some eleven tons of weight on iron beam which existing *data* with respect to the strengt of materials, imperfect as those *data* we acknowledged to be, if they had been du consulted in the plans and in the constructio of the works, would have shewn could on have been safely intrusted with a much le weight skilfully adjusted. Another instan of destruction was displayed in the breaka of a cast-iron beam, the crushing of bric stone, and iron successively; in the ord in which it was laid down in existi works, such materials of such dimensio must be crushed when charged with su weights. On the other hand, reckle empiricism and ignorance of the strength materials found safety in the wasteful applic tion of them and massive deformity, whi was the subject of complaint as well as the co sequent excessive expense of our public work Again he ventured to repeat, that the task of r trieving these and the like proved errors, the effectual drainage of towns, of habitations, a agricultural districts, the most effectual preve tion of those atmospheric impurities, the caus of epidemics and of premature mortality, w only to be achieved when such practical scien as it was the object of this institution to pr mote and diffuse, was duly appreciated and r ceived by the public, and properly applied. (Applause.)

Dr. Lyon Playfair stated from his ow observations, as a commissioner of inquiry, could corroborate the statements of Mr. Cha wick in respect to the deplorable absence of co petent scientific knowledge displayed in public works, especially in his observations the want of knowledge of science displayed builders and architects in their arrangeme for ventilation. In the schools which he ex mined in Lancashire he found that from space allowed for air to breathe (and the abser of any arrangements for changing it) was o one-half that in which they could breathe without change, and were compelled to breat repeatedly the same vitiated air, and that he arose various forms of disease, and that th constitutions were impaired for life.

Mr. Babbage addressed to the students stances to shew that what was set down as tuitive genius was commonly the result greater mental application, and that labo was the best foundation for professional e nence.

Mr. Binnell bore his testimony to practical utility of such studies as those p

noted, and that though they might put aside bstract formulæ in daily practice, yet mathe- natical studies would, in training the mind, be f very high value.

HEALTH OF TOWNS.

Amidst much that is otherwise thoroughly nspiritual and self-seeking in the tendencies f the present day, there is this great and re- eeming feature, and one which every philan- ropist must hail as the certain advent of at wide and embracing sympathy which is e real and essential spirit of practical re- gion,—we allude to the universal and radually awakening interest now felt in the cial condition of our poorer brethren.

To the efforts of such men as Bentham, hanning, Carlyle, and the late Dr. Arnold, e active apostles of a newer and more en- ghtened philosophy, much of the better eling of the day is perhaps to be attributed; d if late, not the less certain we feel will be e evolution of that great principle long since unciated though ignorantly decried, that e only legitimate aim and object of govern- ent, and all social polity, is the greatest hap- ness of the greatest number. As evidence f this improved feeling, we need only point the fact that now everywhere inquiries are t on foot, and information eagerly sought, to the actual condition of the people. The ress abounds with investigations of the causes d suggestions for the remedy of our social ils. Recently in this country, what a vast ass of appalling facts has been brought to ght by our factory commissions, our mines mmissions, our sanatory reports, and in ose details upon the state of our labouring opulation, urban and rural, so clearly eluci- ated in the valuable reports of Mr. Chadwick d the Poor Law Commissioners. All these ve developed a fearful aggregation of evils, efore undreamt of by the great mass of the mmunity.*

To the zealous exertions of such men as ord Ashley in the cause of active benevolence, e may trace the source of much of the recent blic interest in the moral and physical state the poorer classes, and it is indeed a sub- ct of sincere gratulation that, aided by a more lightened policy among those in power, this bleman's labours have tended already to fect much towards ameliorating the actual ndition of our labouring population; but we ust not disguise from ourselves the fact—a at deal yet remains to be done; and it is by nstant and strenuous individual efforts alone at a total and permanent benefit is to be ped for. The broad and full tide of human ogression is but the aggregate of every scat- red rill of individual endeavours. Each p is significant and conducive to the great d.

As bearing more immediately upon the ove views, we would now call especial atten- n to the late important and valuable report nished by the royal commission on the alth of towns, the result of two years duous and unremitting investigation into the ises affecting the general sanatory condition the community. It would be out of the estion, within the limits of the present notice, empting to offer any thing approaching to a ailed analysis of the accumulated mass evidence (comprised in two thick folios), uring upon a subject of so comprehensive a aracter as this must necessarily be, nor ll we attempt to follow the commissioners ough the whole of the vast and varied field luded in their inquiry.

Suffice it to observe, that to those who feel interest in the subject these reports will ply repay perusal. Before adverting to the ncipal topics investigated by the commis- ners, or to the general conclusions arrived n the reports in connection with the recom- ndations for a more efficient system of sana- y jurisprudence and police throughout the gdom, we shall take the opportunity of efly alluding to the history of these investi- ions, and recapitulate the circumstances ich induced the present inquiry.

t will perhaps be remembered that the pre- valence of severe fever in the poorer districts of the metropolis, more particularly in Spital- fields, during the winter of 1837, having excited an alarm of a visitation of the cholera, induced the Poor Law Commissioners to institute im- mediate and strict inquiry into the sanatory condition of the districts affected; and espe- cially with reference to the removable causes of disease. For these objects the able assist- ance of Drs. Arnott, Southwood Smith, and Kay were called into requisition, and the result of an investigation by these gentlemen was embodied in a valuable report dated May 12th, 1838. This report declared that the chief and constantly acting causes of destruc- tion and death were comprised in the ex- istence of bad ventilation and defective drainage. These facts, without loss of time were strongly represented by the commis- sioners to Lord John Russell, with urgent recommendations for the immediate adoption of some legislative measures for their removal. Although much public discussion at the time took place on the subject, little was done re- lative to this important matter until the close of the following session, when the Bishop of London, in his place in the House of Lords, called the attention of the Government to the report, and moved an address to her Majesty, praying for an inquiry as to the extent to which the causes of disease stated by the Poor Law Commissioners to prevail among the labouring classes of the metropolis, prevail also among similar classes in other parts of the kingdom. This address being carried, Lord John Russell directed the Poor Law Board to institute the inquiry; and the com- missioners having accordingly in the November following given the requisite instructions to their assistants, the results of the consequent investigations were embodied in the lucid and voluminous report of Mr. Chadwick, presented in July, 1842. In the meantime, in 1840, also appeared the report of the select committee of the House of Commons "On the health of large towns and populous districts."

From all these it would appear that there had been no lack of investigation into the sub- ject, and it might naturally be supposed that the result of these different inquiries, em- bodied in the published reports with folios of appended evidence from all imaginable quarters, would have been deemed sufficient to indicate the sources of the evils, and to have suggested a plain, straightforward course for some le- gislative remedy. It would seem, however, that these boards of inquiry are either en- dowed with an extreme power of vitality, or else some wonderful faculty of reproduction— at all events, they certainly possess the happy method of just arriving at that incompletion of result, which entails the necessity for some farther investigation, making invariably, like jealousy, "*The meat they feed on.*" That the physical condition of the poorer classes was most deplorable, that they were badly housed, with an insufficiency of every bodily aliment and comfort, were axioms which un- happily it did not require another royal com- mission under the sign manual, to demonstrate: these facts, which ever way we turn are pain- fully self-evident; but there was, we presume, no reason why commissionerships with their comfortable amenities, should be left entirely at the disposal of Whig governments; accord- ingly another including his Grace the Duke of Buccleugh, as chairman, was forthwith con- stituted for farther inquiry into the *state of large towns and* populous districts. The re- sult is that now before us, and however much we may feel opposed to the pernicious system of jobbing displayed in the perpetuation of these commissions, we are bound to concede all praise to the exertions and perseverance as well as to the full and comprehensive data furnished by this last inquiry. The chief causes proved by the concurrent testimony of medical men, and other intelligent witnesses examined, as more strongly affecting the phy- sical condition of our labouring population, are (what had been before stated), viz. defective drainage and bad ventilation; to these, there- fore, the attention of the commissioners was more specially directed. But the general sub- ject included in the inquiry may be reduced to the five following heads, viz.:—

1. Drainage, including house and main drainage, and the drainage of any space not covered with houses, yet influencing the health of the inhabitants.

2. The paving of public streets, courts, and alleys.

3. Cleansing; comprising the removal of all refuse matter not carried off by drainage, and the removal of nuisances.

4. Supply of water for public purposes and private use.

5. The construction and ventilation of buildings for promoting and securing the health of the inhabitants.

The conclusions arrived at from an examin- ation of the above important matters are embo- died in thirty distinct recommendations, already given in The Builder,* necessary, in the opinion of the commissioners, for the construc- tion of whatever remedial measures may be subsequently adopted. These may be shortly summed up under the following general propo- sitions:—

1. That the crown should have the control and supervision of all sanatory measures.

2. That the local authorities entrusted with the execution of such measures be armed with additional powers, and the districts placed under their jurisdiction should in many cases be enlarged, and made co-extensive with the natural areas for drainage.

3. That the necessary arrangements for drainage, paving, cleansing, and an ample supply of water, be placed under one adminis- trative body.

4. That general sanatory regulations rela- tive to buildings and the width of streets; and that low lodging-houses be under the same in- spection and control.

These it must be confessed are sufficiently comprehensive, and it only remains to be proved how far the wide field of operations here sug- gested would under existing circumstances be compatible with the legitimate functions of any one public body, and whether such an ab- solute system of central control amid the variety of adverse interests—both local and private, at present existing, would be practi- cally attainable. In either case it behoves us to receive with extreme diffidence and caution a scheme of centralization which would go to place in the hands of any home secretary for the time being, so direct and extensive a power over the executive administration of the whole country. We shall, however, defer to a future occasion our examination of the mode in which the above objects are proposed to be carried out, more particularly as a bill embody- ing the suggestions of the commissioners is now before Parliament; to a simple abstract of which we now ask the attention of our readers.

LORD LINCOLN'S BILL

FOR THE IMPROVEMENT OF DRAINAGE AND SUPPLY OF WATER.

A copy of the Bill brought in by Lord Lin- coln, and printed for the consideration of the members during the ensuing recess, is now before us. It has 325 clauses, occupies 118 pages, and contains many very important pro- visions. It extends to the whole of England and Wales, except the city of London and its liberties, and any place situate within a radius of five miles from Charing Cross, in the city of Westminster. The preamble is as follows:

"Whereas it has of late been made appar- ent, that the sewerage and drainage of the towns and populous districts of this realm, and the supply of water for the domestic use of the inhabitants, and for the due cleansing of drains, are extremely defective or utterly neg- lected, especially in the districts chiefly inha- bited by the poorer classes of her Majesty's subjects, whereby excessive disease and great mortality have been occasioned: And whereas the general laws in force are wholly insufficient for the remedy of so great a mischief, and the like defects, for the most part, exist in the powers of trustees, acting under the authority of divers local Acts: And whereas it is expe- dient that remedy should be had therein, and that the arrangement of the supply of water for domestic use, and for the cleansing of sewers, drains, houses, courts, alleys, and streets, should be combined, as often as may be practicable, with the management of the pav- ing and cleansing of the surface of courts, al- leys, and streets, and of the construction and maintenance of the drains and sewers, and other works subservient to the preservation of

* See p. 113 *ante*.

*The interest in such statistical inquiries is not confined ngland. On the continent investigations on the social physical condition of the masses have been ably de- ped in the researches of such men as Villiriné, ier, De Gerando Arrivahene Mohl, and Parent du elet.

the streets and other public places, in a good and proper condition, and that further provision should be made for promoting the health and convenience of the inhabitants of towns and populous districts.

Inspectors are to be nominated by one of the Secretaries of State at salaries to be determined on, to assist in carrying the Act into execution; and commissioners are to be elected by the rate-payers for every town and district. That is to say, "*Nine* commissioners for every town or district in which the number of inhabitants specified in such order in council shall not exceed *ten thousand; twelve* commissioners for every town or district in which the number of inhabitants so specified shall not exceed *twenty thousand*, and so on at the proportion of *three* additional commissioners for every additional *ten thousand* inhabitants specified in such order in Council: provided always, that in no case shall the number of commissioners elected by the occupiers and owners of property as aforesaid exceed *twenty seven*."

Commissioners are to provide a map of the district within their jurisdiction. "And be it enacted, that the said commissioners shall cause to be inscribed on such map and plan a series of marks or figures denoting a complete system of levelling, exhibiting the true form or relief of the ground in the area or district, and shall also cause to be drawn, wherever practicable, lines of equal altitude, commonly called contour lines, at every *four* feet of elevation, or at such other intervals as may appear, upon due inquiry, to be the best adapted for the guidance of works of sewerage and drainage, for the collection and distribution of water, and for other public and private purposes within such district."

Clause 113 gives commissioners power to pave streets; 117, to fix levels of all new streets.

Then, as to the width of streets—"Be it enacted, That it shall not be lawful to form, lay out, or build any new street within any town or district, unless the same, being a carriage-road, shall be at least *thirty* feet wide, or being a foot-way only, shall be at least *twenty* feet wide, but if the buildings, or any of them not being a public building fronting any street being a carriage-way be more than *thirty* feet high from the level of the street, or being a foot-way only, shall be more than *twenty* feet high from the level of the street, then such street must be of a width equal at the least to the height of such buildings above such level, and every such street being a foot-way only, shall have an entrance thereto, being at the least the full width of such street, and open from the ground upwards: Provided always, That these provisions shall not extend or apply to any street which shall be proved to the satisfaction of the commissioners to have been agreed to have been formed or set out in the disposition of any estate for sale in lots, and of which a sale plan shall have been so proved to have been prepared previous to the issuing of any Order in Council for enforcing the provisions of this Act within such town or district."

Commissioners are to provide for draining all towns not already sewered, and to build such main and other sewers as may be necessary.

House drains are to be formed.—"And whereas numerous houses and buildings have from time to time been erected and built without having proper drains communicating therefrom with any sewer, which proceedings are highly prejudicial to the public good; Be it enacted, That in all cases where any house or building, situate within any town or district, shall at any time be found not to be drained by a sufficient drain or pipe communicating with some sewer, and emptying itself into the same, to the satisfaction of the said commissioners, and if a sewer of sufficient size, under the jurisdiction of the said commissioners, shall pass along any street, and within *thirty* feet of any part of such house or building on a lower level than such house or building, it shall be lawful for the said commissioners, by notice in writing, to require the owner of such house or building forthwith, or within such reasonable time as shall be appointed by the said commissioners, to construct and make from such house or building, into the nearest common sewer, a covered drain or pipe of such materials, of such size, at such level, and with such fall, as shall be adequate for the drainage of such house or building, and also, if practicable, of its areas, water-closets, privies and offices, if any, and to carry and convey the soil, drain and wash therefrom into the said sewer; and if the owner of such house or building shall refuse or neglect, during *twenty-eight* days next after the said notice shall have been delivered to such owner, or left at such house or building, to begin to construct such drain, or shall thereafter fail to carry it on, and complete it with all reasonable despatch, it shall be lawful for the said commissioners, and they are hereby required, to cause the same to be constructed and made, and to recover the expenses to be incurred thereby in the manner hereinafter provided."

Before erecting new buildings, or rebuilding old ones, levels are to be settled by the commissioners.

Gully holes are to be trapped, to prevent the escape of effluvia.

Persons allowing stagnant water to remain within any house, or the contents of any cesspool to overflow or soak to the annoyance of adjoining occupiers, may be fined. They may require owners to provide privies and ash-pits.

No. 175 is an important clause:—"And whereas the health of the population, especially of the poorer classes, is frequently injured by the prevalence of epidemical and other disorders, and the virulence and extent of such disorders is frequently due and owing to the existence of local causes which are capable of removal, but which have hitherto frequently escaped detection from the want of some experienced person to examine into and report upon them, it is expedient that power should be given to appoint a duly qualified medical practitioner for that purpose; Be it therefore enacted, That it shall be lawful for the said commissioners to appoint, subject to the approval of one of her Majesty's principal secretaries of state, a legally-qualified medical practitioner, of skill and experience, to inspect and report periodically on the sanatory condition of any town or district, to ascertain the existence of diseases, more especially epidemics increasing the rates of mortality, and to point out the existence of any nuisances or other local causes which are likely to originate and maintain such diseases and injuriously affect the health of the inhabitants of such town or district, and to take cognizance of the fact of the existence of any contagious disease, and to point out the most efficacious modes for checking or preventing the spread of such diseases, and also to point out the most efficient means for the ventilation of churches, chapels, schools, registered lodging-houses, and other public edifices within the said town or district, and to perform any other duties of a like nature which may be required of him; and such person shall be called the medical officer of health for the town or district for which he shall be appointed; and it shall be lawful for the said commissioners to pay to such officer such salary as shall be approved of by one of her Majesty's principal secretaries of state."

Commissioners may order owners and occupiers to cleanse, purify, and whitewash premises; and are to nominate inspectors of nuisances. Certain underground rooms are not to be let for dwellings.

Clause 191 directs commissioners to obtain reports on the best mode of supplying water; and to this part of the bill we shall return next week.

COST OF TIMBER VIADUCTS.

A CORRESPONDENT of the *Railway Chronicle* supplies the cost of the following timber viaducts on the Newcastle and Darlington railway.

Sherburn Viaduct.—Length 220 yards, breadth within railway 24 feet, average depth 45 feet: total cost 6,340*l.*—220 yds. × 45 ft. × 26 ft. = 28,600 cubic yards; cost 6,340*l.* or 4s. 5d. per cubic yard.

Cassop Viaduct.—Length 153 yards, breadth 24 feet, average depth 34 feet: cost 4,069*l.*—153 yds. × 34 ft. × 26 ft. = 15,028 cubic yards; cost 4,069*l.* or 5s. 5d. per cubic yard.

Shincliffe Viaduct.—Length 220 yards, breadth 24 feet, average depth 48 feet: total cost 6,417*l.*—220 yds. × 48 ft. × 26 ft. = 30,507 cubic yards; cost 6,417*l.* or 4s. 3d. per cubic yard.

STIR IN THE SCHOOL OF DESIGN.

SINCE the appearance of the last communication on this subject in our pages, the annual meeting to distribute prizes to the successful students in the school has been held, and the disorganized state of the establishment has been brought under the notice of the House of Commons. Before alluding to these events, however, we insert the following letter, which reached us previously.

SIR,—As a letter has appeared in your journal signed by twelve students of the School of Design, and in which they attempt to prove that those students suspended by the council have misrepresented the state of the school, I trust you will permit me to answer such letter on behalf of my fellow students. Whatever might be reported as the words of Mr. Ewart, I do not for a moment believe that the expression there complained of was ever used by him. That the dispute had resulted in the withdrawal of the *senior* students or pupils almost without exception, was, I have no doubt, the term made use of; and which is the perfect truth.

Whether a letter which appeared in your paper of the 5th inst., signed H. J. L., was or was not the production of one of the suspended students I cannot say, my opinion certainly is that such is not the case, I therefore cannot feel that we are answerable for its assertions; but if your correspondent had written the following, he would certainly not have given those twelve any right to dispute the truth of his statement. (I will underscore the three additional words which I have placed in his sentence.) "In fact, the only students of promise the school could boast *of having educated* have been expelled." With the so much boasted answer that they will give on the 24th instant, I will have to do presently.

The letter then goes on to say that our assertion of the general discontent in the school was a falsehood; now the fact is, that at one of the meetings held by the suspended students, twelve or fourteen of the *senior* students of the large room attended, and there discussed the propriety of joining with us in petitioning the council. Those students were then advised by *me*, a *suspended student, not* to join with us; for this reason, that by far the larger portion of that room being filled with elementary students, the council would not know whether they were boys or men, and consequently they would only share in the difficulties without benefiting the cause advocated by us. Now of all those so attending there was not one that denied the truth of our assertions, but on the contrary, approved of them.

That twelve students can be found in the school (immediately previous to the awarding of the prizes) willing to purchase the good will of the director ought not perhaps to be a matter of surprise; but that any number, however small, could have the hardihood to string together such a mass of misrepresentation, and print it, and, moreover, to boast (as by them is done) that the precious production is unanswerable, is certainly astonishing. Now to the proof; and I willingly accept the test (of the past exhibitions) which they so boldly offer.

I must first premise that the present director has been two years and two months in the school; and also that one rule (No. 7, page 10) of the school says, "students who do not attend constantly, and regularly not to be allowed to compete for any of the prizes." Speaking of the last exhibition, they say that "unless then it can be proved that they who were beaten are superior to those who beat them." &c., &c. Now the facts are these: five prizes were last year taken by exhibitioners; four by students who have signed the letter in your paper (one of whom had not been a student the twelve months previous, and another has never studied in the school since till he came to compete for the present prizes), and thirteen by students signing the remonstrance.

Out of the twelve students signing the article in your paper eight have never before obtained a prize in the school, and therefore are strangers in it, or if they have before competed have been beaten, namely, Messrs. G. M'Kenzie, J. Woods, D. Pearse, R. Jefferson, C. Worrall, W. E. Cadman, C. Hairs, and P. Holland. W. C. Wild has not been a regular student in the school for two years (only com-

ing to compete for the annual prizes, which, in direct contravention of the rule mentioned above, he is allowed to do), and therefore can owe but little to the present director. Mr. Strudwick has not been a student in the school for twelvemonths, and is, moreover, a designer regularly employed in the glass trade; leaving only Messrs. Walker and Wallace, who can be placed in competition with ourselves, or who have not been beaten by us.

In their postscript No. 1. they give the number of students in April, in the evening classes, as 189; in July, the present month, 111; thus evincing a falling off of 78, certainly not to be accounted for by the withdrawal of the complaining students, in number 37, still leaving 41, nor even by that bit of fiction contained in their note, as I think the following extract from the report of 1843 and 1844 will prove; and since which time it is wished to be thought the school has increased in numbers.

In April, 1844, the number attending the evening classes was 196; in July, 1843 (I have not the return of July, 1844, otherwise I doubt not that month would be more favourable), the number attending was 187, leaving only a difference of nine, while this year the difference is forty-one beside ourselves. Can those students have shared in our sentiments? The excuse which they make use of does not apply to April, but to the three or four winter months in 1843. The evening attendance in November was 259; in December, 234; in January, 1844, 193; in February, 228.

I shall now proceed to remark on the second postscript. In the spring of 1843, six exhibitioners were chosen from among the students: this was just at the time of the appointment of the present director, and they were of course students who had been taught by the previous director; now what right have those twelve students to place the names of those exhibitioners in juxtaposition with ours, and what can they know (or what could be the weight if known) of the opinions of those who left the school twelve months ago? Or does it argue for the competence of the director, that those who *ought* to *have been* taught by him have been beaten by those taught by his predecessor? That it is not our fault, is, I think, fully shewn by the fact, that under the same teaching we have carried off every prize even from the exhibitioners themselves (I allude to class drawings). But there is another strange fact; there are at present in the school two exhibitioners, their names are not down amongst those signing the letter. How is this? they must know something of the state of the school.

As a proof of the spirit in which their letter was written, I will merely state, that a remark is made on a design executed by Mr. Philip, one of the suspended students. After stating that the prize was one of three guineas, they go on to say that "Two guineas only were given because the council did not consider the design deserving of more." Previous to this, there is a design for paper mentioned, the prize for which was taken by Mr. Walker, one who has signed their paper; now the prize is mentioned as two guineas, and no remarks made; the truth is, the prize offered was three guineas, but the council said they gave him two guineas as a reward for his industry, *but* considered his design as *not at all applicable* to the purpose for which it was designed.

And now, Sir, a few words on the so-much-vaunted coming exhibition, and the means that have been had recourse to in order to produce it. The three assistant masters have been employed to execute specimens of ornamental painting instead of teaching the junior students. By far the larger portion of the other principal competitors have not the slightest right to be considered as students who have been taught *in*, and *by the school*, being in fact practical designers (some of many years standing) who have been procured to make a *show*, and whose productions will be attempted to be passed off as those of students taught by Mr. Wilson. This is precisely the case with six out of the twelve signing the letter, half of them not having been in the school more than four months (though there is a rule which says that no one shall compete until he has been a student three months), when they almost immediately commenced competing.

In conclusion, I think I have proved that almost without exception the *senior* students *have* complained, and been suspended; that the *only students the school could boast of having educated* have been expelled; that eight out of the twelve signing the letter have no right to be considered as competitors with ourselves, or as the production of the school; that two others have no right to be allowed to compete at all; and that the present *show*, whatever it may be, has been produced by unworthy means, and I shall conclude by asking in the words of your correspondents,—whether a cause requiring the use of such disreputable means can be a good one?—I remain, Sir, &c., R. Burchett.

17, Bond-street, Cammercial-road,
July 21, 1845.

The annual meeting was held on the 24th, when Lord Colborne presided. According to the report of the committee, the designs were more numerous, better executed, and displayed more knowledge of ornament, and greater range of taste and composition, than those exhibited on any similar occasion, holding out a cheering prospect of continued improvement on the part of the pupils. Unfortunately, however, for the present reputation of the school, it seems from verified documents sent to us, that several of those who were rewarded are practical designers, who have been in the school only *a few months*, while others are exhibitioners appointed in Mr. Dyce's time. Mr. W. Williams when he brought the matter before the House of Commons dwelt strongly on this point, and asserted that it proved that the expelled students were the most able young men in the school. Mr. W. moved for a select committee to inquire into the allegations contained in the petition of the senior students of the School of Design in Somerset House, and into the general management and present state of that school.

Sir G. Clerk, on the part of the Government, would not listen to the proposition, spoke highly of the qualifications of Mr. Wilson as director, and referred with confidence to the works last rewarded. He said, the attack on Mr. Wilson had been prompted "by a bad heart (whose, we did not learn), and trusted the House would refuse the committee.

Mr. Ewart thought very differently. The school was disorderly — thirty-seven of the pupils had seceded — it was, in fact, in a state of disorganization (no, no). Manufacturers were complaining that they could not obtain good designs from the school, and Mr. Pugin, the architect, stated that the condition of the school was highly unsatisfactory, and that he was obliged to have recourse to continental workmen to execute his architectural decorations.* He put it to the House, then, whether they had not a right to ask for some inquiry (hear, hear). He found that the right honourable baronet opposite was inclined to put the school upon too mechanical a footing —to look upon the pupils rather as workmen than artists. Now, there lay the error which prevailed in the present system of management. Every eminent artist would tell them that the studies pursued at a School of Design should rest upon two main points—drawing from the human figure, and from nature. Upon these principles the most celebrated continental schools for design had been constructed (hear, hear). He agreed that the master should be an eminent artist. He also agreed with the opinion that this school should not be under the superintendence of a board. He should prefer to see some person out of that House at the head of it, who should still be responsible to the House for the manner in which the duties were performed. But the board now consisted of a number of persons, many of whom remained away from sheer idleness; and five or six converted the business into what (though it was considered a very unpleasant word in that House) he must then designate as a job. He was satisfied there ought, at all events, to be inquiry.

Mr. Wakley said, the report which had been made to the House was an attempt to deceive it. Mr. Herbert, the late master, was not even mentioned in it. He contended that Mr. Herbert was most unjustly treated—he was a man of great intellectual capabilities and great accomplishment in his art. It was acknowledged he was universally respected in the school. He was dismissed for some slight difference by a meeting of four councillors out of twenty-four, one of whom said, "We must stop the reconciliation between Mr. Wilson and Mr. Herbert. It must not take place." Young men, such as these students, would not have ventured to have proclaimed the incompetency of Mr. Wilson if it were not palpable.

Mr. Hawes defended the council, and said that Mr. Herbert's feelings had been studied, and every endeavour made to retain his services, but finding no hope of re-establishing harmony, they were compelled to discontinue the services either of that gentlemen or Mr. Wilson, and chose the former. Inquiry asked for on public grounds he should say by all means grant, but inquiry on the condition of being held up as jobbers he could not approve.

Mr. Wyse said the defect of the present school was, that the whole system as at first laid down was not acted upon.

Mr. Hume thought there had been some suppression of important facts in the report, and that further representations should be laid on the table. The motion was then negatived without a division.

While we earnestly desire to see the school efficiently conducted, we are most anxious not to commit injustice towards the present director. Impelled, however, by sense of duty, we cannot avoid asking a question, to which we trust a satisfactory answer will be afforded. A large sum of money, some say 1,000*l.*, has been expended in the production of a drawing-book; why is it that this work is withheld? and is it true that the 5,000 copies printed are consigned to the cellars of Somerset House?

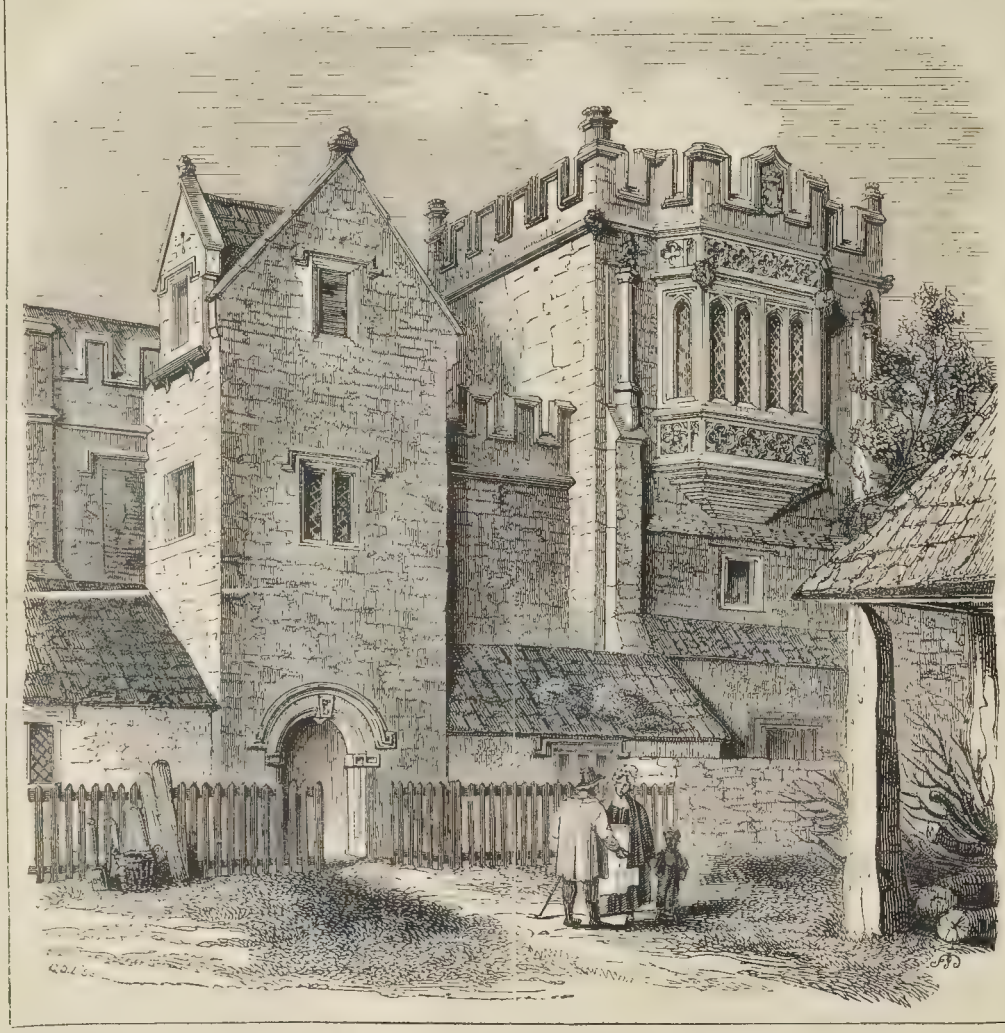
* The letter from which this is quoted will be found in our present number.

NEW CHURCH AT GRAVESEND.

A church is now in course of completion at Milton-next-Gravesend, which calls for favourable notice. It is a cross church, without aisles, and the tower stands at the south-west angle. Unfortunately, it has not a favourable situation, being built on ground below the level of the neighbouring roads. A church is one of those buildings, which should always stand in a prominent position, meeting the eye from many miles distant, but this is so hid at the backs of houses, that its existence is not easily discovered. The erection of the spire will partly obviate the mistake: at present, only the tower is completed. It would not be right to cast any portion of blame upon the able architect, Mr. Wilson, of Bath, and the church is on the whole highly commendable. The omission of aisles, we are inclined to think an advantage in a modern church, but we do not think that the same number of people can be arranged with greater convenience in transepts, though these improve the external effect. The buttresses are set rather close, the roof is of good pitch, and the tracery of the windows well designed. The style is decorated. The church is built of rough stone with tooled dressings, and there is no want of ornament. The western door and window are set in a large arch. The pinnacles of the tower, which now appear too small, can hardly be judged of till the spire is completed. The interior of the church is very effective from the good design of the roof, which is framed without a tie-beam, and stained a dark colour. We are sorry to say, that there are galleries in the transepts, and at the west end, but they have been well managed. The pews have low doors, so that they do not differ much from open benches. The arrangement of the roof timbers, at the intersection of the nave and transepts, is admirable. The font is a very beautiful one — octagonal — on steps, with a kneeling stone. The pulpit is of stone. The reading-desk and all the minor accessories shew much thoughtful consideration.

The Chelsea Embankment.—The entire cost of the embankments about Cheyne-walk will be 75,425*l.* 4s. 11d.; of which Earl Cadogan contributes 6,745*l.* 0s. 10d.; Lord Calthorpe, 1,706*l.* 15s. 4½d.; her Majesty, 1,903*l.* 1s. 6½d.; the Chelsea Water Company, 10,403*l.* 6s. 2½d.; the Marquis of Westminster, 8,123*l.* 19s. 7d.; Mr. Sloane Stanley, 3,111*l.* 5s. 6½d.; Miss Howe, 1,648*l.* 1s. 6½d.; and Colonel Talbot, 545*l.* 18s. 1½d. Some of these parties, however, have not yet given their consent to this allotment.—*Globe.*

GATE-HOUSE TO THE OLD PRIORY, MONTACUTE.



GATE-HOUSE TO THE OLD PRIORY, AT MONTACUTE, IN SOMERSETSHIRE.

Montacute is one of the most picturesque villages in the county of Somerset; and, in addition to its natural beauties, it possesses those of particular interest to the architect. It contains, and its immediate vicinity affords, several ancient edifices of great architectural merit. The building here represented, compared with some others, is perhaps of lesser interest, but still has much value both to the artist and to the antiquary. It is the gate-house of the old priory, whose history shall shortly be touched upon.

The chief attraction of the village is the princely residence of the Phelips', Montacute House; but of this noble pile detailed representations of every part have been published, except, strange to say, its finest portion, the north front, which originally belonged to Clifden-hall, one of those fine old Tudor gothic structures, similar to Hengrave, in Suffolk, and to which it is nearly equal.

Of the old priory at Montacute, the gate-house and a small building on each side are the only remains. The view represents the back-front and the porch added to it in the reign of Henry VIII. With the exception of this porch the building is of late perpendicular character, in the same style as the noble village church, which immediately adjoins it,—so much alike are the details of these two structures that we may consider they were built about the same time. The entrance front of the gate-house is very picturesque, and is greatly superior to the front represented in the print; it has at each angle two bold octagon towers, one of which reaches above the battlements. The bow-window in the first floor is repeated in both fronts, and under them are the arched entrances, the sides of which have clustered columns, and the pointed arches over them are richly moulded; they are hidden by the mean sheds erected before them. The centre battlement contains in one side, a bas-relief of the royal arms, and in the other are two letters (which appear to be T. C.) under a mitre; these probably were the initials of the abbot by whom the building was erected. There is one room which still retains its ancient appearance internally; the ceiling is formed of the open joists and girders of the floor above: they are in oak, richly moulded.

In the *Gentleman's Magazine* of May 1817, there is an account of the priory; it was founded about the year 1091, by William, Earl of Morton, as a priory for black cluniac monks, it was surrendered to Henry VIII: in 1539, the site was granted to Sir William Petre, and sold by him to Mr. Robert Freke; it was soon after purchased by the family of Phelips, in whose possession it still remains.

I cannot quit the description of the building without pointing out a barbarous tree which threatens its destruction. This tree, suffered to take root within the gateway, has mounted up, till having come into contact with the stone-work of the vault, it has forced its way through the wall at the angle, and appears on the outside. As its bulk increases year by year, it threatens to upheave the arch-stone, and, if so, the whole vaulting will fall in, and probably bring the beautiful fabric in one pile of ruin to the ground. Now, on a former occasion, Mr. Editor, the insertion in your valuable paper of a view of the turret of Leigh de la Mere Church, in Wilts, and of an account pointing out the insecure state of that interesting structure, caused immediate attention to be paid to it, and the restoration of the entire building under experienced hands is soon to take place. I do hope that this number will be equally efficacious in saving from destruction by such vulgar means, the elegant structure at Montacute.

In the vicinity of the village is Brympton old manor-house, an ancient building of the reign of Henry VII. It possesses a noble garden front of great size, built by Inigo

es; Barrington Court the ancient seat of Phelips is within a few miles. This build- which is now in the hands of the tioneer, is one of the most interesting imens of Tudor architecture in England. whole of the structures are built with an emely durable shelly lime-stone from Ham Quarry, in the immediate neighbourhood he village. This stone being obtained in t quantities, is used for numerous purposes. end of the roof of the shed to the right he print is seen supported by one large e of this description placed upright; slabs t are used to form divisions between the s, and the roads for many miles are lined walls composed of it. As may be sup- d, all the cottages are of stone, and as the style of mullioned windows, and flat tudor ed doorways are still in use, a very anti- ed air is given to the village.

C. J. Richardson.

THE ARRANGEMENT OF PICTURE GALLERIES.

R,—Having read with some attention the le in your work "On the National Gal- Arrangement of Picture Galleries gene- ," I beg leave to offer to you the following munication:—

he accompanying sketch is intended to bit a gallery for pictures upon a principle ghting the walls in a similar manner to which I had the honour of suggesting to late Mr. President West when he altered gallery in Newman-street, and which he ted with great success. It was the admis- of the light perpendicularly, close to the s, producing from them no reflection to the tator's eye, that by lighting the floor gave turned light to the pictures on the walls, h was very beneficial. It is by this plan osed that a building should be constructed et by 90 feet, without fire-places in the ns, having two divisions for large pictures, side divisions for Dutch and cabinet pic- s, and having a staircase in the middle of ntrance room. No. 1.

he lower part may be used for statues, it may be preferable to have a low base- t only for attendants, &c. The height gested for the large room is 24 feet, the ller room 12 feet.

is presumed that very large paintings will ire full 30 feet distance from the specta- s eye to the picture, in order to enable him e the whole design of the master at one d'œil. Room No. 2. will fully afford distance; but room No. 1. will not admit uch an interval, as the stairs will inter- .

he side galleries are adapted for small ures, the height being limited to 12 feet, works will be near enough; and by having light as described, almost the whole of the room will be occupiable.

will be evident from inspecting the plan the building will be very economical, and ible of external embellishment. If iron s are placed at the openings, only one divi- need be burned from one accident: the ams of people can flow without much in- ption, which must ensue where the aper- s are in the middle of the apartments.

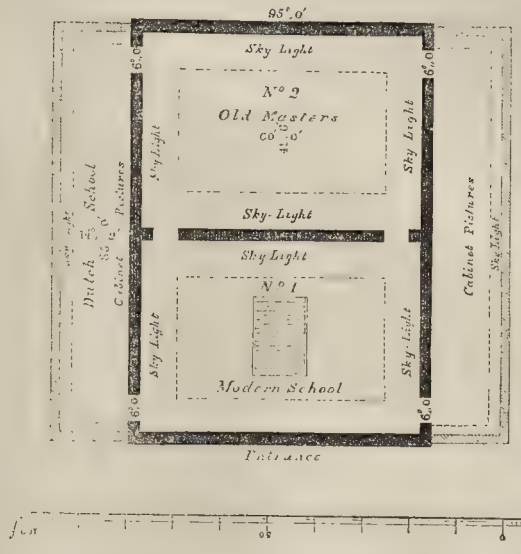
ly 18, 1845. John White.

MR. PUGIN ON CHRISTIAN ART.

he following is the communication ad- sed by Mr. Welby Pugin to Mr. Herbert, ch was referred to in the recent debate cerning the School of Design.

Y Dear Herbert,—I have almost given ny hope of seeing any real good effected by School of Design, which ought and ch (I feel assured) might be made the t powerful and effective means of creating hool of *national artists*, not mere imitators ny style, but men imbued with a thorough wledge of the history, wants, climate, and oms of our country; who would combine he spirit of the medieval architects and the ities of the old Christian artists, with the tical improvements of our times and our eased anatomical knowledge; we should create a school founded on the old prin- es, and yet a true expression of our period. ust own I have long entertained a most ruine hope that Christian art and archi-

DESIGN FOR A PICTURE GALLERY.



tecture may be carried to a far higher degree of perfection than they ever attained during the middle ages. The real source of art is *nature*, and the best artists of every nation and period have taken it as their standard, and represented it under the peculiar aspect of their locality and period.

It is absurd to talk of Gothic leaves or Gothic figures; the types of the foliage introduced in the decoration of the first medieval buildings are all to be found in nature; and any garden and field can supply beautiful models for the sculptor. I am now preparing a work on vegetable and floral ornament, in which, by disposing natural leaves and flowers in geometrical forms, the most exquisite combinations are produced, and of precisely the same character as those found in the illuminations—stained glass, incised plates, &c., of the thirteenth and fourteenth centuries. As regards images, no reasonable man would think of altering the proportions of the human frame, so beautifully and wisely ordained by the Creator; but it is by the disposition and draping of the figure that the Christian artist obtains his effect. The sublime repose of the ancient statues, and the majestic simplicity of the folds of their drapery, are the true characteristics of the old sculptors, and not any affected quaintness of outline. By draping a lay figure of natural proportions in stuff and vestments which were in use during the middle ages, the identical folds and forms are produced in reality which we see represented in a greater or less degree of perfection in the ancient works. *The first productions of Christian art are the closest approximations to nature, and when they failed in proportion and anatomy, it was not a defect of principle, but of execution.* If the students of the School of Design were trained in this manner, we should get splendid designers for stained glass, frescos, and brasses; and sculptors who would not represent departed Christians under the guise of dying gladiators, nor statesmen and ecclesiastics as half denuded maniacs.

But the school should be also a place for the formation of *operative* as well as designing artists: we want artist smiths in silver and iron, artist chasers in metals, artist glass painters, artist engravers for enriched plates, artists for the manufacture of stuffs and the production of embroidery; and these should be well grounded in the fundamental principle of adapting the style and working of its ornament, not only to the purpose, but the *material* in which it is to be produced. Wood, stone, glass, silk, and metal, require totally different treatment in their enrichment, suited to their separate properties: the same leaf would be produced in a totally different manner if wrought in metal or carved in wood, and the practical knowledge of these matters is indispensable for the revival of true taste in manufactures. Now the School of Design in its present form, so far from tending to promote any of the ends and principles which I have mentioned, is in fact a hinderance to the revival of true taste and feeling, for the minds of the students are perverted, by copying the same stale models that have been used for years, without producing a single artist capable of designing any thing original or appropriate. I see nothing but Pompeian arabesques, Greek friezes, and capitals—works certainly good in their kind—excellent illustrations of the opinions and principles of the nation which produced them, but *more than useless* when employed to form a school of English artists; they lead to a miserable system of adaptation of obsolete symbols and designs, appropriate only to times and people from whom they originated; and while this system is pursued, the school cannot produce one man fit to be employed in our national works, and at the present time I am actually driven to seek efficient assistance from the Flemish and German operatives.

It is misnamed a *School of Design*; it is a mere *drawing school*, and a drawing school for bad models; that is to say, models which must fail in generating original artists, and which can only form bad copyists and adapters. Now, I do feel anxious that this period and this country should be distinguished by a new school of art, which should combine all the excellencies of the old men with the greatest purity of drawing and proportion, and the admirable execution of the ancient operatives, with any improvement of science and mechanical skill; then, indeed, we might produce a class of artists that would be capable of decorating our churches and public buildings, and skilful operatives for manufactures. England might then be distinguished by a national school of art, which would illustrate its history, and produce objects suited to our present wants and circumstances. This is merely a rough outline of my views on the subject, but it is one of such importance, and things are going on so badly, that I could no longer refrain from sending them to you even in this crude and imperfect state.—My dear Herbert, yours, &c.,

A. Welby Pugin.

INFLUENCE OF NEWLY-BUILT HOUSES ON THE HEALTH OF THEIR OCCUPIERS.

Sir,—In your journal of to-day, I find an article headed as above. Respecting science as I do, I fear we are upon the eve of running riot upon theory, in lieu of attaching due value to the importance of experience. I beg to differ from the propositions of Dr. Sutro, and also not only from these propositions, but from the propriety of the frightful outlay consequent upon the experiments of another doctor touching the ventilation of public buildings. Is the profession to be silent, and trust to mere theorists to alarm the public as to the occupation of newly-erected residences? From twenty-five years' experience in my profession, I will endeavour to grapple with the doctor's objections, without harassing the minds of your readers with the scientific terms used in his argument, never having met with the "pale anœmic face, wasted muscles, decrease of strength, sluggishness of small pulse, which symptoms frequently terminate in external or internal dropsy." And then follows a vocabulary of nearly all the ills that human nature is heir to; of course, intended as consequent upon inhabiting a newly-erected residence. Without attempting to controvert the learned doctor's scientific terms, I will appeal to the experience of your practical readers whether I have upon me the charge of homicide, for having constantly placed parties in the occupation of their dwellings within six months from the commencement thereof? Admitting the doctor's correctness as to the medium of exhalation, evaporation, &c., the practicalquestion will be, what is the result in newly-erected dwellings? My test, without any scientific reasoning is this, pass the nail of any digit over the plastering, if not the slightest impression remains, proceed topapering; which involves the fact, that you are about to append an article partaking so much in its construction and in that by which you attach it of the medium for exhalation, that the evidence would be immediate. I do not deny the doctor's proposition that dampness may exist, but assert from practical experience, that exhalation goes on (if at all) in connection with the external lighter atmosphere. I challenge the doctor to hang up a blanket or woollen cloth in a room so circumstanced. Then as to the effects of evaporation from the accredited baneful influences of the component parts used in painting; by the common practice of the painter to put a pail of water in a room newly painted (the colour not being hardened) a deposit is the result; try it again when the paint is hardened, and no smell remains to offend the olfactory nerves,—no deposit is the result.

I would refer the doctor to the evidence we all have of the operation of nature upon freestone—which, in the quarry may be cut with a knife—exposed to the atmosphere becomes hardened; so I hold it with plastering or paint; offensive and deleterious in their component parts, when amalgamated and with this operation of nature's incrustation who will limit its commencement of resistance to exhalations? In a well-cleansed house (before occupation) I am at a loss to imagine where the baneful influence can arise from *floating* particles of lime.

With respect to ventilation, it has been my privilege very recently to discuss the question with two members of our profession, one of accredited, high, and long standing, who tells me some twenty years since he was called in to ventilate a large public building, that the system he adopted had been most successful, and I only waited (and still only wait) his offer to take me over the building to trouble your readers with the mode. The same modesty that has prevented him intruding on the public, induced the remark in our discussion, that having no title (doctor or otherwise), as an humble individual he was passed over. My younger friend has a scheme for ventilating houses in their *construction, nolens volens*, as to the occupier. I trust his modesty will not interfere with giving the result (through your columns) of his inquiry to the public.

Other personal occupations have prevented my intention of sending you counsel's opinion upon the construction to be put upon the clause in the new Buildings Act, touching "finishing fit for occupation" houses "already built," which the dictum of the referees in their circular rendered imperative; suffice it for the moment to state that counsel's opinion is thoroughly with my case, viz. the clause is permissive without penalty, *ergo*, "cover in, finish when you please," as in respect of works commenced since 1st January last there is no controlment of period for finishing, the contrary in respect of works commenced previously (intended as of benefit) would be an absurdity.

I am, Sir, &c.

Greenway Robins.

Peckham, 26th July, 1845.

IMPROVEMENT OF DWELLING-HOUSES.

Sir,—In the hundredth number of your journal you state that one great object of "The Builder" is to disseminate practical knowledge, and to introduce sound principles in building. "The improvement of dwelling-places is a subject of national importance." Every one must admit the necessity of the former remark, which stands in need of your powerful aid, and with the latter I perfectly coincide. I had hoped that during the present session of Parliament some general measure would have been introduced by the Government for the purpose of improving the construction of buildings, and the general sanatory condition of towns. Although notice has been given of some such a measure by Lord Lincoln,* I fear the bill will have to be delayed another session, as the early part of the present has been lost in fruitless discussion, and now important measures that effect the vital energies and well being of every member of the community are postponed in consequence, forsooth, of that great pressure of business which ought to have been transacted in the early part of the session. With such a mass of strong and unconfutable evidence before them, collected by the useful and laudable exertions of that eminent body of men, the Health of Towns' Commissioners, containing such startling and astounding facts, our legislators, with all due deference, I conceive are not discharging their duty either to themselves or to the country, by allowing a session to pass without an effort to remedy the evil which undoubtedly presses equally on all, both high and low, rich and poor. As the lives of many thousands of our fellow-creatures are annually sacrificed from the unhealthiness of our towns, and as the average duration of life of many thousands more is materially shortened from the same cause, which is capable of remedial measures, surely we have as great a right to expect the attention of the legislature drawn to the subject as to that of the protection of dogs, and others of the brute creation. A general building and improvement act for towns is much required, as the want of it must be evident to every one at all acquainted with the state of the towns of this country. In most of them you find the streets narrow, crooked, and inconvenient; the houses and shops inefficiently and irregularly built, without taste or architectural pretensions, or the slightest attempt at uniformity in design. A building and improvement act would enable us to lay out and improve our streets with science, taste, and convenience, our dwellings might be constructed substantially, and with some degree of architectural style and embellishment, and so arranged and classified, as to suit every grade of the community. The buildings ought to be erected under the supervision of a qualified architect, who should be appointed for that purpose (similar to your district surveyors); they would then be well and substantially constructed, and present a striking contrast to the faulty, cracked, and distorted appearance of many of our modern buildings, that are erected to suit the whim or caprice of some speculative individual or adventurous builder. Much difference of opinion appears to exist relative to the nature and operations of the Metropolitan Buildings Act, but I think every right-minded and unprejudiced person must acknowledge that it is an exceedingly useful measure, and one that is calculated to effect great public benefit. An extension of its principles throughout the country is ardently to be hoped for. At present, little attention is paid to the ventilation and drainage of houses; these are most essential elements in the salubrity of a town, and the preservation of health. There are but few towns that have any system of drainage; some are drained partially and imperfectly, and others not at all: this aris in consequence of having no general measu for that purpose; and if it is to be left to t wish of the inhabitants at large, it would nev be carried into effect at all, because the gre majority of persons are unwilling to add their local burdens; and as a town cannot healthy without an efficient system of sewera constructed on correct and scientific principl the expense, I consider, should be borne the owners of the property, as they shou be required to render their houses not on habitable, but healthy also.

A good supply of water to towns is of t utmost importance; for next to the air breathe, water is the most indispensable age in vital economy. There are but few tow in this country that have water-works est blished, and many have to depend upon the pr carious supply to be obtained from rive brooks, or wells; the former being surfa water, is rendered unfit for consumption by t impure matter it contains in solution, the latt from pernicious matter that percolates throu the earth, more particularly if the system drainage is bad. The expense of water-wor even to small towns, in the shape of rat would fall comparatively light upon the inh bitants, and the sums annually paid in sickne for medicine, &c., required in consequence the impure and deficient state of the supply this necessary of life, would amply compens for the first cost of the works and the supp as well as filter the water, and rendering it pu and fit for human consumption. More diseas are engendered from this cause than we a generally disposed to admit of, or than we dres of in our philosophy. In the event of fi water-works are essential, as the means checking the ravages of that devouring el ment, as it is rarely convenient to obtain immediate and sufficient supply from any oth source; and when we contemplate the awf destruction of property that has taken pla lately both in this country and abroad, I thi every precaution should be used, and every effc made, if not to remove the cause, at least lessen the disastrous effect. Too much timb is used in our modern buildings. I think t day is not far distant, when the nature and pr perties of iron will be better understood, and will, in a great measure, supersede the on perishable material used in building constru tions. Much of the unhealthiness of tow arises from the dirty and filthy habits of t lower orders of the inhabitants, who are allow either to accumulate their filth and refuse ma ter on their own confined premises, or to dep sit it in the streets, to the great annoyance their neighbours, and to the unhealthiness the district they reside in.

In every town, provision should be made f the collection and deposition of this refu matter, and every means should be taken instil into the minds of the lower orders habi of order, cleanliness, and decency I thi health officers, or inspectors of nuisance should be appointed in every town for the pu pose of aiding in the suppression of the abominable practices, and power should given by the Legislature to inflict penalties all who do not conform to regulations of clea liness and decency. Slaughter-houses are ofte times great nuisances in towns, the sten arising from them being intolerable. The I think should be built on a plan and si favourable for drainage, and detached fro dwelling-houses, which is very rarely the cas

Macadamized roads in towns I think are n desirable on the score of health, because in d seasons every one must have suffered from t inconvenience arising from the dust, and wet weather mud and dirt predominate. T same objection applies as to dust, to road su faces formed of broken stone, profusely inte mixed with asphaltum, alluded to in your jou nal (p. 263, *ante*), which has been extensive used at Nottingham. This material, moreove is readily operated on by the rays of the su which render it soft and elastic, and theret increase the force of traction, and consequent the labour of horses in draught.

Streets cannot be too frequently swept, a I think Whitworth's machine is a decided i provement on the old system, inasmuch as t dust is swept up and carted away immediatel whereas formerly the dust and filth was allow to remain in the streets a considerable tim giving off offensive and noxious gases. dry seasons the streets should be invariab

* A notice of this bill, since brought in, will be found in another page.

atered before they are swept, whether the rface is macadamized or paved, because the ist is not only detrimental to health, but in- rious to the goods of tradesmen and the rniture in houses.

I could extend these remarks to an almost definite length, so numerous and so crying e the evils and abuses we are suffering under; t I fear even now I have trespassed too much your valuable space, which might have been cupied by an abler pen than mine, and must ead for your kind indulgence.

I am, Sir, &c. B. B.

Brecon, South Wales, July 21, 1845.

OETHE ON ARCHITECTURE AND ART.

TRANSLATED BY J. LHOTSKY.

"Genius—is universally genial."

ALTHOUGH the great German poet extended s research and activity over almost every anch of human ken—it was to *art*, after all, which his external position, as well as in- rnal vocation pointed most prominently. As e adviser of the great building operations rried on at Weimar; the creator and ar- nger of the well-selected grand ducal collec- ons, and the companion of the duchess dow- er in her peregrinations in Italy—art was constant occupation; and when, ultimately, lived two years in Italy, ancient and modern chitecture attracted much of his attention. hile, however, so much of the most futile d unmeaning trash of German novels and blin stories have been reverentially trans- ed into English —, Goethe's "*Auch ich in kadien*" has not participated in the same tinction. Besides these two volumes of alian travels, the German poet has scattered variety of the most vivid and pregnant obser- tions on architecture and art, over his auto- ography, his papers "*Für Kunst und Alter- um;*" all which has been laid aside by our nslators as *no good*. We therefore intend, space and occasion may allow, to supply s desideratum by presenting our readers th the *first* translation of Goethe's architec- ral and artistic remarks, ever made—which, er all, may have that additional merit of fix- g public attention to the *ensemble* of the ove works.

We have, however, still to remark, that we l no inclination for acting the part of a sor with Goethe's writings. This great n knew full well, that nothing whatever has *y value* but in relation to, and in connection th, the *social* condition, and the social *im- vement* of men. He knew full well, that n may amuse themselves (waste time) with anting the hairs on the body of spiders, or cuss whether Cæsar had any corns or not, l the like — but he knew full well, we say, t *this*, really, was *no good*. Hence his con- nt and deep allusions, to the bearing of ar- tecture and art on the *total* condition of n. Such remarks, if interwoven with our ics, we shall not curtail—as they give zest l pregnancy to his beautiful sayings. We ow, in fine, that Goethe's writings will not truct our readers in the *materiale* of build- (the theory of beams, &c.); for this, other ice is extant. They will, however, afford ple scope for thinking and *feeling*—and from s to reasonable and seasonable *action*, is but *step*.

HEORY OF AMPHITHEATRES (THEATERS).

Verona, Sept. 16, 1786.*

The amphitheatre is, then, the first impor- t monument of ancient times, which I was tined to see; and how well is it pre- ved! When I went in, still more when I ked around on the brim of the building, it eared strange to me, that I saw something nd, and still *nothing* in reality. Because, it ot intended to be seen empty, but quite filled h people, as it has been shewn of late to perors and popes. Joseph I., accustomed ne was to see masses of people, is said to e been seized with astonishment. It , however, but in the earliest period, t it produced its full effect, when the people e yet *more* really "the people," than they now (!) Because such an amphitheatre is eed made for the sake of imposing upon the ple with their own importance—to *gammon* people with the presumed idea of them- es.

* Italienische Reise, vol. 1.

If any thing see-worthy occurs on even ground, and every one runs to it, the back- standers endeavour, by every possible means, to raise themselves above the foremost: some step on benches, casks are rolled hither, carts dragged to, boards are laid to and fro, neighbouring heights are occupied—and a sort of living crater is quickly formed.

If the spectacle occurs oftener at the same place, slight scaffolding is erected for those who can pay, and the other mass shift for themselves as they best may. To satisfy that general want, is here the architect's task. He constructs a similar crater by art—as simple as possible, for the people themselves becoming the ornament thereof. If they thus saw themselves together, they must needs have wondered—because, being merely accustomed to see themselves, hitherto, running about promis- cuously, to find themselves crowded together without order and rule; this many-headed, many-minded, tossed-about animal, erring to and fro—sees itself then united into a noble whole, combined into a unity, congregated and fixed into one mass, as one body, ruled by one mind. The simplicity of the oval is visible to every eye in the most pleasing way, and every head serves as a scale, indicating how immense the whole be. Now, as we see it empty, we are left without a standard of comparison, and cannot judge whether it be large or small.

The Veronese deserve much credit for the way in which they preserve this monu- ment. It is built of a reddish sort of marble, which is affected by the air and rain: on which account the corroded steps are replaced by others, and they appear almost all new. An inscription records the name of one Hieronymus Maurigenus, and the nearly incredible pains he has taken with this monument. Of the outer wall there is but a part remaining, and I doubt whether it has been ever wholly finished. The lower vaults, which are situated towards the great square called *il Bra*, are let to artisans, and it looks funny to see these dens again tenanted.

(Verona 16 Sept. 1786.) The finest arch- gate which, however, is constantly shut—is called *Porta stupa* or *dell Pallio*. Considering it as an arch, and the great distance from which it is seen, it is not a well-conceived work; as it is only in nearing it that the merits of the building are appreciated.

They state different reasons, why it is shut. Still, I have my own conjecture. The in- tention of the artists went, undoubtedly, towards causing by it a new laying out of the Corso, because it does not correspond at all with the line of the actual street. The left side consists of low tenements, and the rect- angular line of the middle of the arch points towards a convent of nuns, which would have been to be laid down, as a matter of necessity. This all was evident; besides the rich did not like to establish themselves in this distant quarter. The artist died, perhaps, in the mean time, and the arch was shut, by which, matters were brought to an issue at once.

The portal of the theatre, consisting of six large Doric columns, is respectable enough. The meaner, nevertheless, appears over the door, before a painted niche, supported by two Corinthian columns, the life-size bust of Marchese *Maffei* in a large wig. The place is honourable, but for the sake of being some- what at a par with the size and sterlingness of the columns, the bust ought to have been colos- sal. Now, it appears puny, on a miserable pedestal, unharmonical with the whole. The gallery also, which surrounds the vestibule, is mean, and the fluted Doric dwarfs appear poor aside the smooth Ionic giants. Still, we shall pardon this, in consideration of the fine col- lection which is placed under these arcades. Here, the antiquities, mostly dug up in, and near Verona are jointedly exhibited.* Some are said to have been found even in the am- phitheatre. They are Etruscan, Greek, and Roman, down to the later periods, and also some of modern times. The basso-relievos are encased in the walls, and bear the numbers given to them by Maffei in his work: *Verona Illustrata*. Altars, fragments of columns and such like; also a most exquisite triped of white marble, on which genii are represented playing with the attributes of gods. Ra- phael has imitated and idealized such in the corners of the Farnesina.

* Thus the commonwealth of Verona possessed a museum of national antiquities in 1786—denied to this country in 1845.

The breeze blowing from the graves of an- tiquity, replete with fragrancy, is, as if it came over a *bosquet* of roses. These sepulchral mon uments are hearty, sentimental, and repre- sent always life. There is a man, who, in a niche, aside his wife, looks as if out of a window. There stand father and mother, their son be- tween them, looking at each other with un- speakable simplicity. Here again, a couple seize each other's hand. A father, reclining on his sofa, seems to be amused by his family. I, indeed, was very much moved by the deep meaning of *actuality* in these stones. They are of a later period of art, but are simple, natural, and speaking to every one. The artists have (with more or less skill), placed merely the simple existence of man before us, but by so doing, have preserved it and made it something stable. They do not fold their hands, do not look to heaven, but they are here what they have been and still are. They stand aside each other, take interest in each other, love each other—and this is most lovely, albeit somewhat unworkmanlike, represented in these stones. A very ornamented marble pil- lar afforded me also some new ideas.

However praiseworthy this institution be, still, it is apparent, that the noble spirit of conservatism, which caused its foundation, has outlived itself. The splendid tripod will soon be injured, because it stands unprotected —exposed to the weather on the west side. Provided with a wooden case, this treasure might be easily preserved.

The new palace of the Proveditore, if finished, would have been a fine piece of archi- tecture. Besides, the Nobile still build a great deal, but it is a pity, everyone at the place where his former dwelling stood—consequently, often in narrow streets. Thus a splendid front of a seminary is erected in a small street of the most distant part of the fauxbourgs.

RESTORATION OF NETHER WALLOP CHURCH.

THE church of St. Andrew, Nether Wallop, like too many of the Hampshire churches, was formerly remarkable for little beyond a "sing- ing gallery" of goodly proportions and an unsightly array of pews of every size, shape, and height. It has lately undergone a thorough restoration, the gallery having been removed, a beautiful belfry arch having been opened to view, and a two-light window with stained glass having been inserted at the west end. The centre of the nave has been repewed with seats of a uniform height of two feet eleven inches, corresponding with the original oaken seats in the north and south aisles; the whole of the nave has been refloored and repewed throughout, the windows reglazed, and a space enclosed by an oaken parclose at the east end of the south aisle, to serve as a vestry. A per- pendicular font, from a design by Mr. Os- mond, of Salisbury, has been likwise substi- tuted for the old broken one, which was ingeniously hidden in one of the high pews under the gallery.

The chancel has been wholly rebuilt, at the expense of the impropriator, the Rev. Walter Blunt, who has retained its original propor- tions, viz., 38 feet in length, by 15 feet in breadth. On taking it down, the remains of a beautiful old oak roof were discovered, which was adopted as an exact model for the new one. It is of a good pitch, and is remarkable for the peculiar curves of the tie-beams, and prin- cipals, and the lateral brackets for the support of the purlins. The seats, extending longitu- dinally, and altar-rails, are of foreign oak; and the space within the altar-rails is paved with encaustic tiles, interspersed with medallions, containing emblems of the Evangelists, the Queen's and Prince Albert's arms, and a mitre. The whole is surrounded with a figured border. A new perpendicular window has been placed in the east end, and there are two two-light windows of rather earlier date on the north and south sides; the whole of which have been filled with stained glass, the former from a design by Mr. Fisher, of Salis- bury, and the latter with quarries of tinted glass (covered with oak and ivy leaves), which were made after the pattern of an original quarry found in the old chancel.

The restorations of the nave have been ef- fected by a voluntary subscription.

EXAMINATION IN LINES AND CURVES.*

28. Describe the different characters of spiral lines used in architecture, and shew how they can be traced by continuous motion.

29. Is there any example of the logarithmic spiral being applied in ancient architecture? If so, state where and when, and how it is proved to be such.

30. What are the characters of the curves forming the vertical contour of Egyptian, Greek, or other columns? and shew how they can be described full size by the workmen.

31. Shew how the various characters of Gothic arches, from the most pointed lancet to the flattest Tudor, may be traced by continuous motion by a workman, to the full size required.

32. Point out the difference in the characters of lines applicable, or supposed to be applicable for these purposes, and why one description is preferable to another.

33. What is a cardioid, what are its different characters, and by what means can the whole, or any part of such lines be drawn?

34. Shew any instance of the application of a part or the whole of any description of cardioid in architecture.

35. Shew how a varying curved line can be traced (always concave on the same side) commencing at a point at any given distance from one side of a right line, then crossing the right line at a point at any distance from the first point, then returning on the other side of the right line to the same distance from it as from the first point on the other side; and, if necessary, produce both the right line and both branches of the curve to any extent, continually receding from the given right line on both sides, but never to exceed a given distance from each other.

36. Draw a portion of another line with two infinite branches — both branches continually approaching a right line on the same side and in the same direction.

37. Draw Hogarth's line of beauty by simple continuous motion, of several different dimensions, but exactly in the same proportions. JOSEPH JOPLING.

NEW HALL OF COMMERCE, IPSWICH.

On Monday, the 21st ult., the new building at Ipswich, appropriated to the customs and excise, was publicly opened. It is said to be a good instance of what may be done with small funds by clever distribution and just proportion of parts. A local paper says:—"The Hall of Commerce occupies the centre of the building on the principal floor, the same width as the portico, being about 35 feet square, and 18 feet high; some little decoration has been given to this room, the walls being surrounded with an order of the Corinthian proportion, the capitals of which are of original design and display considerable merit—from the cornice springs a cove abutting against an enriched guilloche flatband which surrounds the ceiling, and groined on the south and west sides. This portion of the building, together with two private offices in the rear, is to be devoted to the convenience of merchants, ship-owners, &c., for business purposes. The department of the customs is on the west side of the building, and that of the excise on the east, each consisting of a long room or public office, with private apartments for the collector and controller of each establishment, together with rooms for samples and stores. A separate entrance and staircase is provided for each department, communicating with the arcades at each end of the building; while there is another staircase at the back for the Hall of Commerce, and the offices on the Mercantile Floor, which are occupied by the Dock and River Commissioners and private merchants. Extensive corn chambers are obtained over the whole of the building, and the lower story throughout is appropriated to stores and warehouses. The contract for the whole of the works was completed at 4,250*l.* and the work has been executed in a sound and substantial manner—no settlement in any part having occurred.

The length of the building from west to east is 125 feet, and the depth from north to south 44 feet—the portico and staircase projecting about 23 feet. The height to the apex of the pediment is 55 feet, and to the cornice, 45 feet; and the tower, 76 feet."

At the north-west corner of the building, there is a campanile. An entertainment was afterwards given in the hall, and the health of the architect, Mr. Clark, was proposed amongst others by the mayor in flattering terms. It is so much the custom to forget the architect altogether at these ceremonies, and still more so in any account of them afterwards given by the press, that we cannot omit mentioning the circumstance.

Mr. Pettit, the contractor, was also complimented, and said in reply what it is always most satisfactory for an architect and employer to hear, "That while he had endeavoured to do justice to others *he had paid himself*."

* See page 353 *ante*.

MONUMENTS TO EMINENT MEN.

Our readers are probably aware that steps were taken some little time ago to obtain a monument to our illustrious countryman, Flaxman. The committee rightly remark in their appeal on the subject, "It has long been a subject of general regret and national reproach that in this country so little has as yet been done to testify a nation's gratitude to the great masters in British art. The persevering exertions of private individuals erected a monument in St. Paul's to the memory of Sir Joshua Reynolds, and the admiration of friends and countrymen a statue in the National Gallery to the memory of Sir David Wilkie. But the history of British gratitude to British art begins and ends with these two statues. While public memorials to our warriors and statesmen are of common occurrence, Sir Christopher Wren has only a slab, Hogarth is without a bust, and Flaxman without a statue." We are glad to find that the latter stigma will be removed; a sum of money has been already subscribed, and Mr. M. L. Watson has completed the clay-model of the statue to the perfect satisfaction of the committee: further subscriptions, however, are required, and we gladly make known the want in the hope of inducing assistance. Mr. Peter Cunningham is acting as honorary secretary.

The subscriptions in aid of the memorial to the memory of his late Royal Highness the Duke of Sussex are to be appropriated to the building another wing to the Royal Free Hospital, with the addition of a marble statue and a suitable inscription, to be erected at a cost not exceeding 1,000 guineas. The new wing will be called the Sussex wing, and is to be large enough to contain 100 beds.——A statue of the late Lord Rolle, in the robes worn by him at the coronation, executed in white Carrara marble, at a cost of one thousand guineas, is being erected at Buton, the seat of Lady Rolle.——We understand that Mr. Butler, the sculptor, has been selected by the committee to execute the bust of the late Professor Daniel, of King's College, London. —— The Queen has subscribed 200 guineas to the fund for the erection of a monument to the late General Sir William Nott. —— Gibson's statue of Mr. Huskisson, for the town of Liverpool, is casting in bronze, at the royal foundry of Munich. ——The Picton Monument in Wales is about to undergo the work of restoration. It is gratifying to learn that public sympathy has not been permitted to flag on this subject, and that subscriptions are daily increasing. —— The statue of Beethoven, modelled by the Dresden sculptor Hähnel, for the town of Bonn, has just been cast in bronze at Nuremberg. —— The site for the Weber monument, to be erected in Dresden, has been selected by the king of Saxony, in front of the theatre royal of that city. The committee have decided that the monument in question shall be the counterpart of that about to be erected to the memory of Beethoven,—that is, that it shall consist of a colossal statue, in bronze, of the illustrious deceased, on a quadrangular pedestal enriched with bas-reliefs on the four sides. The cost of the work is more than covered by the performances given in its behalf at the several theatres of Dresden, Berlin, Munich, Vienna and Hamburg. —— A monument in the shape of a mausoleum was inaugurated at Leipsic on the 5th instant in one of the principal squares, in commemoration of the great battle of Leipsic.

SMOKE PROHIBITION BILL.

This Bill to which, in its progress through the House of Commons, we have more than once directed attention, was lost last week on Mr. Mackinnon moving that the report of the Committee be received. In the debate it was the general opinion that the Bill since its introduction had undergone so many and such extensive modifications, to suit the views and interests of certain classes of manufactures, that it would be partial and unjust in its operation. Upon these grounds Lord John Russell declined giving his support to its further progress, and thought it would be advisable that some further inquiry should take place in order to ascertain what branches of manufactures could be fairly brought within its provisions.

Sir James Graham expressed himself as being most anxious to adopt this suggestion, and thought it might be advisable to have some scientific inquiry instituted during the recess, as to how far the provisions of the Bill might be applied to stationary engines employed in manufactures. He further stated that the labours of Mr. Mackinnon would not be lost, as his measure might be incorporated in Lord Lincoln's Bill affecting the Sewerage and Drainage of towns, or introduced in a separate and more satisfactory form next session. In dismissing this subject for the present we cannot refrain from noticing the ill-success that attends Mr. Mackinnon's attempts at legislation. His powers, or his influence to grapple with subjects of so much importance as the health of towns, whether in getting rid of the smoke nuisance or of intramural interments, are no longer questionable. He has in both instances prevented more efficient members from taking in hand remedial measures and advocating them with decision and firmness, without which success is impossible.

ST. AUGUSTINE'S ABBEY AT CANTERBURY.

About twelve months ago, Mr. A. B. Hope, finding that the ancient abbey of St. Augustine, at Canterbury, was fast disappearing, purchased the ruins with a view to their restoration, and proceeded to excavate the foundations. The munificent proprietor has since determined to devote the site to the establishment of a missionary college for the Church of England, the object of which will be to provide an education to qualify young men for the service of the church in foreign settlements, with such strict regard to economy and frugality of habits, as may fit them for the special duties to be discharged, the difficulties to be encountered, and the hardships to be endured. A considerable sum, nearly 40,000*l.*, has been subscribed already, chiefly through the exertions of Mr. Hope, who has himself contributed a large proportion of it. It is proposed, therefore, to commence immediately the principal quadrangle of the college, which includes the chapel, hall, library, and apartments for 50 students, with the requisite accommodation for the officers and servants of the establishment. The arrangements of the building will be so constructed, as to admit of subsequent enlargement.

We shall seek an opportunity to examine the works, and shall hope to find that the old buildings are to be restored.

Yarmouth Bridge.—A further delay has occurred in the erection of the new bridge over the Haven at Great Yarmouth. It appears from the proceedings of a meeting of the commissioners, held last week, that tenders for building an iron bridge were obtained from the Birtley Iron Company, at the sum of 32,000*l.*, and from Mr. W. Smith Simpson, of Tower Park, near Ely, at the sum of 18,479*l.*, subject to conditions. A second tender was made by Mr. Simpson, at 19,070*l.*, subject to conditions. The conditions have reference to the amount of responsibility, and the commissioners not being disposed to agree with them, they have postponed further consideration of the subject for the present.

Paris.—The eight magnificent blocks of Italian marble recently arrived at the Port d'Orsay, and intended for the construction of the tomb of the Emperor, have been safely removed to the Invalides,—*Galignani*.

LORD BROUGHAM AND THE NEW HOUSES OF PARLIAMENT.

Lord Brougham, a few nights since, in moving an humble address to her Majesty praying that she might be graciously pleased to give the necessary directions for preparing accommodation for their lordships in the new Houses of Parliament by the beginning of next session, complained bitterly of the sufferings which the law lords at present had to endure in their morning sittings, sometimes from heat, and sometimes from cold. His lordship also took occasion to say that he *feared* there was a project a-foot for making the new houses not only subservient to legislative purposes but also to pictorial ones; he had heard that the walls were to be decorated with frescos; and that statuary was also to be called in to aid in ornamenting them.

The motion was strongly opposed by the Duke of Wellington, Lord Wharncliffe, and Lord Sudely, the latter nobleman observing that he thought it would be more advisable and safer to wait for another year than to go into a new building before it could be sufficiently dry. Lord Brougham pressed his motion to a division, and it was lost by a majority of 24, there being 16 for and 40 against it.

Correspondence.

FIRE-PROOF ROOFS.

Sir,—Some second and third-rate dwelling-houses now in progress have been covered with fire-proof roofs, constructed of wrought-iron joists and plain tiles in cement, laid to a sufficient fall to carry off the rain. The advantage of this mode of roofing, when compared with that of slates and lead gutters is obvious. It is stronger, more durable, less liable to repairs, more convenient in many situations, for views, &c., more adapted to architectural beauty, and, being *fire-proof* and flat, affords an easy escape from one house to the other. The size of the joists varies according to the width of the houses, but where the frontage is about 19 feet, the iron has been used 4½ inches by 1¼ inches, and placed from centre to centre of party-walls, 4 feet apart, with strutting of smaller-sized iron. The tiled work of three or four courses (executed by competent bricklayers) in fresh cement, well grouted, forms a flat all over, and is finished with a skirting all round the walls, which answers as flushing. It is plain these roofs have in *equal* bearing throughout the walls, without *thrusting* in one direction, or *crushing* in another, as is the case with timber roofs, an illustration of which was given in Vol. II. p. 344. The damage done so readily to slates by sweeps or other persons, and the constant annoyance of repairing, as well as being robbed of lead gutters, &c. are entirely avoided. C.

CAMDEN TOWN NEW CHURCH AND THE NEW HOLLOWAY INDEPENDENT CHAPEL.

Sir,—"One of the competitors" for Camden Town new church, in his letter inserted in your last number, has either omitted, or is ignorant of a glaring peculiarity in the late transactions, viz., that the selected design consisted only of *two drawings*, an exterior and interior perspective view, unaccompanied by geometrical drawings; so that the managing parties must either have shewn themselves unusually sagacious in making up for the necessary defectiveness of the drawings, or, which is more probable, judging by analogy, set to work in the first instance determined to push forward a favourite individual, regardless alike of honour or even justice. Now, Sir, if this be the case, it is really too bad, and seems to be a kind of second edition of the jobbing proceedings of a neighbouring "independent" committee, whose doings were so unmistakably shewn up in your journal some months since, and who, after having had the benefit of discussing some thirty sets of drawings sent in competition, at last selected one of their own number, and are now (after five months' consultation) preparing to carry out a design unwarrantably at variance with the original drawings and estimate;—an example which I am sorry the Camden Town people seem inclined to follow. I am glad to find you purpose keeping your eye upon them:—the persevering efforts of The Builder in the cause of competition deserve the warmest thanks of the profession; and it is hoped they will not be fruitless, but prove to have aided in establishing a system more in accordance with the undoubted rights of integrity and fair dealing.—I am, Sir, &c.,

London, July 29th, 1845. Vigilans.

MOSAIC PAVEMENTS.

Sir,—In the last number of your excellent paper, there is a good account of the above; but no notice is taken of the following, which if you think it useful to your readers, perhaps you can find a spare corner for. There are manufactured at Naples thick glazed tiles, upon which are figured fac-similes of many beautiful patterns, which together form the celebrated mosaic pavements of Pompeii and Herculaneum. For instance, there is the whole pavement which was found in the house of the tragic poet, the dog with *cave canem;* and besides, there are a host of borders of all patterns. As far as I remember, these tiles are very cheap, and their effect is very good; and at a little distance they look better than the originals. The shops in which they are to be bought are situated on the Mole, close to the sea, and I should wish very much to see them introduced into England, as they are well adapted for the floors and sides of halls, baths, dairies, &c.—I am, Sir, &c.,

London, July 23rd, 1845. P. A. T. H.

Miscellanea.

New Churches. — At a meeting of the Society for promoting the enlargement, building, and repairing of Churches and Chapels, held last week, grants were voted towards the erection of new churches at Beggin, near Ashbourne; Tetbury; Moxley, near Wednesbury; Hereford, the parish of St. John the Baptist, *in which there is no church*; Clandown, a district near Bath; Cantley, in the parish of Sedburgh, York; Kingsholm, a district adjoining Gloucester; Pembroke Dock; St. Paul's, a new district in Hull; West-street, Oxford-street, London; and Brighton. Grants were also voted towards the rebuilding of the churches at Eye, near Peterborough; Hinton, near Blandford; Standford near Hythe; St. Thomas, Winchester; Branston, near Coldstream; Ripley, in Surrey; Badderley Ensor, near Atherstone; and towards the enlarging of the following churches, viz., Cilcain, near Mold; Wallingford, St. Leonard's; Hook Norton, near Chipping Norton; Wymerwold, near Loughborough; Shatton, near Swindon; Whitchurch, near Stratford-on-Avon; Upton, near Gloucester; Great Yarmouth, Alford, near Horsham; St. Philip, Birmingham; Crendall, near Farnham; Brightwell, near Woodbridge; and Llancynfelin, near Aberystwith.

Cost of Glass for Horticulture — Belgian glass is advertised, *in lengths of* 40 *inches*, at the price of something less than 1½d. per foot, at Antwerp. At that price we ought to buy it, and eventually shall buy it, at home; for the English glass-makers can sell it as cheap as any body if they think proper to do so. Now, the cost of glass at 2d. a foot, to cover a bed 6 feet wide and 100 feet long, *would be just five pounds*, and the squares might be long enough to render all laps unnecessary in a bed which shall be 6 feet wide. The English glass-dealers, in that modest tariff with which they favoured their countrymen immediately after the repeal of the glass duties, only demanded seventy-five pounds for the same quantity; or, supposing that the squares were not more than 40 inches long, they would then have vouchsafed to accept the small sum of thirty pounds. We do not say that a fall in the price of glass to 2d. per foot is to be expected immediately, or that a reduction of prices to such an amount could at present be accomplished by the English glass-trade; but the difference between what they have done, and could have done, and must do, is sufficiently significant of the course which those who have money to spend on glass should steadily pursue.—*Gardeners' Chronicle.*

Wallasey Docks.—On Saturday last, about half-past five o'clock, the first stone of the Wallasey Docks, on the north side of the pool, was laid by Mr. Rendall, the engineer of the docks, on the Seacombe beach, and within about 20 yards of the Seacombe ferry. Between 200 and 300 of the inhabitants of Seacombe were present.

Tenders.

For three third-rate houses to be erected for the Corporation of the Philanthropic Society, Southwork: Messrs. Jarland and Christopher, architects.

M. Heyson	£1,942
W. Nicholson	1,850
Evans and Son	1,829

For building eight houses and hotel in the new line of Oxford-street: Edward Gotto, Esq., architect.

Howard	£30,220
Burtenshaw	30,216
Cooper and Davis	29,980
J. and T. Ward	29,885
Trego	29,540
Dean	29,327
Burton and Sons	26,673

For building eight houses, Lewisham-road: Mr. W. Smith, architect.

Marsham	£5,247
Wade	4,909
R. and D. Young	4,795
Howard	4,777
Goodwin	4,580
Hill	4,474
Rider and Son	4,344
Taylor	4,245

For building two villas at Highbury, under John Barnett, Esq., architect and surveyor, of 68, Chancery-lane.

Lock and Nesham	£4,533
Piper	4,488
Pierce and Co.	4,488
Ashley	4,199
Haines and Co.	4,116
King and Co.	3,912
Glenn	3,890
Grimsdell	3,873
Trego	3,800

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For Lighting the town of Woodbridge in Suffolk with Gas.

For the erection of three additional wards at the Bedminster Union Workhouse, situate at Long Ashton.

For the executing the skeleton of Glenorthy Castle, County of Limerick, Ireland.

For supplying her Majesty's several Dockyards with Dantzic Oak, Thickstuff, and Plank.

For Building a Sewer in Fleet-street, from Temple-bar to Water-lane.

For Lighting the Parish of St. Mary, Rotherhithe, with the Essential Oil of Tar, for One Year, from the 24th of August next.

For Building a New Union Workhouse, to contain 1180 Persons, for the Guardians of the Clifton Union.

For the complete restoration of two Windows on the south-side of St. Thomas's Church, Salisbury; also, for Cleaning and Whitewashing the interior of the same Church.

For certain alterations at the Workhouse of St. Mary's Parish, Islington.

For the execution of Works on the Leeds and Thirsk Railway.

For Coupled Locomotive Engine and four-wheeled Tender, to contain 700 gallons, for the Manchester and Birmingham Railway Company.

For the execution of that portion of the Newcastle and Berwick Railway, extending from the Newcastle and North Shields Railway to Netherton, being a distance of about 12½ miles.

For the execution of several lengths of Earthwork on the Aberdeen Railway. There are 5 separate Contracts, varying in lengths from 3½ miles to 4¾ miles.

For the execution of the works on the Nottingham and Lincoln Railway, in two parts; 1 from Nottingham to Newark, being a distance of 17½ miles. 2 from Newark to Lincoln, being a distance of 15¾ miles.

For the erection of Stone Booking-Offices for the Sheffield and Manchester Railway Company.

For Lighting with Gas part of the Parish of St. Mary, Whitechapel, and also for the repair, &c., of the Service Pipes, Lamps, and Fittings.

For the execution of certain Repairs, &c., proposed to be done at the Parish Chapel of St. Luke's, Chelsea.

For the construction of the entire Line of Railway through the County of Anglesea, for the Chester and Holyhead Railway Company. It is divided into four separate Contracts, being respectively in length 5 miles and 28 chains, 5 miles and 26 chains, 7 miles and 55 chains, and 3 miles and 60 chains.

For supplying the Midland Railway Company with about 2,400 tons of new Chains.

For the Construction of Four divisions of the Chester and Holyhead Railway, comprising the entire line through the County of Anglesey.

For rebuilding three Buttresses, and repairing a portion of the Roof of St. Michael's Church, Coventry

For supplying the Leeds and Bradford Railway Company with 1,200 tons of Cast-iron Chairs.

For the execution of the several works required in the Tynemouth Extension Railway, comprising about 740 yards of Tunnelling, with Earthwork, &c. The length of the extension is one mile.

For painting and repairing the Church of St. Anne, Westminster, both externally and internally.

COMPETITIONS.

Plans are required for Laying out and covering with Villa residences about 20 Acres of land having a frontage of about half-a-mile to the Queen's-road, Richmond, Surrey, extending from Spring-grove towards Richmond-hill. Premiums will be given of 25 guineas for the most approved plan, and 15 guineas for the second.

A premium of 10*l.* is offered for the best plan and design of a Monument to be erected in the Highgate Cemetery. One side of the monument to represent, in intaglio, the various instruments employed in the different branches of science, and the reverse, a female figure breaking a flower from a branch, in basso relievo.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At St. Osyth Priory, Essex, 700 Oak Timber Trees; 200 Elm ditto; and a large quantity of Poplar and Birch Seconds.

At the Port of Cowes, a cargo of American Red and Yellow Pine Timber, Elm, Birch, Lathwood, Deals, and Deal Ends, *ex. Grenville Bay*, Robson, from Quebec.

BY TENDER.

In the Plantations of the Duke of Montrose, situate in the Parishes of Drymen and Buchanan, Stirlingshire: many Thousands of Larch Trees of some size, adapted for Railway Sleepers, Roofing and Joisting, and other purposes.

TO CORRESPONDENTS.

"The Earl of Haddington."—*The letter containing the request accidentally escaped our attention last week. The inscription sent may be rendered into Latin thus:—*

IN MEMORIAM
CAROLI
COMITUM DE HADDINGTONIA OCTAVI:
or,
IN MEMORIAM
CAROLI
OCTAVI INTER COMITES DE HADDINGTONIA.

"Enquirer."—*Although few, if any, font covers of an earlier period than the perpendicular remain, we should be disposed under the circumstances to design it in accordance with the style of the church, early English. We shall be glad to see the sketches.*

"Steel and Brass." —*A correspondent will be glad to be told of a preparation to weld cast steel, or of a cement to join it: also the best way to braze brass.*

"Wood Pavements."—*A country subscriber suggests that the grooves in wooden pavements should be renewed with a V shaped adze as they become obliterated.*

"John Strudwick," "M. P.," and "Artist."—*We regret that we have not space for many of the communications on the School of Design which we have received.*

"G. R. Lewis" *shall appear.*

"A Constant Subscriber."— *The Fitzwilliam Museum at Cambridge.*

"James Dean" (Tottenham.)—*We cannot coincide in the advice given by Mr. D. to his clients in either case. The shed in the paddock cannot be an* insulated *building, according to the meaning of the Act, if it adjoin a public footpath: and even if it were an insulated building, it* would *be subject to supervision, except as to certain points. As regards the second case, the official referees have decided that "vineries and such like buildings"* are *subject to supervision; and that the exemption to which he refers extends only to settlement of rate.* (*See p.* 279 ante).

"T."—*Notice must be given to the district surveyor: the structure must be of fire-proof materials. As to the shed; it must not be of wood, unless it is "insulated" according to the meaning of the Act.*

"Curves."—*A correspondent asks for some account of Mr. Bushforth's engine for tracing a variety of curves, exhibited at the last meeting of the British Association.*

"A Student" *may obtain any additional information he requires from Mr. Whishaw, the secretary.*

"A Constant Contributor." (Fulham).—*Unless the erections mentioned are "insulated" they are liable to supervision. Notice must be given before any chimney stack or flue shall be begun to be built, pulled down, rebuilt, cut into, or altered.*

"W. H."—*His request for a view of Nasmyth's steam pile-driver shall be remembered.*

"J. L."—*We have not yet been able to read the article on the National Gallery.*

"Railway Company's Books." — *A correspondent asks for some published work shewing the method by which the accounts of the various departments are kept to produce a quarterly balance. We don't know of such.*

"G. H.," "R. C.," "J. S. Jr."—*Next week.*

Received; "Constant Reader" (N. B.); "B. B.;" "W. G.;" "A. B.;" "Mr. Angall," and "Journal of the British Archæological Association. No. 2."

ADVERTISEMENTS.

THE HYDALEUM TEMPERANCE BUILDING ASSOCIATION. — Shares, 120*l.*; Monthly Subscriptions, 10s.; present Entrance Fee, 2s. 6d.; held at the Temperance Hall, 9, Church-road, St. George's East. In this society the sums to be advanced on each share are fixed and certain; those shareholders who require an advance will receive it in rotation. 60*l.* will be advanced on each share in the first year, and this sum will be increased every succeeding year. No redemption fee. No bidding for shares. No deducting on discount from the advances. No fine on transfers. No fine on withdrawal. But every thing on a liberal, plain and intelligible, safe and certain plan. This is the society for the industrious classes to join; the prospectus will well repay perusal, and may be had gratis of the Manager, WM. WITCOMB, 11, New Rutland-street, Mile-End; Secretary, HENRY LEECH, 9, Church-road, St. George's East. Applications by letter to be post-paid, with stamp for reply. Persons having house property to dispose of may always hear of a purchaser by forwarding full particulars, with the lowest price, to Mr. WITCOMB, as above.

Opinions of the Press.

"We hold Macarthur's plan for forming building societies to be a decided improvement."—*Weekly Dispatch.*

"We cordially recommend Mr. Macarthur's pamphlet. He has *really* simplified and improved the plan on which building societies are conducted."—*Temperance Intelligence.*

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

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Offer to Painters, Builders, &c., Painting Brushes of a quality far superior to those generally offered for sale, to which they beg to call the attention of all who prefer quality and durability to apparent cheapness.

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Sash Tools, and Common Tools.
Tar Brushes and Masons' Brushes, and all other Brushes used by Painters and Artists.

Lists of Prices of Painting Brushes, and of all other kinds of Brushes, forwarded on application. Established 1777.

VARNISH.—It has long been a desideratum amongst the consumers of Varnish to obtain a good and genuine article; brilliancy, facility of drying, hardness, and durability are the qualifications necessary, but these are seldom if ever found united. The experience of a life-time devoted exclusively to the manufacture of this article, the great and important discoveries of modern chemistry, and the daily improvements in machinery, have enabled Messrs. George and Thomas Wallis to produce Varnishes (both oil and spirit) unrivalled in every respect, and they confidently recommend them to the trade, as deserving of notice both in price and quality.

Builders, Coachmakers, Painters, and others may depend on being supplied with a genuine and unadulterated article. Fine Oil Varnish, from 10s. per gallon; best White Spirit Varnish, 21s. ditto; Best Spirit French Polish, 20s. ditto; White Lead, Oil, Turpa, and Colours of every description at the very lowest prices.—WALLIS'S Varnish, Japan, and Colour Manufactory, 64, Long-acre, one door from Bow-street. Established 1750.

WALLIS'S PATENT LIQUID WOOD KNOTTING. — This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; a boy can use it as well and effectually as the best workmen: it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20s. per gallon.

E. G.'s TRACING-PAPER.—It is warranted to take Ink, Oil, or Water colour, and is sold by MESSRS. ROBERSON AND CO., SOLE AGENTS, 51, LONG-ACRE, at the following cash prices:—

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Double dble. do..... 40 by 30, 6s. ,, £5 0 ,,
Dble. dble. dble. do. 60 by 40, 13s. ,, £11 0 ,,
Outsides, half-price.

MOUNTED DRAWING-PAPERS—LEVELLING BOOKS—MEASURING BOOKS, &c.
The Railway Measuring Tape, 66 feet, 10s. 6d.

WATERLOW and SONS, Wholesale Stationers, Printers, and Lithographers, 66 and 67, London-wall.

MONS. BOUTIGNY'S EXPERIMENTS on the FREEZING of WATER in RED-HOT CRUCIBLES, &c., will be repeated by Dr. Ryan, in his Lectures on the CAUSES of EXPLOSIONS in STEAM-BOILERS, daily at half-past Three, and in the Evenings of Mondays, Wednesdays, and Fridays, at Nine, at the ROYAL POLYTECHNIC INSTITUTION. The ATMOSPHERIC RAILWAY, carrying from Six to Eight Visitors at once, is lectured upon by Professor Bachhoffner, and exhibited daily, and in the Evenings. The art of SWIMMING and DIVING illustrated by a Youth Eight and a half years of age, the Son of Capt. Stevens, the celebrated teacher of Swimming, on Mondays, Wednesdays, and Fridays at Two o'Clock, and on the Evenings of Tuesdays and Thursdays, at half-past Eight. All the other popular Exhibitions and interesting Works as usual.—Admission, One Shilling; Schools, half-price.

HOT WATER APPARATUS. — The attention of architects, builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of heating churches and chapels, hall, stair-cases, conservatories, forcing and green-houses, manufactories, and warehouses, kilns, rooms for drying timber, &c., and every variety of purpose for which artificial heat is required. Within the last twenty years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises. BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

HOLBORN AND FINSBURY SEWERS, MIDDLESEX.

THE COMMISSIONERS of SEWERS for the LIMITS give NOTICE, that their Office, Hatton Garden, is open daily between the hours of Ten and Four, where information can be obtained (gratis) by persons about to Purchase or Rent Houses or Property, or take Land for Building purposes, of the situation and level of the public Sewers, capable of affording sufficient Drainage, and which they recommend all such Persons to apply for at the above Office.

By the Court,
STABLE and LUSH, Clerks.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. (chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, or public way, or in any part intended to become a street, lane, or public way, or to carry or drain off water from any house, building, yard, or ground, into any sewer under their management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewer or sewers shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, upon application being made at this office previously to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, whenever the lower floors or pavements of buildings shall have been laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings must in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners will be cut off, and the parties making the same will subject themselves to a fine.

The provisions of the Metropolitan Buildings Act (7 and 8 Victoria, c. 84) do not supersede the authority of the Commissioners of Sewers in the above respects, but their powers are expressly reserved, and their regulations made subservient to the purposes of that Act. The execution of such works, under the superintendence of the district surveyor alone, cannot therefore warrant the making of any sewers or drains within this commission, nor relieve the parties making them from the penalties above mentioned.

By order of the Court,
LEWIS C. HERTSLET, Clerk.

The Builder.

No. CXXXI.

SATURDAY, AUGUST 9, 1845.

THE architectural embellishment of a city is of much greater consequence in forming the character of the people than some hasty thinkers now-a-days recognize. The onstant contemplation of fine forms, or the everse, has a powerful effect upon the mind; nd it should be the duty of governments to d in obtaining for the multitudes the advanges of the former to the extent of their ower.

Plato says, in one of his Dialogues, "The an we have been laying down for the edution of youth was known long ago to the gyptians, that nothing but beautiful forms and ne music should be permitted to enter into e assemblies of young people."

In England, this has been little thought of; e people have been rigorously excluded from e contemplation of works of art, although e enjoyment of it would have cost the nation thing; and many of our public buildings, tead of advancing the standard of taste, have nded to lower it. That an anxious desire ists at this moment to remedy the mistake quickly as possible is certain. And this no e will doubt who has watched the proceedgs in Parliament during the present session. though it is unfortunately too much the cusn of the daily press to omit reporting much what is said in the House about art and numents, it is obvious that these subjects e occupied more attention there than usual. the debate as to whether the tax of 1d. per on coals should be continued, and the money oted to the purpose of improving the town, agreed in the necessity for metropolitan imvement, however much they differed as to propriety of raising money by that parlar tax.* The vote of money for the re of St. Margaret's church, Westminster, on another occasion to a long conversation Gothic buildings and taste; and Mr. ne's annual motion for opening St. Paul's Westminster Abbey, when brought forl on Monday night last, was received in a different manner from what used to be case, and led to a more satisfactory re-

hen the vote for St. Margaret's was prod, Mr. P. Borthwick objected, on the nd that the money hitherto granted had expended in the worst possible taste. thought the church ought to be pulled n and rebuilt, rather than to undergo the gian-Gothic alterations with which it was osed to deface the building. He also ted to Westminster Abbey, as not fulfillthe purpose for which it was intended. as neither a cathedral nor a place of e exhibition, but rather a cross between (Laughter.) The monuments were a nce to the age and to the edifice. The cellor of the Exchequer said that architectural amateurs were quite insatiable in their demands for public money to be spent in carrying out their ideas. As to St. Margaret's church, as the House of Commons occupied it in some sort, it was but proper that some part of the public money should be appropriated to its expenses. If the church were pulled down, as wished by Mr. Borthwick, an expense of not less than 50,000*l.* would be incurred. Mr. Osborne wished to know what was the use of the commission having brought in a report that the church ought to be pulled down, if parliament were to be required to vote 1,200*l.* for repairs? He was satisfied if Government came forward boldly, and proposed a vote of 40,000*l.* for a new church, that it would not be disapproved of. Viscount Sandon said, he should regret to see 40,000*l.* granted for merely replacing the same church. It would be much better to expend the money in pulling down the two towers of Westminster Abbey, which were alike deficient in taste and architectural beauty. Mr. Sheil would ask hon. members if the Abbey was turned to as much account as it ought to be? (Hear, hear.) It was a noble building, and might be made much more available for religious worship. Let the House consider the immense difference between the use made of that church and the churches on the Continent. The congregation was crowded into a small space; but that portion of the edifice might be enlarged by the expenditure of a few hundred pounds, and sufficient accommodation would thus be afforded, in a most economical manner. He never beheld a more beautiful structure than that now erecting by Mr. Barry. When the building should be completed, and the new street constructed, St. Margaret's church would be a complete eye-sore, although so much public money would have been laid out in improvements. Mr. Prothero was of opinion that St. Margaret's church was a very fair specimen of undecorated Gothic architecture (?) The only part of the Abbey which was concealed by the church was the ugly portion between the north entrance and Henry the Seventh's chapel; and St. Margaret's church was far more sightly. Mr. Escott felt somewhat alarmed at the tone of the right hon. baronet the Secretary of State for the Home Department, who evidently intended that St. Margaret's church should remain permanently. If they consented to vote hundreds of thousands every year for the new palace at Westminster, and could not afford 20,000*l.* or 30,000*l.* for the removal of that church, it would be better to put a stop to the improvements altogether. He considered the church to be a complete disgrace to the neighbourhood. The money for the repairs was, however, ultimately voted.

The terms of Mr. Hume's motion were;—"That in the opinion of this House, the practice of exacting fees from the public, as the condition of their admittance to cathedrals, is highly improper, and ought to be discontinued."—Sir R. Peel said he had always expressed his opinion that there was *great public advantage in giving as free and unrestrained admission to those noble edifices as could be*, consistently with securing those works of art which they contained. He could not conceive any thing that would exercise a better influence on the public mind than free admissions of the kind. At the same time he thought they should be subjected to one restriction,—namely, that precaution should be taken for the security of the monuments and other works of art erected in those edifices. Speaking generally, he believed nothing could be more exemplary than the conduct of the great body of people when thus admitted. He spoke now of the working class, for their conduct had been quite as exemplary as that of persons in a higher condition of life. When a distinguished divine, the late Dean of Westminster, was appointed to another sacred office, he (Sir R. Peel) had an interview with him, and spoke to him on the subject, and he believed it was not only his wish but that of the whole chapter, to give the liberty of free admittance as far as was consistent with the security of the works of art. He was certain the present Bishop of Ely, in pursuance of the promise he had made, had given the fullest consideration to the subject, and that his exertions had been most constantly directed towards the object which the right hon. gentleman had in view. He (Sir R. Peel) had now the satisfaction of stating that, in consequence of a communication he had made to the present Dean of Westminster, Dr. Wilberforce, when he took the opportunity of stating to him the opinions he had expressed to Dr. Turton, he mentioned how freely the public had been admitted to the exhibition of works of art, and how exemplary their conduct there had been; that there had been no instance of misconduct, and that they all retired with expressions of grateful acknowledgment for the opportunity that had been given them of inspecting those works, and that they felt an interest in them which it was most desirable to encourage; in consequence of that communication, he had, a few days since, received the following letter from the Very Reverend Dean of Westminster:—

"As I know your wishes respecting the admission of strangers, I trouble you with a few lines to say that I have just issued some new directions on that subject. Strangers are henceforth to be admitted into the south transept, the naves, and the north transept, that is, into the great body of the church. The only portion from which they will be excluded is from the choir, except at time of service, for obvious reasons, and the chapel behind the choir. These will be shewn to them at a charge of 6d. apiece, and this will be the only payment allowed in the abbey. Such a payment is universal on the continent.

"S. Wilberforce."

The admission then to the body of the abbey would be free, as was the practice in foreign countries; and if the parties visiting wished to see the choir and the chapel, he believed a small fee would be required.

On the occasion of taking the vote for 2,000*l.* towards the expense of statues of Hampden, Lord Falkland, and Lord Clarendon, the execution of which works is recommended by the Commissioners of Fine Arts to be given to William Calder Marshall, John Bell, and John Henry Foley, whose works in the last exhibition in Westminster Hall were considered by the commissioners to be entitled to special commendation,—Mr. Williams expressed a hope that when monuments were being built to commemorate the achievements of the former monarchs and rulers of this country, the claims of the Protector Cromwell would not be overlooked. Not one of those rulers had been more distinguished as a soldier and a statesman; and he was as much entitled to a monument to be raised by the people of this country as Napoleon was to one from the people of France. He hoped that Cromwell would not be denied a niche in the palace of Westminster.—Mr. Hutt believed that the protector would not be excluded. He had seen a list in which his claims to a niche were sub-

the course of the discussion on this measure in the of Lords, the Marquis of Londonderry who has perly opposed it, said, the tax would produce 300,000*l.* um. This tax, he said, did not fall on the consumer, the coal-owner. On the same occasion, the Marquis tminster called the attention of the Government to r in which the communication from Oxford-street to h had been carried out; the opening had been made ow, that he feared it would cause greater evil than ner circuitous route.

mitted to the Committee of Taste, who would no doubt duly consider them. What we wish to shew by these memoranda is simply, that a desire for the improvement and adornment of the metropolis is manifesting itself extensively. A good spirit has been awakened, and we hope, will not be allowed to sleep again.

What may be achieved in a short time may be strikingly illustrated by reference to the extraordinary works executed in Munich through the genius, liberality, and energy of the present King of Bavaria. Within the last thirty years the aspect of the city has been changed; a crowd of wonderful buildings has been raised, and a new school of artists created. The Glyptotheca, commenced in 1816, and finished in 1830, is 220 feet square. The Pinacotheca, completed six years later, is above 500 feet long; and (not to speak of the Basilica of St. Boniface, the church of All-Saints, and numerous other monuments), the Walhalla, near Ratisbon, just now finished, has sprung, "like an exhalation," from the rock on which it is reared, to immortalize its projector. Munich has become one of the most extraordinary capitals in Europe, and strangers from all countries annually flock there to admire its beauties, and wonder at the effect which may be produced by one powerful mind. Not satisfied with merely raising fine buildings, Lewis of Bavaria has sought to nationalize the fine arts, and bring them into the houses of his people for their enjoyment. Museums have been arranged to convey clearly a history of the arts, and each of his buildings is intended to illustrate some particular epoch. The means of education in art are afforded to all, and every endeavour is being made to develop to the utmost the national resources in this respect. The success with which the king's endeavours have been crowned is to be attributed greatly to the position which he has given to artists in his dominion, and the elevation of character which it has caused. He has conferred prerogatives on genius; he has admitted that the man who is capable of affording instruction or wholesome delight to a nation, who expresses noble thoughts whether with the pen, the pencil, or the chisel, is fit society for the highest, and deserves all the rewards a country can bestow. This artist-king has shewn there is another road to the Temple of Fame besides that over dying bodies in the field of battle, and has earned for himself a niche in it next to those occupied by Pericles and Augustus.

THE CORPORATION OF THE CITY OF LONDON.—The annual accounts of the Chamberlain of the city of London have been presented to Parliament, and ordered to be printed for the information of the public. It appears that the total amount of monies received by the chamberlain of the city between the 6th of January, 1844, and the 25th of January, 1845 (being the produce and application of the several duties and payments constituting the fund called the "London-bridge Approaches Improvement Fund," for effecting public works and improvements in the metropolis), was 104,073*l.*, and the total concurrent payments, 36,279*l.*; leaving a surplus balance of 67,793*l.* Of the sums received, 88,817*l.* were derived from the duty of 8d. per ton on coals brought into the Port of London for one year, pursuant to the Acts of the 10th of George IV. and the 1st and 2nd of William IV.; 3,824*l.* from the duty on wine; 11,500*l.* from the annual charge on the revenue of the corporation; 219*l.* from the duties on admission to the freedom of the city; 82*l.* from the duties on the binding of apprentices; 190*l.* from the profits of aqueducts; and 68*l.* from a moiety of the profits of Farringdon-market for the year 1842.

ASSERTED ABUSES IN THE WESTMINSTER SEWERS' COMMISSION.

MR. JOHN LESLIE, one of the Commissioners of Sewers for Westminster, has just now published a pamphlet in the shape of a letter to the representative vestries under Sir John Hobhouse's vestry Act, charging the commission of which he is a member with extravagant expenditure and misconduct. When it is remembered that the taxation of nearly three millions of property rests in the hands of the Westminster commissioners,* and further that public health is involved, the question is seen to be one of considerable importance.

The writer sets out with the assertion that

"The active members comprehend a very considerable number of surveyors, district surveyors, and others engaged in building operations; and very frequently the painful exhibition is witnessed, of parties directly interested in the expenditure voting as commissioners on the questions."

He remarks that the contracts for the works in Westminster have been in the hands of two families since the year 1810, namely, the Messrs. Bird and the Messrs. Bennett (both highly respectable parties be it observed), and asserts that others had offered, in reply to public advertisements, to do the work at considerably lower prices, but had not been permitted to do so.

The sewers of the Holborn and Finsbury divisions the writer considers are under superior and more economical management.

"About thirty years ago, a double rate was put upon the inhabitants, and they rebelled. The present Mr. Sergeant Wilde and Mr. John Wilks of Finsbury headed the opposition to the then irresponsible commissioners, and certain clauses were framed in an Act of Parliament applicable to the Holborn and Finsbury commissioners, and of vast importance to the inhabitants. Similar clauses would save the rate-payers under the Westminster commissions thousands of pounds per annum.

The Act is the 54 Geo. 3, c. 219, passed the 25th July, 1814; and the advantageous clauses for the rate-payers to which I allude are as follows:—

The 18th section provides, that every commissioner interested either as principal, trustee, steward, agent, attorney, or solicitor, shall withdraw from the court, under a penalty not exceeding 100*l.*

The 23rd section requires that before the commissioners come to any determination as to the making any new sewer, the clerk must give twenty-one days' notice to the vestry-clerk of each parish, stating the place where it is intended to commence, pass, and terminate, and the time and place for holding the court, so that any party objecting may have the opportunity either personally or by his solicitor or counsel of doing so.

Section 24 provides that all work amounting to more than 50*l.*, including all materials used therein, shall be done by contract.

Section 26 requires fourteen days' notice of the meeting to make such contracts, to be twice inserted in three or more of the public newspapers, expressing the nature, objects, and conditions of such contracts.

Section 30 provides that the parochial authorities may peruse, make all extracts without fee or reward, from all books, papers, writings in the custody of the commissioners, or any person or persons holding office under them.

Section 31 requires the commissioners to make an annual account, to print the same, and send a copy, gratis, to every vestry-clerk; and every rate-payer to have a copy on payment of one shilling.

Mr. Leslie then goes on to shew the fruits of these checks on public expenditure.

* St. Marylebone..	£784,782	St. Giles and St. George, Bloomsbury	£93,020
St George, Hanover-square	636,765	St. Clements Danes	78,922
St. Martin's-in-the-fields	210,726	St. Pancras..	75,931
St. James, Westminster	209,255	St. Anne	65,910
St. Mary, Paddington	196,321	St. Paul, Covent-Garden	40,842
St. Margaret and St. John, Westminster	174,512	St. John, Hampstead	18,730
St. Mary Abbot, Kensington.. ..	160,822	All Saints, Fulham ..	16,264
St Luke, Chelsea ..	135,992	St. Mary-le-Strand..	12,467
		Precincts of the Savoy	5,760
			£2,917,944

In the first return I find 19 large works ("Holborn and Finsbury") comprehending

First-class sewers . . .	12,185 feet
Second-class sewers . .	15,531 ,,
Total	27,716

Including the following,

31 Side entrances,
81 Junctions with other sewers,
181 Gullies.
The private drains.
Repaving all the displaced carriage and footways.

And the total cost to the ratepayers was 21,224*l.* 6s. 9d.; now, dividing this sum by the 27,716 feet of sewer, *including all extras*, about 15s. 3½d. per foot.

Some of these works were of great importance. In the first class,

2,750 feet were 24 feet deep.
3,440 feet were 18 feet deep.
3,465 feet were tunnelled 26 feet deep.

This tunnelled work, including 5 side entrances, 12 junctions with other sewers, and 20 gullies, cost the rate-payers of the Holborn and Finsbury divisions of the metropolis, including every extra, 16s. 7½d. per foot.

I have a subsequent return, bringing down the works in the Holborn and Finsbury divisions to Midsummer, 1845, which shews that additional lengths of second sized sewers were put in to the extent of 4,915 feet, *including*

90 Private drains,
8 Side entrances,
27 Gullies,
29 Junctions with other sewers,
Repaving carriage and footways.

cost 3,681*l.* 3s. 5d., which divided by 4,91 feet of sewer gives 14s. 11d. per foot, includ ing all the extras.

In the year ending Midsummer, 1845, ther are two works of unusual expense. One i the main outlet of the drainage of 4,400 acre of surface, and which has been effected thus at a depth of 23 feet 9 inches by a circle sewe 10 feet 3 inches in diameter in the clear, o and a half brick thick in blue lias mortar, th inner invert in malm paviors in cement block 570 feet in length, and 30 feet similarly don 8 feet in diameter. The expense of this to th rate-payers of the Holborn and Finsbury div sions was 1,667*l.*, or about 2*l.* 15s. 6d. p foot.

The other is a work of very great magn tude, being 4,350 of the first-class sewer, feet deep, passing under the Regent's Can the traffic on which was not allowed to stopped: there are 5 side entrances, 17 jun tions to other sewers, 4,270 feet of priva drains, 1,344 feet of gully-drains, and the c is 6,250*l.*, about 28s. 9d. per foot. There w be a few extras of timber to be added, as t work is not finally closed.

I have now, my Lords and gentlemen, plac before you the details of an expenditure in t Holborn and Finsbury sewers of upwards 33,000*l.*, under the very able management that commission, and the economical chec which the rate-payers have effected in the A of Parliament, to which I have called your tention; and now for the reverse of the pictu where no control has been obtained by rate-payers in Westminster.

In the Westminster commission in 1844, abstract of sewers and drains built, and bills for works done in the same year, sh the following lengths of sewer built:—

2 feet wide . .	152 feet 3 inches in leng
2 feet 6 inches wide,	2,685 feet 1 inch in length
3 feet wide . .	1,792 feet 2 inches in leng
4 feet 6 inches wide	730 feet 5 inches in leng
Total .	5,359 11

The cost of which, as stated, 7,718*l.* 10s. 8¾d., equal to within a mere f tion of a farthing of 29s. per foot; but th are no man-holes, or side-entrances, or re ing the carriage ways, and other items, in large sum, equal at the most moderate ca lation to 3s. per foot lineal in addition, ma the total expense more than *double the ra expenditure per foot lineal* in the Holborn Finsbury commission.

Now, my Lords and Gentlemen, I will a few cases in your respective parishes. George-court, St. James's, Piccadilly, 171 of second-size sewer, 13 feet 9 inches d

ost 519*l.* 12s. 5½d., equal to 3*l.* 0s. 9½d. per oot lineal, the whole court contributing 50s. very rate made on the division. In the reater portion of this property, the family of deceased architect commissioner are interested; the late chairman at the time was surveyor o the property: this fact I ascertained from an nquiry into the whole circumstances of this ransaction, and from a comparison with the urveyor's *original* report, and the alterations nd erasures I discovered had been made in it, ompared with the entered copy on the records the court. For this second-size sewer own a small paved court in your parish, the te-payers of Westminster paid 5s. 3½d. *per ot more* than the rate-payers of the Holborn nd Finsbury divisions have to pay for the feet 3 inches circle-sewer, forming the main tlet of the drainage of 4,400 acres of surface. My Lords and Gentlemen, in the represenive vestry of St. George, Hanover-square, second-class sewer has been put in in your rish in Albemarle-street; it was, *according* the accounts, 687 feet 2 inches long, 17 feet nches deep, and the cost 1,260*l.* 4s. 4½d., out 1*l.* 16s. 8d. per foot.

The Holborn and Finsbury commissioners t in 1,840 feet of their second-sized sewer Collier-street, Pentonville, 17 feet deep, *h two side entrances* for 1,023*l.* 18s. 3d., or s. 10d. per foot lineal, the excess of expense ng in St. George's under the Westminster esponsible commission of sewers, 165 per t. per foot lineal.

n St. Martin's-in-the-Fields, in Castle-street l Hemming's-row, the Westminster commisn put in of their second-sized sewer 728 t 5 inches, 14 feet 8 inches deep, the cost of ich, as stated by the surveyors, was 05*l.* 16s. 5d., or 1*l.* 10s. 4¼d. per foot lineal. e Holborn and Finsbury commissioners put n Parkfield-street, Islington, Battle-bridge, Holloway-road, 870 feet of their second- sewer, 15 feet deep, for, *including two side rances*, 596*l.* 15s., or 12s. 2d. per foot al; the unfortunate rate-payers in St. rtin's-in-the-Fields having to pay an excess 50 per cent. per foot.

Iy Lords and Gentlemen, another case St. Paul's Covent-garden, is worthy of your ice.

n estimate having been presented of the ense of making a new sewer along Welton-street, Wellington-street North, and y-street, 985 feet long first class, at a cost ,400*l.* 9s., it was ultimately carried to do work in July, 1842, by the votes of the missioners.

ow, my Lords and Gentlemen, I bring this er before you, because of the result. In- l of 985 feet of sewer being built, only 2 were executed, but the expense to the payers was 2,012*l.* 3s. 5d., *exceeding the of the court* above 40 per cent.; this r was at the depth of 24 feet, and the cost oot was 2*l.* 1s. 11½d. Let me submit a of the same depth of the first class in the orn and Finsbury commission, done in New-road, St. Pancras, 2,750 feet of the class; 600 of the second class, 3 side en- es, 8 junctions, 22 gullies, depth 24 feet, 3,292*l.*, equal to 19s. 7¾d.; the excess in Westminster division at the same depth 113 per cent. per foot lineal.

cently, in the Westminster Court of rs, the old form of sewer has been altered. successful example of the Holborn and bury divisions for efficiency and economy ost sight of. The principle of the Holdivisions as to form of sewer is the egg- with the narrow end downwards, by the smallest quantity of water passing rative in cleansing that sewer: the shape es a very small quantity of digging, and, placed in the earth, forms a wedge not distorted by either lateral or vertical ure.

tead of adopting this simple, economical ficient form, the Westminster Court of rs, after floundering about with various adopted one which turned the reverse f the egg downwards, put a couple of to the sides, which in building requires, ry foot in length, that sixteen bricks shall *to particular shapes*, to form the figure. first work under this *new form*, and a *new contractor*, Mr. Jay of London (for the wedge is so far got in as to up the forty years' monopoly), was done esent year, in the parish of St. Marylebone, in Berners Street, and cost, *as finally stated* by the surveyors and the committee of accounts, for 1,125 feet 2 inches of second-size sewer, 16 feet 4 inches deep, 1,288*l.* 0s. 5d., about 1*l.* 2s. 10¾d. per foot.

In the Holborn and Finsbury divisions, at Battle Bridge and the Holloway Road, I find 2,500 feet, viz. 300 feet of first, 2,200 feet of second class sewers, were put in 16 feet deep, including two side entrances, for 1,246*l.* 12s. 6d. equal to 9s. 11¼d. per foot lineal, the excess in the Westminster commission against the rate-payers of Marylebone being above 152 per cent. per foot lineal.

I will cite another comparison in a place of equal importance to Berners-street, viz. Bedford-square, where the Holborn commission put in 1,380 feet of second-size sewer, 16 feet 6 inches deep, with two side entrances, and every expense, for 802*l.* 19s. 2d., rather less than 11s. 7¾d. per foot; the excess against the rate-payers under the Westminster commission, although the Holborn sewer was deeper, and the two side entrances, not in the Berners-street sewer, nearly 97 per cent."

We are not to be understood as pledging ourselves to Mr. Leslie's charges, or admitting any want of confidence in the commissioners. We insert them simply with a view to inquiry, and reserve to ourselves the right of investigating them hereafter.

Since writing the above, we have received the following communication from one who is well acquainted with the subject.

The conduct and proceedings of the Westminster Court of Sewers for some considerable time past have afforded fruitful subjects for grave and serious charges; those charges appear to amount to the following:— That the public money under this commission has been both uselessly, wantonly, and extravagantly squandered away; that it has expended scores of thousands of pounds obtained by sewers rates, in the diversion and repair of old, and in the construction of new sewers, which, after all, are now found to have been formed and put in upon improper, unscientific, and entirely erroneous principles; that had recognized scientific principles been adopted in the construction of these sewers, the cost would not have been *anything* like what has been paid for them, and, therefore, considerable lengths of good and efficient sewers could have been carried up at the same time and with the surplus money, in very many filthy places where none now exist; and also many of the old ones could have been repaired and highly improved; that instead of affording facilities for carrying off the sewerage, the majority of these sewers are nothing better than elongated reservoirs, being more or less filled up with accumulations of decomposing filth, which choke up the house drains instead of accelerating the discharge of the refuse from them; that these sewers are, in consequence, ill-adapted and inefficient for affording *good* and *proper* facilities for rapidly carrying away to the Thames the refuse vegetable or animal *matters which are discharged into them* from the various dwelling houses and premises along which they pass. It would appear, therefore, that the enormous sums of money which have been expended in the erection of these abominable constructions have been almost entirely wasted; and that the whole, or nearly the whole of them, require to be reconstructed and re-arranged. Now, if the above charges be true, and we see no reason at present to doubt them, the sooner some legislative enactment is made in order to relieve the present irresponsible and inefficient authority, and also the sooner the arrangement and construction of these sewers are based upon proper scientific principles and placed under some scientific and properly qualified board, the better. Public economy, and above all, public health, cries loudly and earnestly for some extensive and beneficial change in this important matter.

New Church at Byer's Green, near Durham.—A new district has lately been separated from the parish of Bishop Auckland, including the villages of Byer's green and Kewfield, and a church, in the early English style, has been erected at the expense of the Bishop of Durham. The ceremony of consecration was performed by the bishop last week.

THE ARCHITECTURE OF GENOA;
ILLUSTRATED IN THE WORK OF GAUTHIER.*

The architecture of Italy, viewed in connection with political history, would afford a large field for inquiry into the causes of that brilliant state in which the arts existed in every city of the country. Torn by civil strife, and its governments subverted by democratic insurrections, the peninsula yet contains an immense number of works of art, of which the most elaborate publications can give very partial illustration. Alike in the brightest days of a republic, in the most tyrannical government of a despotic ruler, in the subversion of a so-called republican government, and the sway of a demagogue, whose power was more absolute and pernicious than the oligarchy he succeeded, in every variety of position, amid turmoil and contention, which the rest of Europe has not known, art continued to advance, as it were in spite of these antagonistic circumstances, and to attain a position of splendour, which more consolidated government, and longer continuance of peace in other countries failed to acquire. We are not able, in this place, to do more than suggest a small amount of the matter of such an inquiry, but the work of Simonde de Sismondi,† will give many important materials in the historical part, and the architectural characteristics of the states cannot be better illustrated than in the works before us. The work of Cicognara on Venice has been previously noticed (*vide ante*, p. 326), and it will be interesting to compare that city with its rival republic, Genoa, the architecture of which is admirably illustrated by Gauthier. This author remarks, that in Italy there is no town, no village, which does not possess models of architecture, yet all differing from each other in taste and manner of execution. Venice, Genoa, Florence, and Rome, have each edifices of singular beauty, yet having certain peculiarities. Circumstances of locality and convenience often suggested the most striking effects, and, in that day, even the irregularities of the ground could be turned to the advantage of the art. This observation is particularly applicable to the city of Genoa, whose position seems to have called forth those fine conceptions, which strike every one who approaches it. Situated on the shores of the Mediterranean, it forms a semicircle rising with the slope of the mountains, which surround it, and has a magnificent appearance. The palaces are so numerous, that one might believe, that Genoa had only princes for inhabitants, and it was this that made Madame de Staël exclaim, when she visited the place, that the grand street seemed to have been built for a congress of kings. The vestibules, the courts, the porticos, and especially the staircases, are hardly to be equalled. The terraces and gardens are laid out with remarkable skill, and no better materials, than are in this city, could be found for the study of the art of landscape gardening, and of other accessories, which the architects of Italy were well conversant with, but which those of our own country are accustomed to neglect. The arrangement of the steps at the entrance door, the grottos and fountains, are some of the points which attention may be profitably directed to. It is evident, that effects the most remarkable are often obtained by means the most ingenious, yet the most simple. Each town of Italy has its particular description of architectural beauty, and Genoa is most remarkable for the disposition of its plans. Consequently the icnographic form of illustration occupies a considerable part of the work, which will render it especially valuable to architects. It has also sections, and perspective views admirably drawn and engraved in outline. The views shew the vestibule from which the staircase ascends to the loggia, on the first floor of the open court, various other portions of the building, and the external appearance of the house and gardens. The first part of the work contains general views of the city, and plans, elevations, sections, and views of the palace, with the walls, and the second part is devoted to the villas and palaces of the environs.

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* "Les plus beaux édifices de la ville de Gênes, et de ses environs; recueil publié par M. P. Gauthier, Architecte du Gouvernement.—Paris, 1830-32," in two parts.

† "Histoire des Républiques Italiennes du Moyen Age, par J. C. L. Simonde de Sismondi.—Paris, 1826."

The elevated position, which the artist held in Italy, was no where more apparent than in Genoa. By a special decree it was made known, that the pursuit of art did not exclude the professor from the rank and privileges of nobility, and no art had greater opportunities for display than that of architecture. Within the short period of a century arose churches and palaces, not inferior to any in Italy; in which the skill of the best artists of the time was exerted, and in which the most expensive materials were lavishly employed. The difficulties of the site were the origin of the most happy ideas. The declivity of the ground rendered an ascent from the vestibule necessary in most of the palaces; and this is often the most effective part of the building. The same circumstance was availed of in the construction of grottos and fountains, and of terraces at different heights, communicating with each other and the respective floors of the building. The perfect adaptation of the dwellings to the climate, shewn in the courts open to the sky, and in the staircases and loggias, in which no protection from the weather was necessary, the admirable use made of running water, the treatment of breaks and coins, often varied in the different stories, and above all, the arrangement of entrances and approaches, are evidences of the skill and artistic feeling of the Genoese architects. Many of their names have not been preserved, but those of Galeasso Alessi, Bartolomeo Bianco, and Andrea Tagliafico, were the most famous. It is worthy of notice, that in Genoa, as in greater degree at Venice, windows often bear a great proportion to the front, and in some cases they are placed so near to the angle, as to leave what, in the absence of coins, might appear to be a very small pier for support. This extent of opening was probably for the same object, as we observed might have influenced the like peculiarity in the other city, for with so beautiful a prospect, as the Genoese palaces possessed, it is likely that its advantages were considered, and in the Church of the Assumption we find, that a balustraded way was carried along the ridge of each roof, with the purpose of obtaining several points of view.

The palace of the University consists of a vestibule next the street, a court open to the sky, arcaded in two stages, a staircase at the end furthest from the street, and rooms on each side the court and next the street. The ascent from the vestibule to the first arcade, is by a magnificent staircase. The balustrade commences nine or ten steps from the first ascent, and the space is here occupied by lions, which seem ready to spring upon the passer. The view from this point is equal to any thing in the city; in front is the staircase ascending to the court, which is in two stages, with coupled columns and arches, and at the extremity is seen the open staircase to the upper floors. Single columns corresponding with the rest, are continued round the vestibule on the level of the court, the intercolumns being balustraded. The ceiling of the vestibule is plain, as in most of the other buildings: it is arched over, the smaller arches groining into the larger. The numerous apertures in the cornices for the escape of the water, have a singular effect, and in many other buildings it is not pleasing. The façade has a low basement, in which are square windows and coins in excellent taste; above this are three heights of windows, the lower range being of singular design, and the two upper having alternately curved and pointed pediments. The front is divided into three parts, the centre compartment being set back about six inches by coins, which are varied in the different stories, and the whole is crowned by a bold cornice. The building was erected in 1642, and the architect was Bartolomeo Bianco. The Ducal palace was originally built by Andrea Vannone, but having been in great part burnt, the façade was rebuilt in 1778 by Simone Cantone. At the same time were produced the magnificent hall on the first floor, and the upper story of the building. The plan is of great extent, and has many points well worthy of notice, as in the arrangement of the columns, and the ascent to the door within the entrance court. The columns are placed four together, engaged in projecting piers, supporting the entablature, and similar arrangement of the order above. The ascent to the entrance might often be adopted with great convenience, and addition to the beauty, of buildings in England; the steps in front afford a ready access to pedestrians, and by the inclined roads, carriages can reach the same level—the whole, though simple in itself, being highly conducive to the effect of the edifice. In no particular can an imposing effect be aided by such small means, as in the arrangement of entrance-steps, and even of the flagging in front of a building; yet, to no other resources are we so wilfully blind. Such of our edifices as have a massive basement, or a fine ascent of steps, are so railled round, that the most important part of the structure is almost hid from view, whilst the National Gallery has for its basement a blank wall. Galeasso Alessi, also, would not have placed his ascent in the corners of the square, where for any purpose of effect they are useless, but by arranging staircases in the centre, would have made the building tower above the spectator. To such an architect, the declivity of the ground would have been an advantage; but *we* have really "*thrown away* the most magnificent site in Europe." The palace above mentioned is richly decorated, and may be referred to, as affording valuable hints in fire-proof construction. The Durazzo (Philippo) palace was built by Bianco, but enlarged by Tagliafico, who added the staircase, which is of great beauty. The court is square in plan, and the staircase is placed by the side of it. The elevation is of good proportions, though plain. The Durazzo (Marcello) palace is one of the few, in which there was no ascent from the vestibule; consequently, the court can be entered by carriages. It has two staircases of white marble, one on each side the corridor; they were added to the building by Carlo Fontana. The architects of the original building were Pietro Francesco Cantone, and Giovann' Angiole Falcone. The Balbi palace, by Bartolomeo Bianco, is one of the smallest in Genoa; but a striking instance of the ability to produce a fine work with small means. The plan is well arranged, though of an irregular shape, and the staircase admirably contrived; there is a descent, as well as ascent, from the vestibule. The façade is well designed. The Balbi (Piovera) palace is remarkable for its fine colonnades, and the beautiful grotto. This palace is a good example of the usual arrangement, where there was a garden. It is immediately beyond the court. The staircase is ascended from the right hand side of the court. There being no ascent from the vestibule, the grotto in the garden could at every time be seen from the street-door. Bianco was the architect. The Mari palace is also small in size, but the plan and arrangement worthy of careful examination. The portions of the ground-floor, and entresol, on each side the entrance, project in front of the main building, having balustrade and terrace on the top; the vestibule, which also projects, is lower than these, so that there is great play of light and shade. In the upper story of the front, the interfenestral spaces are hardly the width of the opening, but the effect of the front is still pleasing. Above the windows are bas-reliefs, as at present in the Oxford and Cambridge Club-house, Pall-mall. The apertures for the rain-water in the parapet are here very unsightly.

The Tursi-Doria palace, built in 1551 by Rocco Luzago, is much to be admired for the general disposition of its plan, for its elegant outline, and the character of solidity observable in it. The gardens are arranged on each side, and the balustrades and loggias, which separate them from the street, are good features in the elevation. The Hall of the Bankers was commenced in 1570 and completed in 1596, and is a building of great beauty, and of singular construction. It is a hall, oblong in plan, inclosed on two sides by columns, coupled and supporting arches, and on the opposite sides respectively by a blank wall, and by door and windows. The coins at the angles, and the trophies on the front are very effective. The roof displays great boldness of construction—the small amount of the support being considered; it is framed without a tie-beam, to get height.* The Cambiaso palace has a front, rusticated horizontally the whole height, but the windows of the different floors are so united to each other, that the perpendicular line predominates. The Church of the Assumption is a magnificent edifice; it is square in plan, the dome occupying the centre, therefore the nave and transept in plan are in the form of a Greek cross. There are two towers besides the main dome, and four small cupolas: it was intended to erect two other towers. The large dome is of great beauty. Alessi was the architect of the building which was commenced in 1552. The public granaries are well adapted to the object; they consist of four buildings, united by a commonvestibule. They are vaulted up to the top; and it is observable, that short walls are built to keep the grain free from the humidity of the larger wall. The date is 1625. The poor-house is said to be the largest in Italy; it is well planned, and the imposing effect of its façade hardly to be surpassed. The church occupies the centre of the building. It was built in 1654. It is well approached through an avenue of trees, lined by a wall and pedestals. The ascent to the entrance is here a feature worthy of notice. The Hall of St. Georges is only inferior in size to that of the Bankers, and is devoted to similar objects. The roof and ceiling are remarkable, but have hardly sufficient explanation in the work. In the Hospital for Incurable Patients we again see, that the art of architecture was not confined to private residences, but was equally exercised in charitable institutions. This building was commenced in 1420 by Andrea Orsolino; it has a fine vestibule and staircase, and a court surrounded by porticos of white marble. Instead of opening the windows for ventilation, apertures were left in the wall, and other openings made in the ceiling; the current from the lower story was carried up in the thickness of the wall. In the small Brignole palace, by Alessi, there is a staircase which deserves very attentive examination, and the façade is designed with skill. The Raggio palace has an excellent plan, and an entrance of great beauty. The Carégapalace, by Alessi, contains some ceilings splendidly decorated by Taddeo Carlone. The Serra palace is equally remarkable for the beauty of its decorations, which were executed by Carlone, and by a French artist named Callet. Andrea Tagliafico was the architect. The Lercari palace has a basement admirably designed, and adorned with rustics, and a loggia on the first floor. The architect was Alessi. The vault of the staircase is beautifully decorated with arabesques. The Sauli palace is one of the most magnificent of Italy. In plan it consists of a court in front of the main building, one or two in height, and the building itself. The elevation towards the street has rusticated doors and windows, and has in all respects greater originality of treatment than is before noticed; it is connected by the colonnades of the court with the main building, which has a magnificent loggia on the first floor. The garden front is a fine façade with coupled columns in two orders, and beautiful friezes. Alessi was the architect. The Negroni palace is most remarkable for a beautiful grotto, which is of large size. The Church della S. S. Nunziata, by the architect Domenico Scorticone and Giacomo Porta, has a noble interior most richly decorated. It consists of nave, aisles, and side chapels, the plan is oblong in form. The ceiling is semicircular, springing from an entablature below which are arches springing from columns of the Corinthian order. The Spinola palaces are remarkable for their decorations, one of them has paintings of portraits in perspective, and contains a statue of Columbus. The gate of the old Mole, which Alessi was the architect, has a good plan, and a fine fortress-like character in front towards the sea. The Grimaldi palace has a façade, much resembling one of Venetian production; the different floors communicate with the adjoining terraces of the garden.

If the talents of the architects of Genoa are evinced in the buildings of the city, they are probably shewn in a greater degree in the villas of the environs. The plans being less restricted by site, are arranged in the most admirable manner, and the gardens are so laid out, as to give within a small space much variety and picturesque effect. The Pallavicini palace, which was built in 1537 by Alessi, is one of the most celebrated; it has a good plan, and the elevations are fine in proportion and rich in ornament. It is well placed in its grounds, and there is a beautiful grotto. The villa Pallavicina has two orders of pilasters richly riched with ornament, a style of decoration more suited to interiors. The villa Spi-

* This roof is given in the supplement to the last edition of "Tregold's Carpentry," Edited by Barlow.

ne of the most rich and beautiful of the environs, has an imposing elevation, and the asent to the door well managed. In the Grialdi palace, at San Pier d'Arena, by Alessi, ie court in front of the palace is so arranged, iat with most simple means a surprising effect f grandeur is obtained. The Serra palace as a good plan and beautiful approach, and ie villa Fransoni, with a fine elevation, has a ost picturesque site. In the villa Giustiiani, built in 1537 by Alessi, there is a reiarkably fine loggia on the first floor. In ie villa Spinola, at Sestri di Ponente, there an admirable arrangement of the ground, ith terraces at different heights. At the lla Doria, at San Pier d'Arena, the walks re arranged in sinuous forms, which was not sual.

There are many other villas, which we have ot had space to notice, but which are well lustrated in sections and perspective views. ut amongst the most magnificent, we should ot omit to mention the imperial villa, in hich the fountains and gardens are arranged the best manner. Alessi was the archiect. The palace of the Prince Doria, also, as of vast extent, and though its exterior as comparatively plain, internally it was mbellished in the most lavish degree. The ountains, the long vineries in which the ellis was supported by elegant fluted olumns; its great extent, and the splendour f its decorations, must have rendered it a fit bode for the most influential family of the epublic. The volume before us is wound up ith illustrations of the theatre built at Genoa, etween the years 1826 and 1828, and betrays lamentable falling off from that high and almy state, which earned for the maritime ity the distinctive title of Genoa "the Suerb." E. H.

LORD LINCOLN'S BILL

FOR THE IMPROVEMENT OF DRAINAGE AND SUPPLY OF WATER.

We closed our notice of this bill last week p. 363) at clause 191, which directs commisioners to obtain reports on the supply of ater. The following are the words of the lause:—

"And whereas it is of essential importance hat all the inhabitants of every town and disrict made subject to this Act should be supplied with good and wholesome water for doestic purposes, to the utmost extent that the ocal and other circumstances of such town or istrict will permit, and especially that the oorer inhabitants thereof should be so supplied with water: and whereas supplies of ater are also required for the efficient and holesome cleansing of the streets, and main nd other sewers and drains which may be onstructed or maintained under the provisions f this Act; be it enacted, That when any own or district shall be made subject to this ct, it shall be the duty of the inspector to ake diligent inquiries, and report upon the ufficiency or insufficiency of the then existing upplies of water, and, if necessary, he shall tate his opinion as to the best mode or plan hich can be adopted for increasing the supplies of water for the purposes aforesaid; and e shall in every such case state in such reort how far any existing companies are able nd willing to extend their supplies of water, r upon what terms they are willing to conract with the commissioners for supplies of ater, and also the ability of such companies o supply such water; and, if necessary, he hall also state in such report what streams of ater, or other water in the vicinity of such own or district, can be made available for supplying water by the construction of proper orks, or by improving and enlarging the orks of existing water companies, or any ther water-works; and the inspector, after aving drawn up such report, shall send a copy hereof to the commissioners, and also to the roprietors of any such existing water-works s aforesaid as he shall see fit."

The commissioners may make contracts with xisting water companies, purchase their orks, or construct works themselves for the upply of water. But "whereas it is expedient that existing water companies and ther persons affording a sufficient supply f water to the inhabitants of any town or district should be protected in the enjoyment of the profit and advantages which may accrue to them by the sale of such water; be it enacted, that it shall not be lawful for the commissioners to lay down any pipes for the purpose of distributing water in any street within any town or district in which street or place any such water company or other person shall have previously to the day when this Act came into operation within such town or district, or within *Six* calendar months afterwards, laid down a main or pipe throughout such street in such manner as to enable all the inhabitants of such street to obtain a good supply of water, and so long as such water company or other person shall continue in manner aforesaid to supply the inhabitants of any street with water, it shall not be lawful for the commissioners to distribute water in such street or place."

Inasmuch as the houses of the poor are in many cases not supplied with water, on account of the inability of the owners and occupiers to lay down the communication-pipes, &c. "It shall be lawful for the said commissioners, and they are hereby required, upon the request of the owner of any dwelling-house of an annual value not exceeding *Ten Pounds*, or upon the request of the occupier, with the consent in writing of the owner of any such house, to lay down communication-pipes, together with a cistern and other apparatus required for the supply of such house with water for domestic purposes, and to keep the same in repair, and to charge for the same such reasonable annual rent or remuneration in money as shall be agreed upon, or, in case of any disagreement, as shall be settled by the said inspector; and such rent or remuneration shall thereafter be recoverable from the owner of such house at the same times and in the same manner as any water-rate due from such owner in respect of such premises may be recovered under the provisions of this Act; and such pipes and other apparatus shall not be subject to any distress for rent, nor to be taken in execution on any judgment of a court of law, or under any fiat in bankruptcy, any law or practice to the contrary notwithstanding."

Public baths, washhouses, &c. are to be supplied gratuitously:—"And be it enacted, that all existing public cisterns, pumps, conduits and other water-works used for the gratuitous supply of water to the inhabitants of any town or district, shall be continued, maintained and supplied with water by the said commissioners, and shall be vested in them and be under their management and control; and it shall be lawful for the said commissioners to erect and place any number of new cisterns, pumps, conduits or other water-works for the supply of water to the inhabitants of any street, court or alley, or of any number of houses as they shall see fit, or to erect the same in any public situation, for the gratuitous use of any persons who may choose to carry the same away for their own private use, but not for sale, and to supply with water any public baths or washhouses that may be established for the use of the poorer classes."

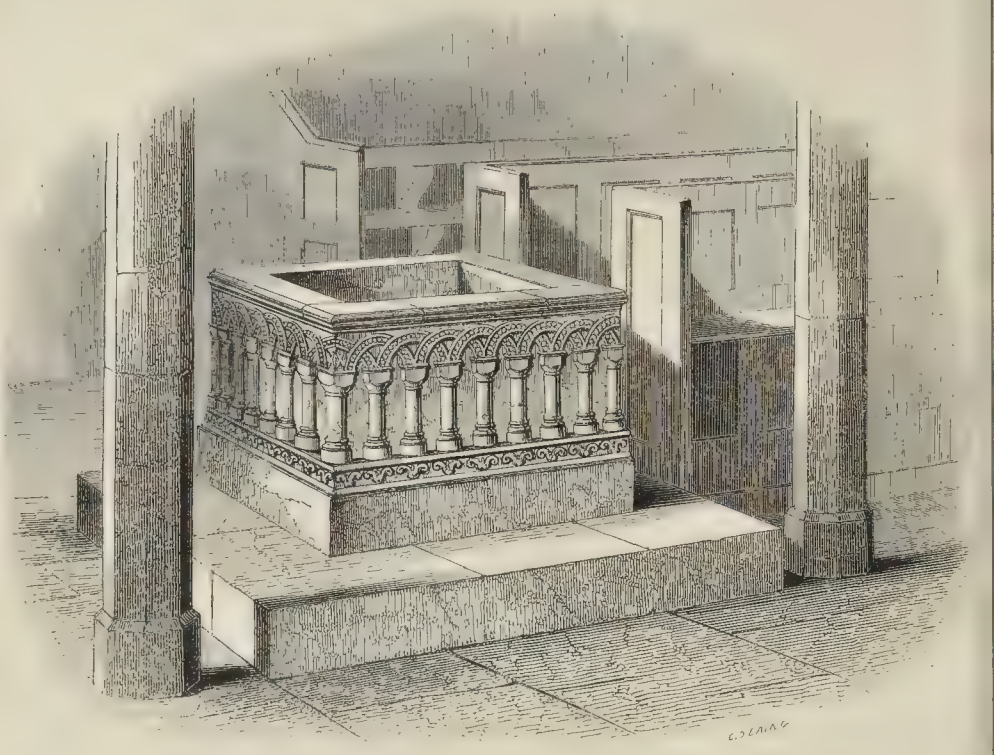
Commissioners are to provide engines for extinguishing fire, buckets, and fire-escapes. Proper fire-plugs are to be fixed into the main: and "all the main pipes to be laid down by the said commissioners, or used under and by virtue of the provisions of this Act, for supplying any town or district with water, or any part thereof, and all main pipes used for such purpose belonging to any water company or other person, shall at all times be kept *charged to the full with water under pressure.*"

A penalty of five pounds is laid on—"1. Every person who shall bathe in any reservoir, aqueduct, or other water-works belonging to the said commissioners, or their lessees or contractors, or shall wash or cause to enter therein any dog or other animal. 2. Every person who shall throw, put or cast any gravel, stone, rubbish, dirt, filth, or other noisome or offensive matter or thing into any such reservoir, aqueduct, or other waterworks as aforesaid, or who shall wash or cleanse therein any cloth, wool, leather, or skin of any animal or other thing. 3. Every person who shall cause or permit the water of any sink, sewer or drain, or any other offensive liquid, matter or thing belonging to him, to run, drain or be conveyed into any of the springs, rivulets, reservoirs, aqueducts, pipes, or other water-works belonging to the said commissioners, or who shall commit or cause any other act whereby the water of the said commissioners shall be fouled or corrupted. And be it enacted, that if any person making or supplying any gas within any town or district shall at any time cause or suffer to be conveyed or to flow into any stream, reservoir, aqueduct, pond or place for water within such town or district, or belonging to the said commissioners, or into any drain, sewer, or ditch communicating therewith, any gas or any washing substance or thing which shall be produced in making or suppyling gas, or shall do any act to the water contained in any such stream, reservoir, aqueduct, pond or place for water, whereby the water therein shall be fouled or corrupted, then such person shall forfeit and pay for every such offence any sum not exceeding *fifty pounds.*"

Then as to obtaining money to carry the several purposes of this Act into execution—"Be it enacted, that it shall be lawful for the commissioners for every town or district made subject to this Act, once in every year, or oftener if they shall think it necessary, to make one or more rate or rates, to be called the sewer rate, for the purpose of purchasing, constructing, and repairing sewers, for such town or district, and for otherwise maintaining effectually the wholesome sewerage and drainage of such town or district, and also for securing, raising, and paying any monies, and the interest thereof, which may be borrowed on the security of the said sewer rate, in pursuance of the provisions of this Act; and in like manner, once in every year, or oftener if they shall think it necessary, to make one or more rate or rates, to be called the paving rate, for the purpose of forming, making, maintaining, and keeping in repair the carriage-ways and roads, and forming, making, paving, sweeping, cleansing and watering the streets, within such town or district, and for securing, raising and paying any monies, and the interest thereof, which may be borrowed on the security of the said paving rate, in pursuance of the provisions of this Act; and, in like manner, once in every year, or oftener if they shall think it necessary, to make one or more rate or rates, to be called the general rate, for defraying all sums specially made payable by this Act out of such rate, together with the salaries of all officers acting in the execution of this Act, unless otherwise provided, and all other incidental costs, payments, charges, and expenses attending the execution of the powers, duties, and authorities hereby imposed and given to the commissioners, and which are not herein otherwise specially provided for.

"And in order to raise a sum of money sufficient to defray the costs, charges, and expenses of the water department; be it enacted, that it shall be lawful for the said commissioners, once in every year, to make a rate, to be called "the Water-rate," to be made and levied on every person who shall hold, use or occupy any dwelling-house situate within the limits of such portion or portions of any town or district as shall be marked out in the plan of the said inspector, to be supplied by the said commissioners, or by their lessees or contractors, with water, or by any other person on their account, according to the full net annual value thereof, and in like manner upon every person who shall hold, use or occupy any shop, warehouse, counting house, coach house, stable, cellar, vault, workshop, manufactory or other building, and all yards and all other places where goods or other property are deposited, or business carried on, except as hereinafter is excepted, according to *one-fourth* part only of such net annual value thereof respectively; and the said rate shall from time to time be collected and paid by yearly, half-yearly or quarterly payments, or at shorter periods, as the said commissioners shall think proper, and shall commence from such time after this Act shall come into full force and operation in such town or district as shall be fixed by the said inspector: provided always, that no person who shall hold, use or occupy any dwelling-house, shall be liable to be rated in a greater proportion than according to *one-fourth* part only of such net annual value thereof, unless the mains or other pipes of the said commissioners, or their lessees or contractors, shall be laid down and properly supplied with water within *thirty* feet from the outer wall of such premises."

NORMAN FONT, HENDON CHURCH.



NORMAN FONT, HENDON CHURCH.

The above engraving, from a drawing by Mr. Francis T. Dollman, represents a very interesting stone font of the Norman period, in Hendon Church, Middlesex. It stands at the west end of the nave, under the organ gallery, and is 2ft. 11in. square on plan, and 2ft. 8in. high, including the bottom step, 6½in. high, which is modern. The bowl, 1ft. deep, is lined with lead, and has a water drain. The font was repaired about a year and a half ago.

We have in preparation a valuable collection of Norman fonts, which we shall give shortly.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

That division of the association which have Lord Albert Conyngham for president, Mr. Pettigrew for treasurer, and Mr. Crofton Croker and Mr. C. R. Smith for secretaries, assembled in Winchester on Monday last, to hold their annual congress. The first meeting was held at three o'clock, when the president delivered an address, and Mr. Pettigrew read an able paper, explaining the objects of the association, and urging the importance of antiquarian pursuits: it gave a history of the Society of Antiquaries and traced the Archæological Association from its commencement in 1843. In the evening a conversazione was held, and Mr. Thomas Wright, the Rev. S. Isaacson, and others, read interesting papers. Since then, various excursions have been made, barrows opened, and a large number of papers read to very numerous audiences. The weather has not been propitious, but the meeting has nevertheless passed off well. Sir James Annesley, Mr. East, one of the members for the city, Sir W. Betham, Sir Francis Myers, Mr. Planché, are amongst those who have interested themselves in the proceedings. Mr. C. Croker was unfortunately called away to Ireland by the death of a relative.

The elucidation of the cathedral devolved on Mr. Cresy; and the hospital of St. Cross was illustrated by the Rev. S. Jackson.

We shall probably give more particular information next week. We cannot avoid renewing our expressions of regret that no satisfactory arrangement has been made between the two committees, but that, on the contrary, unwise supporters of either side are seeking to make religious feelings fresh elements in the quarrel. Some admirers of the objects both societies have in view, consider that the dissensions will put both parties on their metal, and induce,

——"those to work who never worked before;
And those who always worked to work the more."

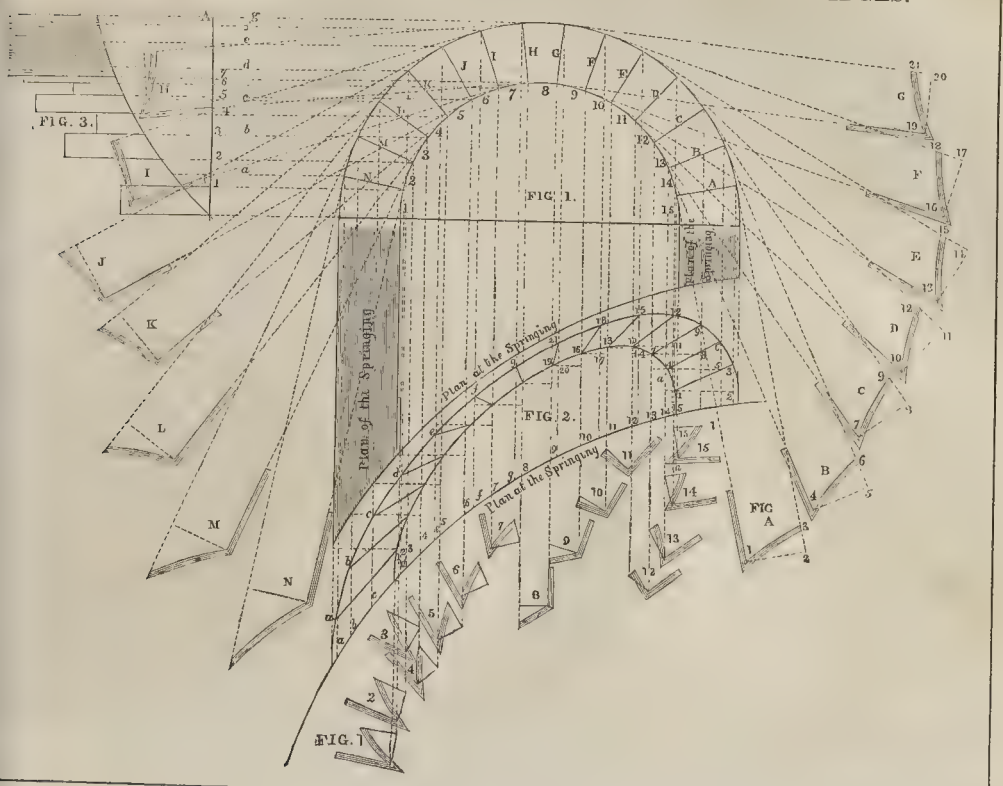
That hence the common object of both will be prosecuted with a keener spirit, and with greater industry; and that when the time arrives, each party will acknowledge its own errors, and a generous smile of satisfaction will welcome the harvest of good things their differences have partially been the means of bringing to light. For our own part, however, we cannot but consider the division an occurrence of unmixed evil, and beseech all who have any influence, to use it in calming the ill-feelings that have been engendered.

THE CONSTRUCTION OF SKEW BRIDGES.

Sir,—From the many catastrophes which have occurred by the tumbling down of railway and other bridges, particularly those that so recently have taken place on the Ashton railway near Manchester, and the two instances at Derby, I have been repeatedly requested and importuned by gentlemen of high scientific attainments to lay down the theoretical principles on which I have uniformly acted in all the works in which I have been many years engaged. Those principles, I feel persuaded, are known to few, with the exception of those whom I have instructed. Under this impression I beg leave to submit to you a plan and the description of a mode of obtaining the bevels of a bridge on the Grand Junction Railway, immediately adjoining Vauxhall Station, Birmingham. This bridge was contracted for by Mr. Brandson, builder, now of the firm of Brandson and Gwysher, the well-known railway contractors, who have been pre-eminently successful in all their undertakings. The workmanship of the bridge referred to was entirely left to my care. I have been much engaged in many extensive railway works, such as tunnels, bridges, viaducts, &c., and I never met with any difficulty but what I was able to overcome.

If you should think my endeavours worthy of being laid before your readers, particularly those who are intrusted with extensive works, it is my intention to follow up the present with a series of drawings (accompanying them with working instructions) of difficult work, laying down a sure and certain method to construct such work with ease and safety. It is deeply to be regretted that much work on railways has been erected under such circumstances as it has been, namely, that of giving contracts to such an extent, that it was absolutely impossible for those individuals to complete the work under their own eye, however talented they might be; they were necessarily compelled to re-let part of it, and in many instances the second contract has been given to individuals totally incompetent for such responsible work, and hence the many fatal catastrophes which are continually taking place. It is with a view to give instruction to such individuals that I have been induced to lay my system before the public in your valuable paper. I could name bridges to an innumerable extent on railways that really are not safe for trains to run upon; those bridges having been constructed without

DIAGRAM TO ARTICLE ON CONSTRUCTION OF SKEW BRIDGES.



ng laid down upon true theoretical and tical principles.

n describing the plan on which the above was constructed, it will be necessary in first place to shew the manner of drawing figures represented. Fig. 1 is a section square to the abutment of the arch; fig. the plan of the batter line; fig. 3 gives ntrados and extrados of the arch. From e 2 are got all the bevels required for ting the arch represented by the letters , C, &c., and 1, 2, 3, &c. To draw figure ke each distance from the perpendicular A, in figure 3, and set them from the plan 1, 2, 3, 4, &c., those distances set at 12, 4, and 15 in figure 2, then trace those s from one to the other, it will complete lan of the intrados; proceed in the same ner with the lines dotted from the extrados e battering line in figure 2. Set those nces also from the other side of the arch, h will complete the plan the extrados . From these two plan lines are got the s, A, B, C, D, &c., on the right-hand The bevels at the bottom, 1, 2, 3, 4, &c., ot in the following manner: the angle 1, on figure 2 is equal to the angle 1, 2, 3, in e 3; the dotted line from the point A, on ection figure 1, to the bevil figure A, re- nts the bed of the arch stone brought out, ne stock of the bevel applied on the soffit of the arch stone, and lying on the line bed of the stone, will give one draft for ng the face of the springer. The plan of ringer will give the draft of the face at ttom bed, but before the bevel A is ap- it will be necessary to apply the bevel 15 the bottom bed of the springer, up the f the intrados, and it will be seen that the bevels will give the twist of the face of ringer required to get the bevel 15; it e observed also that the line 15 is in the parallel as line 15 on the section, figure 1. tock of the bevel is drawn at right angles line 15. The angle 15 in figure 2 is equal to the angle 15 on the bevel of figure 1 on the intrados of the plan line; all the other bevels are got in the same way. To work the second stone on the right hand side of the arch, after the beds and soffits are worked, to the section mould A on the arch, take the bevel A, and apply it from the soffit along the bottom bed, which will give the first draft for making the face; then take the bevel 14, and apply the stock to the bottom bed up the line of the intrados, and it will give the second draft required; then take the bevel B and it will give the twist required for working the face of the second stone. All the other bevels are to be found in the same manner. By a strict examination of the figures and the dotted lines the system will be sufficiently clear to most practical men.—I am, Sir, &c., BEN. GREEN.

Birmingham, 23rd June, 1845.

THE SCHOOL OF DESIGN.

MR. EDITOR,—Seeing in a late number of THE BUILDER, that it was your intention to consider the matter you had before you respecting the School of Design, and to lay it before your readers, I beg to make a few remarks upon the great importance of design. If I recollect right, one of your correspondents states, that the School of Design is a school for drawing, and not for learning to design. There is no doubt about the truth of that statement. I have been much surprised from its commencement, that design should not have been taught, and I have stated this over and over again, but the authorities have been satisfied with the name they have given their school, and that the students would, by studying there, become designers. In this point they have deceived themselves, and the students have been the sufferers to the extent of designing. It appears that teachers of design have not been appointed, but teachers of drawing, and so far so good. But they must go further, and carry out the full intention of their name,—The School of Design. And why should not this nation have a School of Design, requiring it so much as it does? That a school of drawing must be established preparatory to design is true enough; but we must not deceive ourselves upon that which is only preparatory. To learn our language, is only preparatory to our becoming poets. By reading Shakespear our minds will be improved, but we must not expect to become dramatic poets. By copying the Parthenon, our minds will be improved on Grecian architecture, but by doing so, we must not expect to become designers of architecture for English people; the climate, the land, the convenience, the comfort, the peculiar wishes of the individuals, must be first consulted before we venture to force a style of architecture upon the employer; the design must be made to conform to the wants of the party, and to accomplish which, a vast deal of philosophy will be required. A designer must be taught to become an active observer, and after that, as active a reasoner. But his observations must be made upon the wide field of Nature—throughout the works of creation, in order to fill his mind with the true materials, and with which design is only to be effected. The works of the great designers sufficiently testify this by their close imitation of the beauties of nature. The designers of our cathedrals, like great men, stuck to the subject for which they designed. They did not, like slavish copyists, go to the Parthenon, and make studies of that temple (which was designed for pagan purposes), to assist them in designing a temple for Christian worship! No, they invented such forms as would be in accordance with the Christian religion, and thus make an appeal to the flock that it was the house of prayer for all who wished to worship the living God. To design, is to invent such form as will tell its own tale, and speak as it were to

the subject for which it was designed. Are the students then of the School of Design thus taught? It appears not. They are taught to draw, but then what are they taught to draw? Are their faculties for the arts legitimately exercised, and rightly directed for the purposes of design? If their faculties are exercised upon art only, they are not. They must have their faculties exercised first upon the works of creation, and then a due studying of the works of the great designers may be turned to good account. But great care must be taken in placing such works of art before the students that are not incongruous—such as those senseless productions of half man and half beast, half man and half vegetables, and half man and half stone, with wooden cases to keep from view their lower extremities; all such deplorable absurdities should be turned to the right about, for they have outlived sensible people's likings. In point of true design, every thing is yet to be done. The authorities have been changing their masters, but the students feel they are not at all nearer design. A sound system of instruction must be propounded, or it will be vain to expect the students to become designers; in fact, they are made draughtsmen, and, it appears from their statements, nothing further. This nation should have the most perfect School of Design that is in its power to make, and no longer should it delay so important a subject. The faculties for the arts were given to be duly cultivated, and the legislature should employ its wisdom in carrying such cultivation into effect. If the legislature continues to sleep as it has done upon artistic education, this nation must rest content with being the mere imitators of her foreign neighbours.

I am, Sir, &c. GEO. R. LEWIS.

METROPOLITAN IMPROVEMENT SOCIETY.

AT the annual general meeting of this society, held on the 31st ultimo, the following report was read:—

"Your general committee have much pleasure in submitting the following summary of their proceedings during the past year.

Shortly after the last annual meeting, the committee addressed a letter to Sir Robert Peel, requesting to know if any progress had been made in the preparation of a map of the metropolis, founded on an ordnance survey, which had been promised to a deputation of this society in 1842, and urging the importance of such a map on various public grounds.

The committee also took that opportunity of expressing a hope that the important question of an embankment of the Thames, with a view both to the improved facilities of communication, as well as public health and recreation, would not be lost sight of during the then ensuing sessions of Parliament.

A letter was also addressed to the Secretary of her Majesty's Commissioners for Metropolitan Improvements, on the subject of the proposed line of thoroughfares, connecting the Belgrave-square district with Westminster Abbey and the New Houses of Parliament, strongly urging that good taste and public convenience should not be sacrified to a narrow economy; but that by some modification, a view of Westminster Abbey as one of the noblest monuments of antiquity might be preserved, and an approach to that, and the seat of the legislature, rendered worthy of the metropolis of the British nation.

In their last report the committee stated the steps which had been taken with regard to a modification of the window duties, or as they have been justly designated, taxes upon light and ventilation, in their effects, excluding multitudes of human beings from the light of the sun during a large portion of their existence, and compelling them to breathe pestilence. Your committee continuing to feel a revision of this tax essential to the sanatory existence and comfort of the community, as necessary also to avoid its resulting and injurious consequences in defective construction and architectural deformity; and, moreover, satisfied that an alteration might be effected with little or no sacrifice of revenue, resolved to persevere in such object. Mr. Hickson (who on this and many other occasions as the society have witnessed, has been most strenuous in his exertions), having prepared a paper on the subject, your committee resolved that a thousand copies of the same should be printed and circulated. Several petitions to Parliament on the same subject were also prepared and adopted, public meetings were promoted, and the committee have had much pleasure in recording their sense of the exertions of Viscount Duncan in this benevolent cause.

Notices having been published in the newspapers of an application to Parliament for stopping up the thoroughfare for carriages on the east side of Lincoln's-Inn Fields, your committee directed a letter to be addressed to the secretary of her Majesty's Commissioners for Metropolitan Improvements, urging the serious obstruction and public inconvenience that must ensue if such a project were effected, and referring the commissioners to the report of a committee of the House of Commons in 1838, with plans, approving of a direct carriage communication by that line between the Strand and Holborn; and which, from the evidence then submitted, it appeared would be effected at the inconsiderable outlay of 18,000*l.*

The committee represented, that there is at present no approach from the north of London to the Strand, between Endell-street, St. Giles's, and Holborn-bridge, except by courts, or narrow winding lanes; and that if the existing obstructions could not immediately be removed, at least any increase of them should be prevented by the influence of the honourable commissioners. Your committee have the gratification to state, that they shortly after received a reply from the commissioners, stating that the measure had been abandoned.

Your committee, viewing the subjects of the Westminster improvements and of the Thames embankment as of great national importance, have devoted much time and anxious consideration thereto.

With regard to the former, plans, embodying the suggestions of the society, with a bird's-eye view of Westminster Abbey as thereby isolated, have been submitted by the committee to her Majesty's commissioners, and having strongly urged and reiterated its importance, have subsequently had the pleasure to receive an assurance that it should receive their best attention. The committee have been enabled, through the liberality of Mr. Hickson, to prepare copies of the plan and view of Westminster Abbey, which will shortly be forwarded to every member of the society.

Modified plans of the Thames embankment, embracing the suggestions of various members of the society, have also been prepared with the view of being submitted to the commissioners. Subsequently, your honorary secretary, Mr. Henry Austin, has suggested a plan of a railway street, in continuation of the embankment, and by which a junction may be formed with the Blackwall railway, and by which means the improvement long since urged by the society to her Majesty's commissioners, may be effected; namely, that of a spacious street or roadway, adequate to the increased and increasing traffic between the western and eastern parts of the metropolis.

Your committee have the pleasure to state, that on these plans having been submitted to the directors of the Blackwall railway, they were highly approved, and readily adopted by them. A company is in course of formation to carry the same into effect; and with the further view of connecting the same with other railways, by which the present obstruction of the principal public streets will doubtless be much relieved.

The committee cannot but congratulate the members on the signal success which has hitherto attended the efforts of the society. Although their power is not great, and their means at present are small, it has become manifest that they may be rendered the nucleus of important benefits. The Government having so readily yielded to the representations and suggestions of the society in advising her Majesty to appoint a commission for metropolitan improvements, this society for a time remained passive, considering its province rather to watch the proceedings of that body, and to render from time to time such assistance in the way of suggestions, or otherwise, as might be in their power; but observing how little has hitherto been effected, and satisfied by a review of the past year how much may be done by zealous and persevering efforts, and encouraged by success, your committee would call on the society, jointly and individually, to futur exertion; and to devise some efficient step to render its existence more generally known and extend its sphere of influence and use fulness.

As to the results of the past year, it may b stated—

That with regard to the important subje of the window duties, the minister has promis to consider the subject with a view to their r peal or modification.

That with respect to the modification of th Westminister new line or thoroughfare, ar the isolation of Westminster Abbey, it is no earnestly hoped that means will be adopted effect so manifest and important an improv ment.

The proposed obstruction of the carriag way on the east side of Lincoln's-Inn Fiel has been abandoned.

The smoke nuisance, which was long source of much attention and consideration the society, having been taken up by M Mackinnon, a member of this society and the legislature, has only been relinquished him on the Government engaging to provi for its suppression in the general measure sanatory regulations about to be submitted Parliament.

That with regard to the highly import subject of the Thames embankment, and t improvements consequent thereon, which h occupied so much of the attention of your co mittee, there is now every reason to exp that they will be accomplished, and that wi out any sacrifice on the part of the Governm or the country, and indirectly through the ertions of this society.

As there are many subjects of improveme both sanatory and constructive, to which attention of the society may be most adv tageously directed, your committee would ag earnestly impress the importance of individ exertion on the part of the members, to exte their numbers and influence, and thus to ren their future efforts yet more conducive public benefit." We gladly repeat this app and express a hope that many of our read will join a society which is calculated to much good.

ART-UNION OF LONDON.

THE annual exhibition of the works of purchased by the prizeholders will be ope to the subscribers and their friends, at the S folk-street Gallery, on Monday, the 18th The Art-Union indemnity bill has recei the royal assent. We are glad to learn the committee of the House of Commons, were appointed to take evidence on the sub of art-unions last session, are about to lish their report and the minutes of evide The committee of the Art-Union of Lon have commissioned Mr. Calder Marshal execute in marble his group, "the first w per of love," lately exhibited in the R Academy, for a prizeholder who had puted the committee to select a work of ar him.

HOLBORN AND FINSBURY SEWERS

TENDERS recently delivered for const ing a main line of sewer in Charl street, Bedford-square, 3,573 feet in lengt

Digge	£5,500
Cooper	4,505
Ward and Son	4,230
Johnson	4,190
Bethick, and R. Davis	3,876

For the branch drains and gullies:

Digge	£1,200
Cooper	850
Ward and Son	840
Johnson	800
Bethick and R. Davis	771

The mode of estimating which prod such results as this must be defective i extreme.

OPERATIVES IN PARIS.—The journe carpenters of Paris still hold out. A me of the master builders has been held to re delegates from the men, but the terms pro by them were rejected by a majority o votes to 7.

ON THE PRINCIPLES OF GREEK ARCHITECTURE.*

Mr. Wilkins has remarked, "that the Greeks adhered to established rules for determining the proportions of the several divisions of the naos, cannot be doubted. The great similarity which is discernable in the plans of most of the temples with which we are acquainted, warrants the conclusion that they studiously followed some one great model, and deviated from it as little as circumstances would allow them. In order to ascertain the accuracy of this conclusion, we must have recourse to some of the earliest temples of which there is any authentic account, and consider what resemblance can be traced in the plans of such as were erected at periods not very distant, in countries remote from each other."

Our author, then, compares the plan and proportions of the temple at Jerusalem with the temple at Pæstum; those who may wish to ascertain how far he has succeeded, must refer to his "Antiquities of Magna Græcia." If we were to admit that Mr. Wilkins had shewn that the temple at Pæstum was exactly the same as the temple at Jerusalem, and that the latter was a model from which emanated the temples of Greece, we should even then be very little benefited, not more so than if it were to be proved that the form of one of our cathedrals had been selected from one on the continent. We differ from Mr. Wilkins in endeavouring to find a model from which the temples were copied:—our inquiry is—*What were the principles which guided the formation of the Grecian temples?* This is the very error of the followers of Mr. Wilkins's school, which has retarded the progress of architecture as an art of design for years; their aim being to imitate by copying, and continually discoursing of effects, instead of developing causes. Therefore, *however* correctly Messrs. Stuart and Revett, or Mr. Wilkins, may have delineated the existing remains of Grecian buildings, important as the acquisition may be—unless we can obtain the key by which we can detect the original source of their creation, we must never expect to understand Grecian architecture, but continue *to copy only the models*, to be satisfied with their acknowledged beauty, and remain ignorant of the cause of that beauty. The deficiency of a correct knowledge of proportion is one of the reasons why architecture in modern times has seldom been successfully treated. Each part of a Greek temple was so regulated as to bear a just proportion to the whole: in this alone how deficient are our edifices!

> "Though we excel in every separate part,
> Yet fail of just proportion in our art,
> In one grand whole unknowing to unite
> Those different parts."—*Horace.*

We have copied a portico, placed it against a house, a church, or a theatre; and however perfectly we have imitated it, and beautiful as it may be *per se*, it never has been adjusted to bear any proportion to the building to which it has been affixed.

Before, therefore, an architect can design an edifice in any style of architecture, he must become acquainted with that style which he proposes to adopt; and if he wishes to raise himself above the plagiarist, and add new features to existing styles, it is absolutely necessary he should first possess a knowledge of the principles which guided our ancestors; unless this be done, however cleverly he may imitate, it will be impossible for him to strike out new ideas with any certainty of success.

That the principles by which Grecian architecture has been moulded into beautiful forms have never been discovered is perfectly apparent, if we quote only a few remarks offered on this subject.

Mr. Gwilt observes, it may be objected to, that fitness alone will not account for the pleasure which arises in the contemplation of what are called the orders of architecture; and Alison seems very much "to doubt whether there be not some other cause of beauty."

"If admiration of Grecian architecture," says Mr. Wilkins, "result from intellectual association, it will be found to exist only among men of knowledge; and its just proportion will be determined by those whose taste is the most cultivated, and whose science is the most extensive; but if there be some intrinsic charm, some peculiar grace, which is necessarily acknowledged and felt by all mankind, we then must look for some more general principle, which will accommodate itself to this more general feeling." "We can scarcely deny, then, that the pleasure which is derived from surveying the ancient models of Grecian architecture is heightened by ideas connected with learning, with science, and with art; accompanied, as they still must be, by all the nameless charms which imagination combines with the history of the Greeks, and which it throws over all their productions. It is probable, nevertheless, that their buildings possess certain qualities which affect us independently of all these associations, and which, even without them, fail not to produce sentiments of admiration, and feelings of delight."

The same cause which operated so powerfully during the middle ages, and to which we and our continental neighbours are alike indebted for our beautiful cathedrals, viz., religion,—influenced in like manner the contemplation and erection of the Grecian temples; in the ancient, as well as in the modern world,—in savage, as well as in civilized nations,—we find that religious edifices are the largest in extent, the most elaborate in execution, and likewise the most costly of all the works of men.

If, therefore, we desire to seek the causes which operated so powerfully and so successfully in rearing edifices, acknowledged by all to be beautiful, our merely possessing accurate representations of those buildings is not sufficient for us to determine the reason of their being beautiful; to gain this desideratum, we must carefully inquire into, and examine the celebrated matured scientific systems of the earliest philosophers of Greece, and see if they will assist us by shedding any light upon so important and interesting a subject. To accomplish this, we will at once transport ourselves to Greece and the age of Thales and Pythagoras, who founded the earliest schools of geometry; the latter of whom, according to Proclus, was the first who gave geometry the form of a science.

Thales was born at Miletus, a Greek colony in Asia Minor, in the first year of the thirty-fifth Olympiad. After receiving the usual learning of his own country, he travelled into Egypt, where he became eminent in astronomy, geometry, philosophy, &c. From him astronomy made a very considerable advance, and he is generally reputed to be the father of the Greek philosophy, being the first that made any researches into natural knowledge. He founded the Ionian school 600 years B.C.

From Thales we pass on to Pythagoras, a philosopher no less distinguished than the former for the variety and extent of his discoveries. The information which he derived from his countrymen not satisfying his inquiring mind, he travelled into various countries. He first visited Egypt, from which country he went to Asia, where he is said to have made himself acquainted with the science of the Chaldæans and the Magi. Although these traditions may have some historical foundation, it is considered that his philosophical system was not derived from any foreign source, or even materially influenced by any thing that he saw and learned in the countries which he visited; his whole philosophy bears the impress of genuine Greek growth, and there is scarcely any thing in it which may not be traced to some native source.

Pythagoras finally settled at Crotona, in Southern Italy, and established a philosophical institution about B.C. 500, which in many respects bore great analogy to the Doric institutions which he had seen in Crete and Sparta. He instituted among his disciples a secret worship, or mysteries, which are sometimes called Pythagorean orgies; and the science of numbers, geometry, and music, were closely connected with the sacred rites.

The main purpose of philosophy, according to the system of Pythagoras, is to free the mind from incumbrances, and to raise it to the contemplation of immutable truth, and the knowledge of divine and spiritual objects. Mathematical science was with him the first step to wisdom, because it inures the mind to contemplation, and takes a middle course between corporeal and incorporeal beings. The whole science he divided into two parts, numbers and magnitude; and each of these he subdivided into two others; the former into arithmetic and music, and the latter into magnitude at rest, and magnitude in motion; the one comprehending geometry, and the other astronomy. Arithmetic he regarded as the noblest science, and an acquaintance with numbers as the highest good. He considered numbers as the principles of every thing, and divided them into scientific and intelligible. Scientific number is the production of the powers involved in unity, and its return to the same. Number is not infinite, but it is the source of that infinite divisibility into equal parts which is the property of all bodies.

Not any exposition having been handed down to us by Pythagoras of his scientific labours, it is undoubtedly no easy matter to separate, in the later traditions, what belongs to the old system, and what to the new. In modern times, great light has been thrown upon the subject by the careful examination and analysis of the fragments of Philolaus by Boeckh. Philollaus of Tarentum, a disciple of Pythagoras himself, was in all probability the first Pythagorean who wrote an exposition of the system of his master; and his fragments must therefore be considered as the most genuine source of information. The results at which Boeckh arrived are, on the whole, the same as those which Ritter subsequently reached, though by a different mode of inquiry.

* From "The Natural System of Architecture," by W. P. Griffith, Esq., F.S.A.

IRON AND THE IRON TRADE.

Since the last quarterly meeting of iron-masters, the trade has acquired much firmness, and may be regarded as in a more fixed and healthy state than for many months past. There is no disposition to form prices above their natural level, and the late rates agreed upon will we have no doubt be fully maintained. The tendency in the market is rather to advance than to recede. At a meeting of the masters at Glasgow, on the 30th ultimo, prices were reduced from 80s. to 65s. net, four months, or 2½ per cent. for prompt delivery. In rails, some large transactions have taken place during the past fortnight, at prices varying from 9*l.* to 9*l.* 10s. per ton.

It is well known, that iron made from coal in France is of an inferior quality, and unfit for railway and other engineering works. This fact, in connection with the fears of the French government, of the entire disforesting of the kingdom if charcoal iron-works are carried on to any extent, has suggested the idea of forming an establishment at Boulogne-sur-mer for the make of iron and the manufacture of fire-brick and pottery, from ores, coal, and clay, to be imported from Wales. Mr. R. Hopkins, with whom the idea originated, and who possesses several mines of the necessary materials, proposes to raise a capital of 100,000*l.*, to carry into execution his project.

The following is a statement of the imports and exports relating to iron, for the past year, 1844. Our imports of foreign iron-ware—chromate of iron, 2,365 tons; pigs, 52 tons; bars unwrought, 24,483 tons; bloom iron, 524 tons; old broken and cast-iron, 97 tons; unwrought steel, 2,717 tons; wrought steel and iron, entered by weight, 153 tons—ditto, entered by value, 11,905*l.* Of foreign iron in bars, 21,598 tons were retained for home consumption, and 5,876 tons exported, of which 3,371 tons went to India, and 1,013 to our North American colonies.—Of British iron we exported that year 99,960 tons of pig-iron; 230,935 tons bar-iron; 18,980 tons bolt and rod-iron; 18,969 tons cast-iron; 1,963 tons iron wire; 2,490 tons of anchors, grapnels, &c.; 15,654 tons in hoops, &c.; 7,226 tons nails, &c.; and of all other sorts (except ordnance) 48,170 tons; of old iron, for re-manufacture, 9,271 tons; and of unwrought steel, 5,121 tons.

New Churches and Schools in the Diocese of Durham.—The dean and chapter of Durham have recently voted the following donations for buildings connected with religion and education:—300*l.* towards a new church in the parish of Berwick-upon-Tweed; 25*l.* towards a school at Castlesides, near Lanchester; 20*l.* towards a school at Ellerker; 10*l.* towards a school at Coundon; 20*l.* towards a school, and 200*l.* towards a new church, at Ferryhill.

OPENING OF THE RAILWAY FROM LONDON TO CAMBRIDGE.

The continuation of the Eastern Counties line to Cambridge, Ely, Norwich, and Yarmouth, was opened on the 29th ult. A large number of persons attended at Cambridge, and the whole of the proceedings passed off very satisfactorily.

The most important station on the line is at Cambridge. It is a long, and handsome brick building, with stone dressings, consisting of a double series of arcades; one extending over the siding of the railway, and the other serving as a portico for the carriages arriving at the station. It was designed by Mr. Thompson, and erected by Messrs. Jackson, of Pimlico; as were also the stations at Chesterford and Wenden. Mr. Robert Stevenson was the engineer, and Messrs. Peto and Grissell the general contractors. The stations are all laid down with Seyssell asphalte, and afford a good example of the material.

There was a dinner at Cambridge on the occasion, and our chief inducement to notice the proceedings was, that we might record some remarks then made on the conduct of the workmen employed on the line, and the character of the contractors.

The Dean of Ely adverted in the highest terms to the unremitting excellent conduct of the operatives throughout the line. As a magistrate of Ely, he had had every opportunity of witnessing their demeanour, and it afforded him unspeakable satisfaction to bear the most unqualified testimony to the peaceable, orderly, and sober manner in which they had uniformly conducted themselves. (Cheers.) With three exceptions only, throughout the whole of the period the works had been carried on, not the shadow of a complaint had been made against them, and those exceptions were of the most trifling character; it was due to the labourers to bear this testimony in their favour (cheers), but a still higher measure of justice was due to Messrs. Grissell and Peto, whose judicious and liberal arrangements for the instruction and moral and religious welfare of the numerous band of workmen in their employment, were worthy of all praise, and had been productive of the greatest advantages. (Cheers.) He rejoiced at the accomplishment of the mighty work which had been achieved, and which they were that day met to commemorate. Not only would the material interests of the important districts by which the railway would be traversed be improved to an incalculable extent, but, which was far more important — the moral and intellectual interests of the community would be advanced and improved in a degree which perhaps it was impossible for human ingenuity to estimate. (Cheers.) Greatly as we were indebted to the piety of our ancestors for the stupendous institutions they had founded for the religious advancement of our race—yet were they infinitely surpassed by the mighty efforts which were now in progress, and the union of all that science and art could effect with all the elevation of purpose which characterized the present operations of the present age and controlled their influences, would produce results of the loftiest and most gratifying description.

The Bishop of Norwich was obliged to repeat the sentiments uttered by his friend the Dean of Ely. But if it were a repetition, it was not as tedious as a twice-told tale—for it deserved to be told three times three and "with one cheer more," (cheers) and the tale was the good and exemplary conduct of the railway labourers. (Cheers.) The dean said that, as a magistrate only three cases of misbehaviour had come before him. In Norwich they could surpass the eulogy of the dean, for there they had not one. (Loud cheers.) Not one man throughout the line (loud cheering), but the men were everywhere described as doing their duty like Englishmen, and none ever did it better (cheers), and here he would give credit and honour to whom credit and honour were due. He was himself a churchman, and holding high office in the church, and believed that in that church was the purest faith, but he was still a Catholic Christian (loud cheers), and as such would hold it as a dereliction of his duty if he did not express his approbation, respect, and regard for the exertions used for the moral benefit of the railway labourers by Mr. Peto. All down the line he had met with his agents, and had found them not merely giving directions and instructions, but also giving to the men religious books, and schools for the education of themselves and their children (loud cheers), and thus shewing them that education can civilize the mind, reform the habits, and elevate the understanding. The gin shops were left deserted, and the schools were full. (Cheers.) Who was there who would throw a damp upon the means even the humblest of education, come whence it may. Mr. Peto was a dissenter, and he (his lordship) envied the sect to which he belonged, the possession of such a man; he would gladly purchase him at his own price, and heartily he prayed that he would ere long become a member of the Church of England.

The Vice-Chancellor said, "The world of science had been employed in the accomplishment of the stupendous operations which railway proceeding had developed, but with him it was a source of inexpressible gratitude that not only had the regions of science been resorted to by the men who had created new and vast fields of enterprise, but that they had taken the opportunity which the concentration of the powerful body of artisans and labourers under their direction, and in their employment afforded them of diffusing amongst them the precepts of religion and morality. He bore just testimony to the excellent conduct of the labourers throughout the whole period of the formation of the line, and stated that their attendance at the Norman church, in the neighbourhood of Cambridge, which had been conceded to them at the earnest request of Messrs. Grissell and Peto, had been uniformly marked by diligent attention and reverent devotion.

INSULATED BUILDINGS:

ACCORDING TO THE BUILDINGS ACT.

Sir,—A point that would appear to be one of general interest having arisen between a district surveyor and myself, the following letter, addressed to the district surveyor, which will perhaps suffice to explain the subject, may not be useless:—

"My dear Sir,—I am leaving town to-morrow morning, but hear (even after your assent on Saturday to the proceedings) that you demur to the two houses in Lyndhurst-square, of which you have notice as 'insulated buildings,' upon the ground that they are not twice 30 feet, or in the whole 60 feet apart. I was quite prepared (sanctioned by counsel's opinion), to have proceeded with any additions I chose to make to any "commencement," not offensively setting up my opinion against the referees. My point is, they have no power to limit or control the express words of a public Act; more especially relating to matters clearly not within their province. There can be no question of my perfect right of trying the extent or limitation of the word 'commencement' in a court of law, which I was quite prepared to do, and am still prepared,—if any question is raised—but prefer paying your fee as of "insulated buildings," my object being not collision with authorities, but permission to carry out my barge-boarded pediments, &c., in conformity with the houses already erected.

The objection taken I was quite alive to, and that induced me so cautiously to word my notice.

I had intended some months since to address a letter to The Builder upon the subject; as I do not disguise my intention of so carrying out my operations to some considerable extent in this neighbourhood, as availing myself of a rational permission in this suburban district, believing as I do, that additional ground adds value to the outlay.

I had, however, hoped that no attempt would have been made to pervert the clear and singularly (for this Act) intelligible clause under which I presume you ground your objection.

I cannot avoid remarking, I think it would be but an act of courtesy if district surveyors were to supply the architect concerned in the building with the ground of their objections in writing, when most frequently a dispassionate discussion would settle all points in difference.

The course, however, taken is an appeal to the referees; the first step being, that the district surveyor is called upon formally to state the grounds of his allegations or irregularity; the party, by a transmission of a copy from the referees, obtains the information by a costly mode of proceeding.

I have also been told by a district surveyor, in the presence of the referees, that a party producing a plan of intended operations and seeking advice as to its conformity with the provisions of the Act, the district surveyor is not bound to assent or dissent from its accuracy.

I believe a party serving the district surveyor with a copy of a plan of intended operations, and seeking his advice, which being refused, and for the sake of the argument assuming non-conformity to the provisions of the Act to exist in some parts,—I think, I say (if permitted to proceed, and the errors are eventually complained of), the district surveyor would be told in a common law court that he was not merely ministerially acting, but in respect of the prescribed fee for superintending this particular work, he would be held liable for his wrong doing. If my arguments fail to convince your judgment, I would request, as a preliminary step, the grounds, in writing, of your objections. Should you withdraw your objections, I shall then feel obliged by your so informing me, that my works may proceed without the suspense and doubt of their conformity, which brings me to what I presume to be your grounds of objection, viz., under schedule C, second paragraph, part 7, which, describing what are to be deemed 'insulated buildings,' states:—'And with regard to such building, so far as relates to the *distance* thereof from any other *building*, or from ground not in the same occupation therewith, or connected therewith only by a fence or fence wall, it must be distant from such other *building*, or such other ground, at the least 30 feet.'

We will first try the question by the actual position of my houses. They stand on my freehold, 50 feet from each other; and you have admitted, by measurement with my builder, that no portion of the ground surrounding the houses is within 30 feet 'from ground not in the same occupation;' as no fence or apparent division exists as dividing this 50 feet, I would challenge your authority to call upon me to state to which I meant to attach at least 30 feet.

We will now try the question upon a broad principle. Since hearing of your objection, I have consulted two intelligent legal friends, who not only fully confirmed my views, but expressed surprise how such plain language could be attempted to be perverted—with the permission to erect with any 'dimensions and materials' such buildings. To prevent accidents by fire the controlment is enacted—and if a number of houses were in erection together, 30 feet apart controls the matter; but it clearly was evident to the minds of those who framed the clause that one house only might be built: and then comes the restriction (and which be it borne in mind is in the disjunctive), 'or from ground,' that is to say, you shall not avail yourself of this permission unless you have in the same occupation at least 30 feet of ground, so that any future erection cannot possibly be nearer than 30 feet. Hypothetical cases might be multiplied, but I will not further entangle the discussion thus, or by shewing how readily the clause may be evaded altogether.—Yours faithfully,

Greenway Robins."

Employers and Workmen.—Our notice of entertainments given by employers to the men in their service, and the view we took of the advantages likely to result from such a course, have led correspondents to send us accounts of various similar meetings. Last week more than 200 persons connected with the brewery of Messrs. Hanbury and Co. dined and supped at Rosherville Gardens, near Gravesend, at the expense of the firm, Mr. Davison, engineer, in the chair. A local paper says, "At 8 o'clock the whole party embarked in the most orderly manner on board the Vesper, Star Boat; and it is but an act of justice to add, that if parties holding higher births, and assuming greater rights of civilization, were to conduct themselves throughout a festival of this kind with as much propriety, it would go far to establish a better order of things."

Correspondence.

GLASS PIPES.

SIR,—At the late meeting of the English Agricultural Society at Shrewsbury, I noticed with interest some specimens of glass pipes, introduced there by Mr. Freeman Roe, of London. This invention strongly recommends itself to notice and approbation, by its securing the cleanliness and salubrity of the water in its conveyance from its source, whilst the cost of manufacture will not be much, and its durability will be lasting. It is well known that all natural waters contain in solution bicarbonate of lime, in greater or less proportions, which act in two manners injuriously in the ordinary pipes. The evaporation of a portion of carbonic acid will precipitate the insoluble carbonate of lime or chalk, well known as a deposit in pipes and the fur in tea-kettles, which obstructs and finally closes up the passage, whether in lead or iron. The carbonates of lead and iron are also formed at the expense of the metals, the former of which has been proved to be highly injurious to health, whilst the latter, though less so, produces, by its astringency, bad effects upon the human constitution, and at the same time, from the formation of these soluble salts, the metals rapidly corrode and wear away. Where water is required for vegetation, the presence of the smallest quantity of iron is injurious, whilst its brackish taste renders it unfit for domestic appliances. Now, as *points* are necessary for the first crystallization, from the uniformity of surface in glass, no deposition can take place in pipes formed of this material as in those of lead or iron; nor can the material be acted upon chemically, so that whilst the pipes are kept clean, the water is insured in the same condition of purity as at its source. The abolition of the duty on glass will doubtlessly lead to its introduction to many other purposes useful and ornamental, as vases, basins, and other parts of decorative fountains, where the transparency of the material would have an interesting effect, much above that produced by the opacity of the matter at present employed.

1, Finsbury-square. A. BOOTH.

BUILDERS' ESTIMATES.

SIR,—Knowing you to be an advocate for correcting abuses, I trust you will excuse the liberty I take in addressing you relative to certain works which were to be executed and are now in progress at an institution belonging to the united parishes of St. Giles and Bloomsbury; and for which I, among others, was requested to estimate, and received a letter stating "the trustees *hoped* to be *favoured* with a tender from me for the works, which were to be divided into two classes, one containing bricklayer, plasterer, carpenter, smith, &c.; the other the plumber, glazier, and painter, so as to form *two estimates, distinct* and *separate*" (these are their own words).

I accordingly sent my estimates at the time and place appointed, where four of the trustees met the surveyor for the purpose of opening and deciding on the tenders which were to be adopted. My tender for the principal of the works, viz., the bricklayer, plasterer, carpenter, and smith's work, &c., was the lowest of any, and another tradesman was lowest in the painting, &c.; which estimates, had they been accepted, would have been "a saving to the institution of 3*l.* 10s.," and honourable and straightforward on the part of those assembled. But no, the surveyor advises the trustees to accept the tender of another party (one of his own neighbours), "because," as he says "he was lowest on the gross amount;" and on being asked for an explanation, said the trustees did not bind themselves to divide the works. Then why have requested two "*distinct and separate estimates?*"

Here I beg to state that there were similar works executed last year at the same institution, and under the same surveyor, on which occasion they divided even the plumbing from the painting, which invariably go together as a matter of course. Thinking I was dealing with honourable men, I did not make a question about the division of the works previous to forwarding my tender, which perhaps I might to have done, but shall be more cautious for the future, and hope my brother builders will be on their guard also against such injustice.

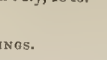
Hoping you will find space in your valuable journal for this,—I am, Sir, &c.,

J. S., Junr.

Tottenham Court-road, 28th July, 1845.

FIRE-PROOF CEILINGS.

SIR,—My attention being directed by a letter in THE BUILDER to a project for diminishing the combustibility of houses by the substitution of iron for wooden lathing, the idea of substituting slates "for partitions, ceilings," &c., instead of laths of any description, presented itself to my mind. I accordingly tried the experiment on a small scale, and found it to answer exceeding well. I fixed some scantlings together, and nailed the slates to them, allowing a proper space between each slate. I likewise cut slits in each slate about three inches long, and three-eighths of an inch wide, thus: each row being about four inches apart. I, by this means, secured the perfect keying of the lime. I then laid on two thin coats of plaster, both of them not being more than half an inch thick. After allowing the plaster to dry properly, I applied a fire of dry fir shavings directly below it, for the space of a quarter of an hour, the heat and flame from which were exceedingly intense; some of the slates were merely a little cracked at the edges, where they were not well covered with lime. The difference of expense between slates and wood laths would not be considerable, and buildings might by this simple and cheap means be rendered almost fire-proof. I perceive a similar idea has struck the mind of your Kensington correspondent.—I am, Sir, &c., J. R.



Hartlepool, Aug. 2nd.

Miscellanea.

DECORATIVE ART SOCIETY.—On Wednesday, the 30th ult., "*the consideration of Geometrical figures in the foundation of graceful outline*" was resumed. The elements of spiral, waved, and serpentine lines, were discussed with the usual methods of producing them, and as these lines are, in practice, generally adjusted and regulated by the hand and eye of the artist and workman, it was felt that a mechanical system would be of great utility and importance, provided simplicity could be combined with the process. After some remarks on the properties of the Greek spiral, such as admitting a tangent to be drawn at right angles to a radial perpendicular, and having the convolutions at a certain uniform ratio (as evidenced by examples in the British Museum and in Stuart's works), distinctly different in principle from the logarithmic or any other spiral, attention was devoted to Mr. Jopling's explanations of his septenary system of generating curves by continued motion. This system had been brought before the society at a previous meeting, and was received with some attention by the members, but as only one of the seven divisions had been published by the author in an extended form, its application to the lines under consideration was novel and strikingly illustrative of its merits; and from the courteous and liberal manner in which Mr. Jopling gave his valuable information, it was agreed by several of the members to endeavour to apply it experimentally in their respective occupations, as far as their limited acquaintance with it would enable them to do so, and to report the results to a future meeting. The drawings of serial conchoid, cardioid, and other curves produced by the above system, led to the supposition that new combinations of pleasing character (varied as in diapering, engine-turning, &c.) might be derived and applied economically to decorative purposes in manufactures. This being the last meeting of this season, the chairman congratulated the members on the very satisfactory nature of the past meetings, as yielding to those of few (if any) other societies in interest; and in adjourning the meetings for two months, he felt much pleasure in being able to state, that several papers were in preparation likely to sustain the reputation of the society.

EXTENSION OF THE REGENT'S PARK.—During the past week, workmen have been employed, by order of the Commissioners of Woods and Forests, in erecting a fence round the land (including Primrose-hill) on the north side of the Regent's Park, recently belonging to the Euston estate, but exchanged with the commissioners for other lands, for the purpose of increasing the Regent's Park, and securing a public throughfare to the top of Primrose-hill. The hill, and land adjoining it, from the suspension-bridge over the Regent's Canal, comprising 150 acres, will be converted into plantations, serpentine, and other gravel walks, and small pieces of ornamental waters, the whole of which when completed will be thrown open to the public.

ART-UNION PRIZE ANNUAL.—We have before us the first volume of this work, published by Sprigg, of Great Russell-street, and intended to present each year engraved representations of *every* work of art purchased by the prizeholders in the London Art-Union. We shall notice it at greater length next week; and in the meantime recommend it to the subscribers and all interested in art.

NEW POWDER MAGAZINE.—The purchase of the Kinterbury estate by the Government, as the site of the new powder magazine, has been completed for 23,000*l.* The works will be commenced forthwith.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the executing the skeleton of Glenorthy Castle, County of Limerick, Ireland.

For Building a New Union Workhouse, to contain 1180 Persons, for the Guardians of the Clifton Union.

For the complete restoration of two Windows on the south-side of St. Thomas's Church, Salisbury; also, for Cleaning and Whitewashing the interior of the same Church.

For the execution of Works on the Leeds and Thirsk Railway.

For Coupled Locomotive Engine and four-wheeled Tender, to contain 700 gallons, for the Manchester and Birmingham Railway Company.

For the execution of that portion of the Newcastle and Berwick Railway, extending from the Newcastle and North Shields Railway to Netherton, being a distance of about 12½ miles.

For the execution of several lengths of Earthwork on the Aberdeen Railway. There are 5 separate Contracts, varying in lengths from 3½ miles to 4¾ miles.

For the erection of a Wesleyan Proprietary College at Taunton.

For the supply of 70,000 Larch, Oak, or Fir Sleepers, and Fencing for 50½ miles, or any part thereof, for the Ipswich and Bury St. Edmund's Railway Company.

For the erection of a new Village Infirmary at Brampton, near Huntingdon, for the Lady Olivia Sparrow.

For erecting a Convalescent Ward, Nurse's Room, and a Wash-house, adjoining the Infirmary of the Sudbury Union.

For Building 700 feet of Sewer in Lower Garden-street, Westminster, for the Trustees of Tothill Fields.

For the Construction of the Gas Works at Wells, in the county of Norfolk, with all necessary apparatus.

For a supply of eighty fathoms of Yellow Deal Ends and Boards, in equal proportions, of the best description, to the Trustees of the Parish of Islington, Middlesex.

For a supply of fifty fathoms of the best Yellow Deal Ends, to be worked direct from the ship, to the Directors and Guardians of the Poor in the Parish of St. Marylebone.

For the execution of the works on the Nottingham and Lincoln Railway, in two parts; 1 from Nottingham to Newark, being a distance of 17¼ miles. 2 from Newark to Lincoln, being a distance of 15¾ miles.

For the construction of the entire Line of Railway through the County of Anglesea, for the Chester and Holyhead Railway Company. It is divided into four separate Contracts, being respectively in length 5 miles and 28 chains, 5 miles and 26 chains, 7 miles and 55 chains, and 3 miles and 60 chains.

For the execution of the several works required in the Tynemouth Extension Railway, comprising about 740 yards of Tunnelling, with Earthwork, &c. The length of the extension is one mile.

For supplying her Majesty's several Dockyards with 11,000 loads of African Timber.

For the Buildings intended to be erected at King's Langley, for the Committee of the Booksellers' Provident Institution.

COMPETITIONS.

Plans are required for Laying out and covering with Villa residences about 20 Acres of land having a frontage of about half-a-mile to the Queen's-road, Richmond, Surrey, extending from Spring-grove towards Richmond-hill. Premiums will be given of 25 guineas for the most approved plan, and 15 guineas for the second.

The Committee for the establishment of Public Parks, Walks, &c., at Manchester, offer two prizes, one of 50 guineas and the other of 25 guineas, for the best and second best set of Plans (with estimates), for the laying out, &c., of the sites already purchased by them.

The Board of Guardians of the Bridlington Union offer a premium of 10*l.* for a Plan and Specification of a Workhouse, the expense of which is not to exceed 2,000*l.*, and to accommodate 150 inmates.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At Little Bentley Hall, Essex, 2,000 straight and good Larch Firs.

BY TENDER.

In the Plantations of the Duke of Montrose, situate in the Parishes of Drymen and Buchanan, Stirlingshire: many Thousands of Larch Trees of some size, adapted for Railway Sleepers, Roofing and Joisting, and other purposes.

TO CORRESPONDENTS.

"A. A."—*Thanks.*

"A. J. G." (Sudbury).—*Inquiries into private character are beyond our province. Even asking the question might injure the party named.*

"Stone groins."—*A subscriber asks for an account of the construction of stone groins "beginning with the common four-ribbed, with the means of setting out the same for workmen, and the jointing of the masonry." We shall be glad to receive communications on the subject.*

"Wood Models to draw from."—*A correspondent wishes to know if any person in London makes such, or of paper; plaster of Paris being so brittle.*

"Stir in the School of Design."—*Mr. J. Strudwick denies the statement that he has not been a student in the School for twelve months. We have not space for his letter.*

"A Student," *should have sent us a sketch; without it we cannot judge.*

"X. Y. Z."—*If the house be rebuilt under the provisions of the Buildings Act, our correspondent is not bound to provide a spout: if otherwise, we apprehend he cannot legally stop an ancient waterway without providing a substitute.*

"W. G."—*The height of a building, to settle the rate, is to be ascertained by measuring from the surface of the* lowest floor in the building. *Not knowing the rate of the addition about to be made, we cannot tell if the wall in question would be sufficient. Buildings or offices, whether attached to or detached from the buildings to which they belong, are to be deemed as buildings of the rate to which they would belong if they had been built separately. Schedule C., part VII.*

"F. T. D."—*We shall be glad to hear from him again.*

"Duty on Bricks."—*A correspondent asks whether a drawback is allowed on bricks made by a proprietor on his own estate for his own use. We believe there is not, excepting when used for drainage, when they must be marked "drain," and not used for any other purpose under heavy penalty.*

"A New Subscriber."—*The Independent Chapel at Holloway is mentioned in p.* 142 *and p.* 166, ante. *St. Peter's Church, Islington, has not been spoken of in* THE BUILDER.

"W. J. W."—*The vase shall be engraved.*

"Kite's System of Ventilation," "N.," and "B. B.," *next week.*

Received:—"Friend to the Builder," (Wisbeach). "Plan of Buildings for Working Classes; J. Boult, Architect," "Dolman's Magazine" No. VI. (commencing a new Volume); "Quarterly Journal of the Geological Society, No. III." (Longman); "Old England, Part XX." (Knight); "Pictorial Gallery of Arts, Part VII." (Knight); "Medical Times" for July; "A Peep into Architecture," by Eliza Chalk (Bell, Fleet-street). "An Old Subscriber."

ERRATUM.—*The quotation by Mr. Angell in his paper read at Institute of Architects, reported at p.* 351, ante, *was from* Empedocles (*the Agrigentine philosopher*) *and not from Pericles, as stated.*

*** *Correspondents who threaten to cease to be subscribers because we differ in opinion from them or refuse to insert communications which would really injure them in public opinion, must think meanly of us if they consider the threat likely to alter our course of proceeding. Our duty is to give sound information and honest opinions, and we will perform this to the extent of our ability without respect to persons.*

ADVERTISEMENTS.

SASHES Primed and Glazed at 7d. per foot.—CROWN-GLASS, 6d. per foot.—WHITE LEAD, 26s. per cwt.—PIPE and SHEET LEAD (cut) 21s. 6d. per cwt.

J. WINCH, late Foreman to R. Cogan, begs to acquaint the Trade that he can supply them with WINDOW GLASS, SHEET LEAD, PIPE, COLOURS, WHITE LEAD, &c., of the best quality at the lowest prices. CARVERS and GILDERS, CABINET MAKERS, and others are respectfully informed that their glass is looked out with peculiar care.—Every inquiry immediately answered, and equal attention paid to small or large orders. LAMP SHADES and GAS GLASSES at wholesale terms.—Address, 15, High-row, Knightsbridge.

MONS. BOUTIGNY'S EXPERIMENTS on the FREEZING of WATER in RED-HOT CRUCIBLES, &c., will be repeated by Dr. Ryan, in his Lectures on the CAUSES of EXPLOSIONS in STEAM-BOILERS, daily at half-past Three, and in the Evenings of Mondays, Wednesdays, and Fridays, at Nine, at the ROYAL POLYTECHNIC INSTITUTION. The ATMOSPHERIC RAILWAY, carrying from Six to Eight Visitors at once, is lectured upon by Professor Bachhoffner, and exhibited daily, and in the Evenings. The art of SWIMMING and DIVING illustrated by a Youth Eight and a half years of age, the Son of Capt. Stevens, the celebrated teacher of Swimming, on Mondays, Wednesdays, and Fridays at Two o'Clock, and on the Evenings of Tuesdays and Thursdays, at half-past Eight. All the other popular Exhibitions and interesting Works as usual.—Admission, One Shilling; Schools, half-price.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

PAINTING BRUSHES OF SUPERIOR QUALITY. TO PAINTERS, BUILDERS, &c.

J. J. KENT AND CO.,

MANUFACTURERS,

11, GREAT MARLBOROUGH-STREET, LONDON,

Offer to Painters, Builders, &c., Painting Brushes of a quality far superior to those generally offered for sale, to which they beg to call the attention of all who prefer quality and durability to apparent cheapness.

oooooo.—7 in. Dusters.
oooooo.—7 in. ditto, extra.
oooo.—Ground Brushes.
Plasterers' Brushes.
Distemper ditto. Ground and Unground.
Sash Tools, and Common Tools.
Tar Brushes and Masons' Brushes, and all other Brushes used by Painters and Artists.

Lists of Prices of Painting Brushes, and of all other kinds of Brushes, forwarded on application. Established 1777.

VENTILATION.

"A most ingenious, simple, and effective plan." Mr. Reid's Lecture on Ventilation, delivered, June 7, 1845, before the Mechanics' Institute, Liverpool.

BAILLIE'S PATENT TRANSPARENT VENTILATOR, ventilates rooms or public buildings without causing unpleasant draughts of air—may be fixed as easily as a pane of glass, whose place it supplies—does not derange blinds, shutters, or other fixtures belonging to windows—most useful to public places of every description, especially smoking and coffee rooms, and moreover a simple remedy for smoky chimneys. This article may be obtained from all respectable glass dealers in London; Mr. Edgar Parks, ironmonger, 140, Fleet-street; Messrs. Stock and Sharp, and Mr. Samuel Beale, Birmingham; Messrs. John Hall and Sons, and Messrs. Dixis and Williams, Bristol; Messrs. Thos. and Will. Stock, Liverpool; Messrs. Davidson and Armstrong, Manchester; Mr. James Bell, Glasgow, &c.; who have models to explain its action, and will be glad to give any further information; also to be seen in use at Mr. Fred. Smith's, the Albion, 259, Blackfriars-road; Mr. Edward Baillie's, 12 B, Cumberland-market, Regent's Park; Mr. Seaton's, Dublin Castle, Park-street, Camden Town; 2, Coleman-street-buildings, Moorgate-street, and at the office of this Paper.

THE PROJECTED RAILWAYS.

ANALYSIS of the PATENT METALLIC SAND, or English Pozzolano, used in the foundations of the New Houses of Parliament, the great Tunnels on the Birmingham Railway, Sea-wall on the Great Western Railway in Devonshire, and other important works referred to more particularly in the prospectus.

Silica	49	Lime	6
Oxide of Iron	32	Magnesia	2
Alumina	6	Zinc	3

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The Builder.

No. CXXXIII.

SATURDAY, AUGUST 16, 1845.

HER Majesty's visit to Germany will probably lead even a greater number of our countrymen to travel to the banks of the swift Rhine in the present year than usual, large as that number always is. To those who know any thing of architectural history, and have sufficient knowledge of styles and dates to read and enjoy old buildings, Belgium, the Netherlands, and Germany, offer extraordinary attractions. It is greatly to be regretted, that comparatively few of our tourists know any thing about the matter, notwithstanding the subject now occupies much more attention in England than was the case a dozen years ago. They visit the cathedrals, and churches, and castles, both at home and abroad —they are amused and interested; but the instruction which these buildings offer, the information that they silently convey, is in a cipher to which they have not the key, and so is lost to them.

The delight of travel is increased four-fold by a knowledge of architectural history,—we speak for a few minutes to such of our non-professional readers only as may not have this knowledge,—and we advise all who would derive the fullest advantage from their summer rambles, and the greatest amount of pleasure, to apply themselves to acquire it. Every old building is an open book, which may be understood without difficulty by those who know the language: it tells you when it was erected, very often the state of society at that period; at which end it was begun, at what time alterations were made. You find it to be a stage in a progress,—a part of a whole, and can see clearly what preceded it and what it led to. Architecture, as a fine-art, should form part of general education; and, indeed, probably will before long. We once heard an educated friend, who had made the grand tour, inquire the difference between classic and Gothic architecture, and have often found men who have stood in the Athenian Acropolis and wintered in Rome, who yet did not know the Doric order from the Corinthian, and had not the most remote idea that a connection exists between the structures of Greece and Rome, and the cathedrals of the middle ages on this side of the Alps; still less, that the differences between them, now so strikingly apparent, can be traced step by step, and explained.

Such ignorance in other branches of knowledge would be considered disgraceful; but in this it is not so, being almost universal: further, these very men, with others *equally* well informed, and not better, will never scruple to sit in committees, to decide on the merit of designs submitted to them in competition by foolishly confiding architects and speculating charlatans. Let this pass, however, being simply a parenthesis, and return to our tourists.

Antwerp, where the Queen landed, is full of interesting matter. The wood-carving in some of the churches is admirable; the iron-work over the well near the cathedral will give a lesson as to the modern working in metal, not to mention the cathedral and other buildings (duly set forth in the guide-books), which furnish a rich treat.

Bruges and Malines afford many remarkable specimens of domestic architecture of various periods, besides churches curiously illustrative of architectural history. An air of stateliness and by-gone consequence, tinged with the melancholy traces of modern decay, characterizes these and other of the Flemish towns, and gives rise to peculiar emotions and instructive musings. The change from buildings intended for defence to those wherein convenience and comfort were alone studied, may be every where traced; while the growth of the third estate is brought to mind by the belfry and *hotel de ville*, found in each town. A bell to call the people together, and a place for them to meet in, were amongst the earlier requirements when they first discovered that union was strength, and began to feel their own importance. Ghent, Louvain, and Brussels give fine examples of these town halls. In the first-named town there are further illustrations of the progress of domestic architecture for those who have "eyes to see."

Germany, especially the southern parts of it, contains a large number of early and interesting specimens of what has been called the Romanesque architecture, as well as many noble and well-known examples of the pointed style. We should ourselves rather coin a word, and call the former *Byzantinesque*, if not Byzantine; their resemblance to the buildings of the lower Greek empire being strikingly apparent. No one can visit Santa Maria of the Capitol, the Church of the Apostles, or St. Gereon's, all in Cologne, without this conviction.

The first-named church is one of the most ancient in the city. It consists of nave and side aisles (separated by rectangular piers and plain semicircular arches),* transept terminated north and south by a semicircular absis, crowned by a hemispherical dome, and a choir with similar absis at east end. An aisle is formed around the absides by columns and semicircular arches. These columns have enormous cushion capitals, and diminish in diameter from the bottom towards the top. They would seem originally to have been rectangular piers, and afterwards worked into their present form.

Externally, St. Mary's is a rude type of most of the churches to be found in Cologne. It is, unfortunately, so far decayed and otherwise injured, as to be literally bound together, in parts, by iron bars introduced for that purpose.

Hope remarks of the Apostles' Church, begun in 1021, that on beholding the east end of it, immediately after entering the ancient gates of Cologne, he almost thought himself at Constantinople.

St. Martin's Church has internally the Greek distribution. Externally it has a fine square tower with four lesser towers at the angles. Of the Cathedral, a construction of a later date than those last named, we must not now speak. The circumstances which attended the discovery of the original drawings, the restorations which have been effected, the way in which the works are done, may afford us matter for some observations hereafter. Cologne has been called the Rome of this side of the Alps, and deserves the title. At Bonn, the cathedral is exceedingly interesting: part of it perhaps belongs to the time of the Empress Helena.

The castles on the banks of the Rhine would well pay for investigation, analysis, and classification; at present we know little of them.

* The archways are 9 feet wide, and about 22 feet high to the springing of the arch. Each pier is 6 feet 3 inches wide on the face.

At Aix-la-Chapelle, where the queen stopped the great church has many peculiarities. The church originally built by Charlemagne was destroyed, but was rebuilt in the tenth century. The æra of Charlemagne (in the eighth and ninth centuries), produced many fine buildings, and materially influenced the progress of architecture and the other arts; he drew from the Grecian empire artificers and artists of all kinds, and brought wholesale from Italy materials to decorate his new buildings. Our object, however, when we began this notice was simply to urge on tourists the advantage of obtaining a knowledge of architectural history and the characteristics of style. We must leave for some other opportunity the pleasant task of discussing the progress of the art in Germany.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

HAVING briefly mentioned the proceedings at Winchester in our last number, we now place before our readers notes of some of the papers which are more immediately connected with our subject. We would premise, however, that the president's address was exceedingly judicious.

"All party-feeling," said his lordship, "ought to fade away before true archæologists. The science we profess ought to shew to man the vanity of his position. The knowledge of the existence of many a prince and king, on whose word the lives of thousands depended, has only been brought to us by the researches of some student in charters, or the decipherer of inscriptions upon coins. I may quote the poet in illustration—

> Ambition sigh'd, she found it vain to trust
> The faithless column and the crumbling bust;
> Huge moles, whose shadows stretch'd from shore to shore,
> Their ruins perish'd and their place no more!
> Convinced, she now contracts her vast design,
> And all her triumphs shrink into a coin!

Nay more, ladies and gentlemen, when we look at the record of past ages, ought we not to recollect that their virtues or their errors have only been gathered from their tombs? Antiquarianism is not then the narrow pursuit its detractors would imply; the true antiquary marks the progress of races and institutions, and draws a lesson from the past. Is it not worthy of us to reflect on the history of our nation, and of mankind? It will not have been in vain, then, that the Archæological Association has been established, as affording matter for the graver studies, and giving food for superior minds."

Mr. Pettigrew, in his paper on the objects of antiquarian researches took up the same theme:—"Only a few years since," said he, "and the very mention of an object of antiquity called for the shafts of ridicule;—attempts to illustrate an ancient inscription, decipher a charter, or explore a ruin, were treated with indifference, if not contempt. Poets lent their aid to this effect:—

> 'With sharpen'd sight pale Antiquarians pore,
> Th' inscription value, but the rust adore.'—POPE.

"Curiosities now," says Feltham, "ought not to be neglected, especially antiquities; for these shew us the ingenuity of past ages, and include in them both example and precept. By comparing these with modern inventions we may see how the world improves in knowledge." Shakspere, that great master of the human heart and mind, was sensibly alive to the value of antiquities of all kinds. How beautifully in his Twelfth Night he makes the Duke to say to Viola as Cæsario in disguise—

> 'No, good Cæsario, but that piece of song,
> That old and antique song we heard last night.'

And again—

> 'O, fellow! come; the song we heard last night;
> Mark it, Cæsario; it is old and plain:
> The spinsters and the knitters in the sun,
> And the free maids that weave their thread with bones,
> Do use to chaunt it: it is silly, sooth,
> And dallies with the innocence of love;
> Like the old age.'

It is easy to throw ridicule upon any science; and antiquities have received their full share—perhaps not altogether unjustly bestowed. The time for poring over old grave-stones has, however, gone by; antiquarian researches have taken a higher stand, and the ardour with which ancient MSS. have been sought out, perused, and submitted to the public of late, promises most favourably for the development of the habits and customs of past ages. When we consider the mutual relations which connect all departments of learning, and the variety of knowledge requisite to form the true antiquary, the acquaintance necessary with heraldry, genealogies, inscriptions, monuments, numismatics, languages, etymologies, history, &c., we immediately see the importance of an association of many individuals, who by their joint labour are able to illustrate the progress of art, display the habits and customs, and elucidate the events and things of past ages."

The early history of the Society of Antiquaries as sketched by Mr. Pettigrew, may interest some of our readers. The Society of Antiquaries of London was incorporated in 1751, but there was a society of gentlemen in London, as early as 1572, who were in the habit of meeting to pursue the study of antiquities. The society was under the patronage of Archbishop Parker, and the meetings were held at the house of Sir Robert Cotton. Archbishop Whitgift became the president, and from 1572, to 1604, the society numbered forty members. After treating of this society at length, he said the meetings of this society fell into abeyance in the time of James I.; and the latest date of its meeting is 1604. James I. was petitioned to establish an academy royal, or college, to meet at Westminster or Windsor, to have a general chapter in a year, and four quarterly dinners. In Ashmole's Diary an entry occurs of the antiquaries' feast, held July 2, 1659. All subsequent antiquarian labours, up to the eighteenth century, seemed to have been confined to individual exertion and pursuit. Weekly meetings were held at the "Bear Tavern," in the Strand: there assembled Humphrey Wanley, Peter Le Neve, Mr. Maddox, Mr. Elstot, and other names well known to antiquaries; and after a time they removed to the "Young Devil" tavern, in Fleet-street, and afterwards to the "Fountain" tavern, in the same street. The association was continued to the latter part of the reign of George I., and in the commencement of that of George II., at apartments in Gray's-Inn, then at the "Mitre," in Fleet-street; and other meetings were held on the evenings after the Royal Society broke up. The admission fee was a guinea. In 1722, the number of members was limited to 100. In 1751, an Act of Incorporation was obtained, and the Society of Antiquaries was permanently established, the king naming himself founder and patron, and the admission fee raised to 5*l.* 5*s.*

Mr. Edward Cresy read a very interesting paper on

WINCHESTER CATHEDRAL.

The number of the cathedrals and churches built of stone throughout England, from the period of St. Augustine to the Norman Conquest, is so well attested, that it cannot be believed that the whole of them were swept away before the eleventh century, and that we have not a vestige remaining. That style which had for its peculiar character simplicity, and the Roman construction for its model, cannot wholly have disappeared while so many buildings which served the Saxons for imitation remain scattered over the greater part of Europe. The fantastic character found in the sculpture, and sparingly introduced in the capital, and over the entrances of their buildings, and which materially differs from the Norman, agrees precisely with the embellishments met with in the Saxon manuscripts which have come down to us. An eastern or Byzantine invention pervades the design, as well as the execution of the works of art at this period. There is not good ground for supposing they did not accompany St. Augustine. It has become a very general opinion that we can shew no remains of Saxon architecture, and that the sumptuous churches and cathedrals erected by the Saxons, in the most solid and perfect manner, only a century before the Conquest, were destroyed by the Normans, that others, on a grander scale, might be constructed on their sites by that enterprising people. The manner of building introduced by the Romans, the cutting and hatching of stone, the forming of mortar, and more particularly a concrete with or out of flint, gravel, and chalk, was not only adopted by the Saxons, but continued in use for many centuries after they were subdued by the Normans. Both churches and castles have been found with their walls formed of these materials. The cathedral of Winchester exhibits much of this construction, the oldest part of which may be attributed to the time of St. Ethelwold, who flourished about the year 980. The crypt, which has three separate divisions, is all cast of the transept; the ground at present has accumulated nearly to a level with the capitals of the columns from which the vaults spring, but enough of them is to be seen to prove two of them, at least, to be the work of a time prior to the construction of the great central Norman tower. The first division is under the present choir, and has a row of five round columns up the centre, with four piers on each side, and four others which sweep round in a half circle, and form the aisle to the eastern termination of the first crypt. Masses of masonry have subsequently been introduced to accommodate the changes which have been made above, as well as to support some of the chapelries on either side of the choir. The masonry at the termination of the two aisles seems also to have undergone a change, and at the present day it is difficult to say whether the exterior followed the sweep of the interior; but in all probability it did. Where the great Norman central tower has its foundation, it is evident that the crypts have been cut away for its introduction, and afterwards made good, which is proof of their construction anterior to the tower. The crypt is lighted by rounded openings, and vaulted in a simple manner but solidly. Beyond this, and under the nave of De Lucy's building, is a smaller crypt; its termination is also circular, and its vaulting resembling the great crypt. This was the termination of the Saxon church. The smaller crypt beyond is of much later date, and belongs to the time when the present Lady Chapel was erected. In the western aisle of the north transept the junction of the Norman and Saxon work is very evident, as is the difference in the character of the masonry of the two periods. The transepts, where attached to the tower, shew in part that they have been reconstructed, and that additional strength was given to the piers when that was done. Mr. Cresy alluded to the symmetry and order of setting out of these piers, and to the thorough knowledge of geometry shewn to have been possessed by Bishop Ethelwold, and that its application was of the most extraordinary kind for that period, when it is supposed that science was nearly forgotten. In that adopted by Bishop Ethelwold, we have the genius of those principles that succeeded, and which we admire in the styles of later date. Here is shewn all the skill in construction that can be demanded of an architect for any age, and more than is usually found; here is a perfect adaptation of every member of the pier to some useful purpose, and its very position. Mr. Cresy proceeded to state that the entire cathedral was entirely rebuilt by Bishop Ethelwold, in a substantial manner, towards the close of the tenth century, of which not only the crypt and the transepts exhibit the style in which it was erected, but that the nave and aisle are also his work, altered and encased by the celebrated William of Wykeham. The difference between the Saxon and Norman workmanship is clearly discernible, the latter being finished in a style far superior to the former. The tower is unquestionably the work of Walkelyn, the first Norman prelate that filled the see of Winchester; this abounds both exteriorly and interiorly with the zig-zag ornament so common in all Norman buildings, but no particle of which is to be seen in the original parts of the transepts and crypt. That the tower was erected to agree with the church as it then stood, and did not form part of an entirely new erected building, is shewn by its shape not being a perfect square, but being 50 feet by 48 feet, which perfectly agree with the respective breadth of the transepts and nave. It has been supposed by Dr. Milner, the late Mr. Carter, the great champion of Gothic architecture, and Mr. Britton—authorities to whose opinions he paid due deference—that the transepts were erected by Walkelyn; but after studying the subject for more than 30 years, and thoroughly investigating the point, he could entertain no doubt that the transepts were of Saxon erection, in which belief he was supported by Sir Christopher Wren, Dr. Nott, and Mr. Garbett.* The parts of the transepts immediately connected with the tower would shew, by the superior masonry, how far the Norman workmanship extended into them. Another specimen of Norman workmanship was the ancient font, which illustrated by its sculpture various legends of St. Nicholas, a saint in high repute with the Normans. The able author proceeded next to notice the portion of the cathedral erected by Bishop De Lucy at the close of the twelfth century, and which exhibited the first specimen to be found in any cathedral of the style known as the early English, and some of its purest and best workmanship. He then directed the attention of his auditors to the alterations effected in the nave and aisles by Bishops Edyngton and Wykeham, and pointed out how the latter effected the difference now visible between the aisles of the transepts and the nave, the upper windows of the latter filling the same situation occupied by those inserted in the original building by Ethelwold. Wykeham retained the original arch of these windows and inserted within them a pointed arch, hence their peculiar form, as may be distinguished by all careful observers. The magnificent altar screen, the peculiar glory of Winchester cathedral, was next touched upon by Mr. Cresy. It was commenced by Cardinal Beaufort and finished by Bishop Fox. During the episcopacy of the former the vaulting of the nave and its aisles was completed, as commenced by Wykeham. Bishop Waynfleet does not appear to have made any alterations in the building, several of which were effected by Bishop Langton near its eastern extremity To Bishop Fox the church is indebted for that portion which surrounds the altar; and to his friend Prior Silkestead for the chapel bearing his name, and for the extension of the Lady Chapel, the last work effected previous to the Reformation. Mr. Cresy illustrated his paper by numerous diagrams, plans, and drawings, shewing the principle upon which the whole church and all its parts and portions were set out; and after a very curious illustration on the subject of the rose windows (one of which it appears is to be seen in the northern transept of this cathedral), with all their curious yet scientific details, Mr. Cresy concluded amidst great applause.

* On this disputed point we are disposed to agree with Mr. Cresy. In a paper on Winchester, by Mr. G. Godwin (*Civil Engineers' Journal*, vol. vi.), the question is thus argued:—"The great tower, Rudborne, the Winchester annalist states repeatedly is the work of Walkelyn. That part of the north transept which adjoins it is seen, from the execution of the masonry, to be of the same date; but the remainder of the transept more northward has a widely different appearance, and is unquestionably the work of a different period. The mortar joints are considerably larger, and the execution altogether ruder; nor is the design exactly the same, or the parts of the same height, so that management was required (and is evident) to bring the two portions satisfactorily together. My excellent friend Mr. Britton, in his history of Winchester Cathedral, considers 'this might have arisen from different workmen who were employed, even at the same time, and still more from those who were engaged on the church at different periods of its erection, for it cannot be doubted,' he continues, 'that an edifice of this size must have been some years in progress, and that many masons were unquestionably employed in its construction.' With the greatest respect for his opinion and every disposition to look with caution at any assumption of remote date, I am unable to think this argument conclusive in the present instance. If this difference in the workmanship had appeared *horizontally* throughout the building—if the lower story presented one appearance, the upper part another—this opinion might be tenable; but in the case before us, the difference is perpendicular, it is throughout the height of a particular portion, not the length of the whole; and before we can admit that the diversity of construction which is apparent, results from the different workmen who were engaged on the church at different periods, we must believe that one-half of the north transept was completed before the remainder and the tower were begun.

The statement of Rudborne, too, which is urged as proving the entire rebuilding of the church by Walkelyn, is not sufficiently conclusive to destroy an opinion founded on what we see before us. He says that Walkelyn, *a fundamentis cepit reædificare*; words which, if I mistake not, have been used by chroniclers in some cases where it was known that much of the previous building had been allowed to remain, although the whole had been reconstructed even from the ground. In fact, that some part of the old cathedral at Winchester was allowed to stand, seems clear, from the continuation of Rudborne's own narrative; for he goes on to say that within a year after the completion of the new building, the bishop's men destroyed the old monastery, *excepto portico uno, et magno altari*, or, as Milner words it, 'leaving nothing standing at the end of the year except the high altar and *one porch*, which seems to have been the corresponding part, or eastern end of the cathedral church.' The word *porticus* has a doubtful signification, but unquestionably means more than what we should now call a porch."

The Rev. S. Isaacson read a paper on

THE ANCIENT TEMPLE AT ARBORLOWE, DERBY.

The paper commenced by stating that the circular temples of the ancient Druids are universally allowed to be the most important of all the monuments having reference to the early history of our country; and, consequently, any researches calculated to throw light upon their origin or character, or which may bring them more prominently before the public, and thus lead the inquiring mind to a minuter investigation, cannot fail to be interesting to the Archæological world. Though Arborlowe does not pretend to the magnificence of Abury or Stonehenge, it is still far too important to be allowed to repose under the incidental and scanty notices which it has hitherto received. With the assistance of a friend, Mr. Bateman, the author had succeeded in discovering the original deposit in the great barrow immediately adjoining the circle, which had hitherto defied the scrutiny of all previous excavators. The reverend author proceeded to give a history of circular temples, considered without reference to the British Isles, deducing their origin from the very earliest ages, and throughout all parts of the world. The altar under the hill, with the twelve pillars under the hill, erected by Moses, the twelve stones set up in the midst of Jordan by Joshua, and the twelve stones taken out of the Jordan and pitched in Gilgal, are striking illustrations of these temples of unhewn stone among the Israelites. The great stones or temples of the Druids in Britain, were as little worked as possible, and it is at least possible that the form was borrowed from the Phœnicians or Tyrians, who preserved it in their religious structures wherever they went. In Greece and Rome circular temples were erected, and open at the top. Homer describes them; in Baruch we read of their construction in Assyria. It was not, therefore, for ignorance of the fine arts that Druidical temples were erected without pillars; regular architecture and sculpture were sedulously avoided in these erections. Magnificence was sought for in vastness and large masses of stone: in Abury and Stonehenge specimens of this Cyclopæn architecture appear in all their colossal grandeur. Nor will the smaller temple of Arborlowe be found unworthy of attention, placed as it is at a remote distance from the eye of the ordinary traveller; and seldom witnessed except by those whose researches more immediately embrace such objects. The temple is surrounded by a large rampart, measuring 7 yards in height internally, and 6 externally; the fosse, which is on the inside, being 5 yards over at the bottom. The form is not strictly circular, but rather elliptical, or similar to a flattened sphere, the extreme diameter being 100 yards. The enclosed area is 60 yards in diameter, and the author had no doubt the number of stones originally amounted to thirty, which would harmonise with the ancient cycles. It is quite clear that these stones were never placed in an erect position, but laid on the bare surface of the rock at regular intervals. Probably the area was divided into twelve equal parts representing the months, so that the whole structure would constitute a calendar, consisting of 360 days, into which the year was originally divided. The two entrances to the temple were north and south, consisting of benches of earth across the fosse, on each side of which orginally stood a large stone. In the centre is one very large mass of rock, 15 feet by 8, and nearly 3 feet thick, weighing probably 5 tons, and called the sacrificial stone, from a large basin, caused perhaps by exposure to the weather, in which the blood of the victim was poured. Near this are two other stones much broken; and probably a fourth existed. The idea of this being a Roman work is described by the reverend author as altogether preposterous, as it agrees with no known specimen of their erections; and the Danes and Saxons have still less claims to its paternity. In fact, the contents of the cist lately found will place its construction at least 500 years before the invasion of Cæsar. We must conclude our notice with the following remark:—"The position of the largest stone, immediately facing the east, renders it highly probable that the founders were sun worshipers; and the two other stones exhibiting indisputable marks of having undergone the action of intense heat, it is not at all unlikely that on these were kindled the great fires with which the earliest inhabitants of the British Islands were accustomed, at the return of the equinoxes and solstices, to worship their god Belus or Baal, the Grecian Apollo."

Mr. Planché read a valuable paper "On the arms of Saer de Quincy, first Earl of Winchester, and on early armorial bearings, especially those termed 'honourable ordinaries.'" The excellent author considered the heraldic figures, entitled the ordinaries, had their origin in the necessity for strengthening the long kite-shaped shield, in use during the 11th century, and exhibited drawings of a variety of shields of that period, in which the forms of all but "the pile" were to be traced in the metal or wooden clamps or fastenings and defences of the shield. To the same origin he traced several other charges. Mr. Planché argued, that the symbolical characters attached to them were the inventions of later hands, and could not be traced higher than the 15th century.

INFLUENCE OF NEWLY-BUILT HOUSES ON THE HEALTH OF THEIR OCCUPIERS.

DR. SUTRO'S REPLY.

SIR,—Having seen the two last numbers of your valuable journal, I feel called upon to consider, dispassionately, the objections raised by Mr. G. Robins against the article extracted from a medical journal under the above title. Of course the article was only intended for the medical public, but since you chose to insert it in your journal, and thus occasioned the reply (if I may so call it), I think it my duty to enter fully into the writer's arguments, urged, I must say, in a most professional and gentlemanly manner, in which I should rejoice to see all scientific discussions carried on, though interest or fame may be affected.

I perfectly concur with the writer, that experience deserves greater appreciation in such cases than theory, and that nothing would be more dangerous than to sacrifice facts to speculation. But the question is, how far do theory and practice agree with each other in this point? If your correspondent never met with the pale anæmic face, wasted muscles, decrease of strength, sluggishness of all the functions (not sluggishness of the pulse), all consequent upon inhabiting a newly-erected residence, this only proves that he never placed persons in the early occupation of such dwellings, as are described as peculiarly injurious in the above article. Mr. Robins asks, "whether he has the charge of homicide upon himself for having constantly placed parties in the occupation of their dwellings within six months from the commencement thereof?" I ask, whether any charge of that kind can be inferred from the quoted article? Its whole purpose consists in warning against the too early inhabiting newly-built houses *without properly testing* their fitness for occupation. As a proof of this I beg to refer to the following phrase, occurring before the proposal that a sanatory commission should be appointed to examine the houses before inhabitation:—"Should any house be dried before the time appointed, the proprietor might request the sanatory commissioners to examine it, when, *if sufficiently dry, it might be inhabited.*"

Your correspondent shews himself by the careful tests he employs, that *he* must be satisfied of the dryness of a house before he places the occupier into it; and it can but be beneficial to point out and explain the injuries arising either from bad material of the house, or from exposure to its dampness, and to recommend the proper remedies against such evils. I must certainly admit, that new houses may be earlier occupied in this country than on the continent, inasmuch as the houses are mostly built here of burnt bricks, which contain and attract the smallest proportion of humidity, and thus occasion the least dampness. This may account for the less frequent maladies caused in this country by the above influences. I need not enter into the practical points mentioned, and the theoretical points doubted (but not disproved). By-the-bye, I could not find the expression, "*floating* particles of lime." The phrase referred to, runs thus: the following foreign substances are mixed with the air (speaking of newly built and not yet dried houses, as *particles of lime* which have been proved beyond doubt to exist in the atmosphere of new habitations, *being suspended* by the evaporation of the moisture. As regards the injury of *fresh* paint (for the question only turns upon *undried* paint), I have unfortunately had myself an opportunity very lately of witnessing serious consequences. A talented young friend of mine, to please an acquaintance, took a newly-painted room in his house; when I saw him after three weeks, I found him suffering with a severe and most obstinate cough. His removal was ordered, but the cough having resisted the most energetic remedies, he was advised by his medical attendants to try the effects of the bath. Without much pain, and without great fever, his lungs are so intensely irritated, that it would be sanguine to expect his complete recovery. Apologizing for intruding these hasty lines on your valuable space, I am, Sir, &c.,

SIGISMUND SUTRO, M.D.

3, Great Marlborough-street,
Aug. 7th, 1845.

SUSPENSION BRIDGES.

SIR,—I am not disposed to enter into a controversy with Mr. Dredge upon the subject of suspension bridges, even if I had the leisure and ability so to do; but still I cannot refrain from offering a few more remarks on the subject. I feel particularly obliged (as I am sure the rest of your readers must do) for the diagrams and explanatory matter contained in your 128th number; the principles of which are so clearly set forth and exemplified in a supplement to "Hosking's Treatise on Bridge Building," that the matter is not altogether new to me.

Mr. Dredge, in reply to your remarks with reference to suspension and compression bridges, was peculiarly unfortunate in his choice of a subject for illustration, because the works that failed at Derby and Ashton were in course of construction, and incomplete, therefore it was unfair to take advantage of such a circumstance, and arrive at such conclusion; but Mr. Dredge having a principle and theory of his own, does not rest his argument on such futile ground, but rather, as I before understood, against the principle of compression bridges generally. Suspension and compression bridges are totally different in principles, in their mode of construction and composition; and I should be sorry if any remark of mine should have a tendency to injure an invention that may be said to be "in its infancy." But whatever opinion may be entertained of its usefulness and general applicability, I do not think sufficient evidence has been produced in its favour for us totally to abandon a principle which is generally acknowledged to be, and has proved itself efficient; and which has received the impress of time and experience, and been sanctioned and adopted by every professional man of eminence in this and other countries, both in the past and present age. As we very rarely hear of bridges of fixed principles falling after they have once been completed, the accidents above alluded to came very opportunely to fill up the vacuum there would otherwise have been in Mr. Dredge's argument. As so much has been said upon the subject, we may as well inquire if no failure has attended suspension bridges? I think I can enumerate many instances; one in India, the Broughton, the Montrose bridge, occasioned by the passage of troops; one at Morpeth, Northumberland, from a crowd of persons returning from a fair; the Yarmouth bridge, and others (which shew the effect produced by percussion, &c., on iron), and generally attended with a serious loss of life. The Menai and Montrose bridges, the Brighton chain pier, &c., have also been partially destroyed by the violent action of the elements or other causes.

A Madras paper, which seems to be well informed upon the subject, observed with reference to the fall of the bridge in India, "that the severe strain or vibration, occasioned by the measured tread of a body of military is indeed so trying to these structures, that it is considered by engineers that they will in this case bear but one-eighth part of the weight they might otherwise be safely loaded with. We have numerous examples of bridges of masonry, many of which have withstood the

test of centuries, and will no doubt continue to resist the injuries of time for centuries yet to come, affording striking proof of the durability of stone constructions; and as iron as a material for bridges (more particularly as applied in suspension bridges) is comparatively of modern introduction, and as its properties are but imperfectly developed and understood, I think it would be premature in us to pronounce an opinion upon its merits and fitness for such structures in the present state of the question, or until time and experience have more fully tested its qualities."

Professor Hosking says, "Stone is, however, pre-eminently the bridge builder's material. The carpenter can supply the want of a bridge in a comparatively short time, and in most cases at a small cost. The smith and founder will, with moderate assistance from the mason and bricklayer, effect what cannot be done with stone, and will in cases supply the place of stone with iron when stone might be used, *but grandeur of effect, power of resistance and eternity of endurance, are to be sought in masonry, the mason's art, and with the mason's material!!* We know of and possess nothing as a material for massive, permanent construction, and fitted for bridge building particularly, so free from liability to change in bulk from any natural influence as stone: and nothing, therefore, considering its other qualities as essential, so well adapted for the main constituent of a bridge."

It is well known that iron is injuriously affected by many causes that produce little or no impression on stone; viz., by atmospheric changes, electricity, continual percussion, vibration, galvanic action, &c.; it is liable to oxidation (a suspension bridge being composed of a series of small bars of iron presents a great surface to the corroding powers of the atmosphere), which in a series of years seriously impairs its strength, notwithstanding the precautions taken to preserve it; and percussion and vibration operate so injuriously upon it, as altogether to alter its internal structure and destroy its tenacity; in proof of which see the accounts of the numerous accidents that have occurred on the various lines of railway from the fracture of the axles of railway carriages, &c., and the discussions that have taken place on the subject at our scientific institutions.

I have observed in the fractures of iron axles that the internal character of the iron was completely changed, having formed into large crystals, while the external parts of the fracture presented a discoloured and smooth surface, as if it had commenced there, and gradually extended itself to the centre, until the axle was unable to bear the weight imposed upon it. Mr. Glynn, civil engineer, in shewing the effect of percussion upon iron, observes, "that the breaking action of railway axles commences with the first journey, and that they continually receive such injury as they would if they were laid over the edge of an anvil and received a constant succession of smart blows from a hammer.

"I consider the chains, or rather the bar, of a suspension bridge would be similarly operated on by the passing traffic, and this would readily account for the failure of the Yarmouth Bridge, as it was distinctly stated in evidence that more than double the number of persons had been upon the bridge at one time since it was widened than were upon it at the time of the accident; under these circumstances we should naturally have supposed that the failure would have taken place then when the greatest weight was upon it; and the inference I draw from this is, that some other cause than the one attributed occasioned that sad catastrophe. I am quite aware that smiths, in welding bars of iron, do not always bestow that attention to it they ought to do; and this shews the necessity of having iron properly tested; that is likely to be subject to much strain; and as it is the usual practice to prove it to a much greater weight than it is intended to support, the iron even in that operation may sustain an imperceptible injury, and fail under much less weight than it was calculated to bear when applied in its proper place."

To obviate the danger arising from the breaking of the axles of railway carriages, it has been recommended to change them frequently; but to change the bars, plates, bolts, &c. of a suspension bridge would be rather an inconvenient and expensive operation. There is another subject to which I wish to draw your attention, and that is, the undulating and oscillating motion of suspension bridges; it is this circumstance that precludes the possibility of railway companies adopting them, in consequence of the great danger attending the passage of a heavy weight, concentrated to one point, and the sudden percussive action of a railway train.

The tremulous motion upon the Hungerford and other foot bridges is unpleasant to foot passengers, and the passage of the ordinary traffic over the Menai and other bridges opened for general purposes is particularly disagreeable; and I am informed that, during a heavy gale of wind, it is almost impossible to pass over the Menai and other bridges similarly exposed. This is occasioned by the want of rigidity or stiffness, which has not yet been attained in suspension bridges, and which it seems almost impossible to attain, in consequence of the effect variations in temperature produce upon iron chains of great length. This to a bridge of large span exposed to gales of wind, operating both sideways and underneath the roadway, must be ruinous in the extreme; in confirmation of which I may instance the injuries sustained some time ago by the Menai, Montrose, and other bridges, the chain-pier, Brighton, &c. Mr. Dredge's bridges have hitherto been constructed on a small scale, and in favourable situations. I am apprehensive, if the principle was carried out on a large scale, and in similar trying situations to those alluded to, it would be attended with no better result. Mr. Dredge, I hope, will have the opportunity of trying his suspension bridge at Weston-super-Mare, where its advantages and powers may be fully proved; although I consider such a situation the least suitable for iron structures, from the injurious effects of salt water upon iron.

On the correctness of Mr. Dredge's system or theory, I shall not attempt to enter, my object being to shew the superiority of bridges of fixed, to those of iron on the suspension principle, wherever it is possible to introduce them, "for heavy general traffic, and where great strength and durablity are required."

Suspension bridges, as beautiful picturesque objects, are certainly great embellishments to a landscape, but I think in our public works in this country other points ought to be kept in view; namely, usefulness and durability, combined with economy.—I am, Sir, &c.,

Brecon, July 29, 1845. B. B.

NOTES IN THE PROVINCES.

Within the last few months some rather extensive alterations have been effected in the interior of Durham Cathedral, under the direction of the dean and chapter. The old pulpit has been removed, and one of stone erected in its stead; the pews appropriated to the ladies on the north side of the choir have made way for carved oak benches with backs and cushions. A new font, more in keeping with the general architecture of the church than the present one, will shortly be erected, and the screens which inclosed the side chapels on either side of the organ have been taken down, producing, it is said, a remarkably good and striking effect.——The Earl of Carlisle is making great improvements and additions to his ancient baronial castle, Naworth. Fifty workmen are employed at present, and the interior of the roof of the hall is just completed. It is formed of oak, richly panelled; the height is 30 feet. The dining-room which, before the fire, was separated by a wooden partition from the hall, is now added to it, which makes the entire length 96 feet. The noble proprietor has now decided upon building a new tower, and restoring the ancient entrance on the west side of the castle, which was discovered after the fire, and which is said to have been walled up by Lord William Howard, "Belted Bill," in the reign of James I.——A memorial, numerously signed by the residents of Broad-street, Bristol, was lately presented to the Governor and Directors of the Bank of England, in London, soliciting that the new building, intended as their branch might be forthwith commenced, so as to be finished at the same time as the new Guildhall. The directors, in compliance with the requisition, have commenced taking down the old buildings for that purpose.——The commissioners of the port and harbour of Whitby having adopted the plans of Mr. Pickernell, their engineer, for the improvement of the harbour, operations for extending the east pier into deep water were commenced on the 7th instant. Forty feet of foundations in ten stones, 6 feet wide by 3 feet thick, were laid; the bed in the rock so correctly levelled that no part of the superficies varied 1 inch; and the vertical notches filled with broken whinstone and cement in seventy-seven minutes. From the beginning to pump the water out of the dam, to the foundation-stones being covered by the flowing tide, two hours only intervened.—— On the 17th ultimo, the ceremony of opening the chancel of Leamington church took place in the presence of fifty clergymen. The church is being reconstructed in a style of cathedral grandeur, the chancel end only being as yet completed. Its new nave is so lofty, that it covered in the tower of the old parish church, which was left to stand for some time within the building, as it afforded the workmen the means of elevating their scaffolding upon it, while they carried up the works to at least 25 feet above the altitude of the once much thought of tower! After this tower had been thus useful, as a mere scaffold pole to the inside of a new and spacious structure which was raised above it, the removal of it as an obstruction then commenced, and now there exists not a single vestige of the ancient village church of Leamington.—— Lady Bassett, daughter of the Earl de Dunstanville, has subscribed 1,000*l.* towards the fund for the erection of a new church at Illogan. —— Nearly four acres of the space heretofore known as the New Buildings, Portsea, have been purchased by Government, at a cost of little less than 60,000*l.*, for the formation of a basin for steam-vessels. One hundred and thirty persons have been ejected and the ground is already cleared.——A project is being entertained at Sunderland for the construction of docks on an extensive scale. During the last two or three weeks, persons have been employed in surveying, taking levels, and drawing out plans of the moor, as it is called, and the bed of the sea adjoining it, on the west of the town. The line selected is from near behind the present south pier to Hendon, the whole length of the moor, an extent of nearly 3,000 feet, and from the bank of the moor extending into the bed of the sea about 400 feet; the dock is proposed to be 2,500 feet in length and 350 or 360 in breadth, with entrance from both north and south.——Plans are being prepared in accordance with instructions given by the Duke of Sutherland for a new church, which his grace purposes erecting near Longdon. The church is to hold 460 persons, and will be commenced forthwith.——The Town Council of the borough of Doncaster have announced their intention of applying to the Lords Commissioners of her Majesty's Treasury for their approval and permission to erect and build markets for the sale of meat, fish, poultry, &c., and for that purpose to raise a sum of money not exceeding 16,000*l.*——Very extensive improvements have been made during the last two or three years in St. Mary's Church, Truro. Recently two stained-glass windows have been erected at the entrance end. The altar window consists of five compartments; each of which comprises a niche and lofty canopy, in the perpendicular style. In these five principal niches, on rich damascene grounds, are represented full size figures of the Saviour, St. John the Evangelist, St. James the Less, St. Philip and St. Simon. The Saviour holds in his right hand a globe, on which are depicted emblematical representations of the three great eras of the Church; while depending from his arm is a scroll, bearing the inscription, "Surgite, eamus." The four Apostles named bear emblems significant of the mode in which they severally suffered martrydom; they also bear scrolls with their names inscribed thereon. Above these five principal figures are smaller representations of St. John the Baptist, St. Peter, and St. Paul, with Angels, in attitudes of prayer and praise, and various other appropriate figures and emblems. The south window is mostly emblematical. The body of the window is composed of *quarrels*, interspersed with labels and texts, presenting a quaintly antique appearance, and inclosed by a rich bordering which re-

solves itself into luxuriant headings of foliage. Inwrought with these are medallions, containing the Christian monogram, and the evangelical emblems, and pendant from the foliated arches are escutcheons, on which are depicted symbols of our Lord's passion. The tracery of the window is chiefly occupied by angels bearing scrolls inscribed with Scriptural texts. The artist who designed and executed these windows, and who superintended the other improvemnts is Mr. Warrington, of London. —— The extensive river-side property of Messrs. Cookson, situate at South Shields, having recently passed into the hands of the wealthy and influential firm of Messrs. Swinburne and Co., in which Mr. George Hudson, the eminent railway director, is the principal partner, the scheme for constructing deep and capacious docks within Jarrow slake, and adjoining Mr. Hudson's purchase, is about to be revived under auspices that ensures its complete and rapid success.——The Round Church at Cambridge was re-opened on the 10th inst. It appears that the incumbent is responsible for nearly 300*l.* for alterations and improvements made since the stone altar case was decided, and for the liquidation of which he solicits assistance. —— The marble statue of Dr. Goodall, the late provost of Eton, by Mr. Henry Weeks of Pimlico, was placed last week upon a marble pedestal on the south side of the ante-chapel of Eton College. The late provost is represented in a sitting posture, with an open book in his left hand, resting on his knee, the right hand being slightly raised as in the attitude of reading aloud, and his left foot resting on a raised cushion. The work is what may be termed a "seven-feet-six-inch figure," but the venerable deceased being in a sitting posture, the height of the statue is not more than above five feet. The pedestal bears a Latin inscription, said to be from the pen of the Rev. Dr. Hawtrey, the head master of Eton school.——The old market house at Epping, which was erected about the time Queen Elizabeth renewed the charter for the market, was entirely removed last week, in accordance with the expressed wish of the inhabitants. It had been for a long time in a decayed and even dangerous state.——A lunatic asylum is about to be erected for the county of Wilts, the cost of which will be 31,750*l.*——The Manchester Parks' Committee have made a fourth purchase of the Walness estate, which immediately adjoins the Lark-hill property. The four purchases stand thus;—1. Lark-hill, 7 acres, 4,500*l.*; 2. Endbamham, 30 acres, 7,250*l.*; 3. Bradford-park, 31 acres, 6,200*l.*; 4. Walness-meadows, 25 acres, 5,875*l.* Total 23,825*l.*—— The committee of the privy council for education have made a grant of 1,000*l.* towards the building of the training school at Durham, and the national society for the education of the poor have granted 300*l.* for the same purpose.—— It is in contemplation at Manchester to erect a new exchange by means of a company, and to raise 200,000*l.* for the purpose in 25*l.* shares. The *Manchester Courier* states, "We have had an opportunity of inspecting a drawing of the intended elevation, which, if carried out, will be a very great ornament to the town,—indeed, we have no building in Manchester that can at all be compared with it; it bears some resemblance in form to the Liverpool Custom House, but is altogether a very superior and handsome structure, of two stories. The site is at the upper end of Market-street, High-street, Canon-street, and Palace-street, covering Marsden-square, the whole of the shops, warehouses, and other property within those limits having to come down. The building is to form three sides of a square, having the open or principal front to face High-street; the open space in front of the centre and between the two wings will be a raised stone platform, to be approached by a handsome flight of steps from High-street, for the convenience of the congregated merchants and manufacturers during 'change hours. The news-room is to occupy the Market-street side of the square or wing, occupying two stories, thus forming a spacious and lofty room, lighted by three domes and the side-lights; the size of this room will be nearly the same as the large room at Exeter Hall, London, about 12,000 square feet; the approach to it is made by three entrances from Market-street. The centre of the building in both stories will be converted into offices, which will be let off for mercantile purposes. The northern, or Canon-street wing, will form a Stock Exchange, and a public mercantile sales room; above these rooms, on the second story, will be a large room of corresponding dimensions with the news-room in the other wing, which will be a public room applicable to the purposes of a large music-room, or public meetings, or it will be divisible into three rooms, as occasion may require.—— At Taunton, a committee has been formed for the purpose of improving the town. Suggestions are courted and may be addressed to the Editor of the *Taunton Gazette*.——The erection of a New Market is at the present time occupying the attention of the inhabitants of Coventry. There is scarcely another town in England possessing a similar population, viz., 31,000, that is so wretchedly off for market accommodation.——The subscriptions for erecting the proposed New Church in the district of St. Simon, in the out-parish of St. Philip and Jacob, Bristol, amounts already to nearly 500*l.* —— The owners of the late Suspension Bridge at Yarmouth have subscribed 50*l.* towards the fund now raising for the restoration of the venerable church of St. Nicholas, and the establishment of a National School in that town. Lord Woodhouse has sent 20*l.*, and a lady 100*l.* towards the same purposes. ——The foundation-stone of the new National School Rooms in St. Saviour's parish, Bath, was laid last week by the Rev. Dr. Stamer, rector of the parish, in the presence of a great concourse of persons, among whom were the architect, Mr. Wilson, and the builder, Mr. Freeman.——The railway tunnel at Bangor, through hard rock, has been commenced, and the superintending engineer has taken up his residence at Bangor Ferry. The site for the new bridge has been determined upon, but no decision has yet been come to respecting the kind of bridge to be thrown over the Menai Straits.

SETTING OUT RAILWAY CURVES.

Sir,—I for one am obliged by Mr. G. Hawkins' reply to "Amateur" upon the subject of railway curves, and hope he will not complain of my obtuseness in requiring a little more information; after stating the formula for the value of B D as being always equal to rad. $-\sqrt{\text{rad.}^2 - \text{sin.}^2}$, he says "and the same process will apply to any other required point in the curve, merely substituting the value of sin.^{2} in the expression, as the distances in the tangent A T, increase from the point A. Perhaps he will be good enough to explain this, and how it is applicable (supposing B D to be laid off at the 1st chain) to the several distances squared off from the tangent at the 2nd, 3rd, 4th &c. chain to the 10th.

Again he says, further on, "the above method will be convenient, as it affords a facility for calculating tables for the versed sine of an arc of any radius from the one already obtained; for since the curvatures of circles vary inversely as their radii, a simple proportion will give the value of the versed sine of any other required."

I dare say he will think the proportion of my attainments simple enough—but I should feel more obliged by any explanation he may please to give, illustrating the same by an example in both cases, which perhaps might enable me to reduce the theory more readily to practice. I am Sir, &c.

Liverpool. N.

Referring to the diagram (Builder, July 26th), it is scarcely necessary to observe that in the expression radius $-\sqrt{\text{rad.}^2 - \text{sin.}^2}$, which is the trigonometrical value of the versed sine of an arc, sin.^{2} represents the square of the distances measured on the tangent, A T, thus supposing A D to be equal to two chains, and the corresponding ordinate B D be required, it is merely necessary to substitute in the formula the value of A B or two chains for sine.^{2} For instance in a curve of 80 chains radius B D = radius $-\sqrt{\text{rad.}^2 - \text{sin.}^2} = 80 - \sqrt{6400 - 4} = 80 - 79{\cdot}975 = {\cdot}025$ chains or 2·5 links.

The same process will give the ordinate for any other point, substituting in each case for sin.^{2} the squares of whatever number of chains that point may be from the commencement A. Generally, the formula may be thus stated:—The ordinate is always equal to the radius of the curve, less the square root of the difference of the squares of the radius, and the distance measured on the tangent to the point where the ordinate is to be laid off.

With reference to the curvatures of circles varying inversely as their radii, it ought to have been stated, that although as an abstract proposition it is strictly correct, yet its use in the manner proposed is only to be recommended within certain limits, since the actual relation between the curvatures of two arcs, measured by their versed sines, is only mathematically true at the point of contact. The practical application of the principle, if not rigidly warranted, may however be adopted in arcs whose radii do not greatly differ, and where the sines are small compared with the radii—the error in such case not being appreciable, thus supposing it were required from the one above obtained at two chains, to find the ordinate corresponding to it for an arc of 78 chains radius—we have by the proposition before-stated the following proportion:—As 78 chains : 2·5 links :: 80 chains : 2·56 links—which only differs from the correct value by less than the one-hundredth part of a link.

Although implying additional time, it would, as the safer course, be better perhaps to calculate every separate ordinate according to the formula, and the labour may be much abridged by using an ordinary table of powers and roots.

The radii of railway curves being usually confined within certain limits, a table calculated by the above method for ordinates up to eight or ten chains might be prepared beforehand, and would save time and materially facilitate the subsequent work in the field.

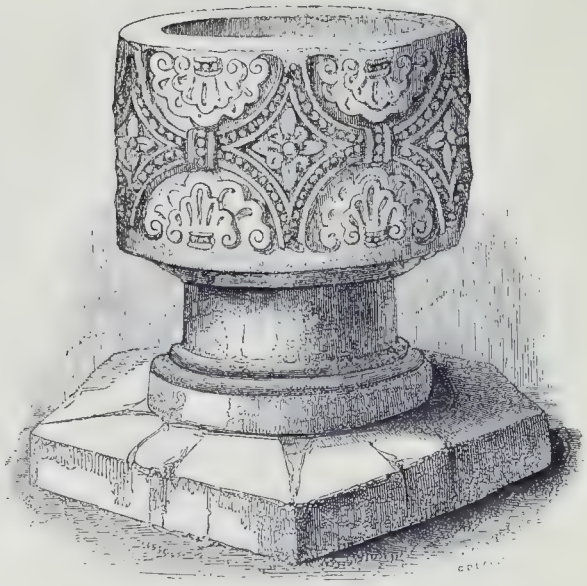
It was before observed that usually it would be found convenient to recommence the operation at every 8 or 10 chains, and a method accordingly was suggested for setting out a new tangent to the curve. The following will perhaps be found in many respects superior to the one already given, as no ground is lost, and affords a better position for ranging the new line. Let D be the point from whence it is required to start with the new tangent, from A set off on A B a portion equal to $\frac{\text{A B}^2 \times \text{B D}^2}{2\,\text{A B}}$: that is to say the sum of the squares of the last ordinate and the whole distance measured on the tangent, divided by twice the same distance. A line from the point so obtained ranged forward through D—the last point in the curve will be the new tangent required. G. Hawkins.

NEW WINDOW IN ST. JAMES'S CHURCH.

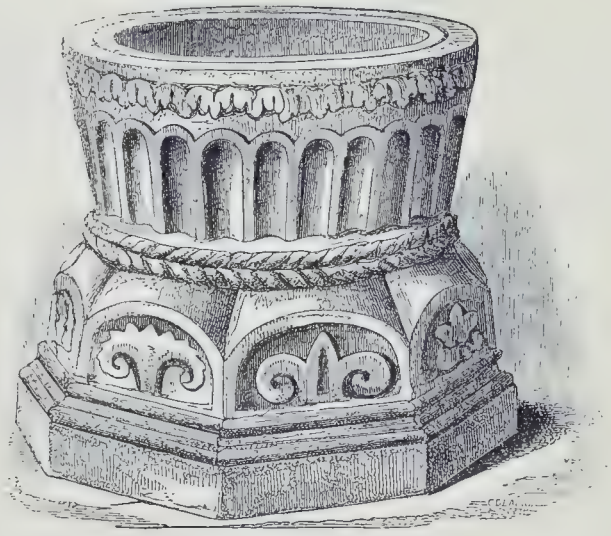
We are told that it is proposed to put up a *Gothic* stained-glass window in St. James's Church, Piccadilly, but hope our informant is in error. We abuse and scoff at those architects who, after the introduction of Italian architecture in England, disfigured our noble cathedrals and churches with Corinthian altar-pieces and Wyatt-knows-what organ screens, and yet would commit similar absurdities ourselves. Consistency is surely as necessary in an Italian building as in one of the pointed style, and we conjure the vestry or committee, who are said to be about to perpetrate this enormity, to pause before they write themselves down, "foolish." The neighbouring church of St. George, Hanover-square, should be a beacon to warn them: one such mistake in London at this date is surely enough.

Freemasons of the Church.—Aug. 12. The Rev. G. Pocock in the chair. The minutes of the last meeting were read and confirmed. The Rev. F. P. Pocock, Rev. John Pampillon, M.A., F.S.A., Messrs. Edward Baldock, G. R. Lewis, and John Britton, F.S.A., were elected members. Mr. William Curling exhibited some specimens of very early locks, manufactured during the middle ages. Mr. E. D. Price exhibited a rubbing of a beautiful brass, from Upper Hardres, Kent. A paper was read on the ancient baptismal fonts in England, comprising the origin and history of baptism, baptistries, chapter-houses, &c., copiously illustrated by numerous specimens from the several counties from actual admeasurement.

EXAMPLES OF NORMAN FONTS.



AT DODFORD CHURCH, NORTHAMPTONSHIRE.



AT EYDON CHURCH, NORTHAMPTONSHIRE.

ILLUSTRATIONS OF KITE'S SYSTEM OF VENTILATION.



Fig. 1.

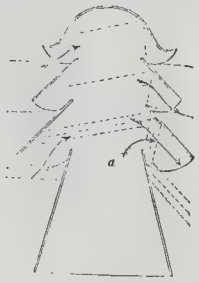


Fig. 2.

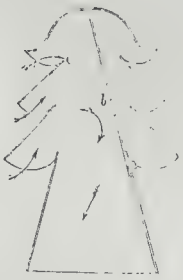


Fig. 3.

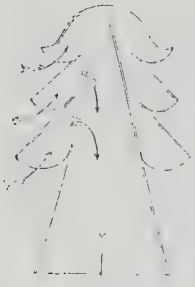


Fig. 4.

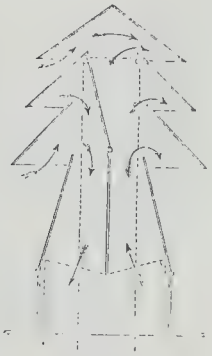


Fig. 5.

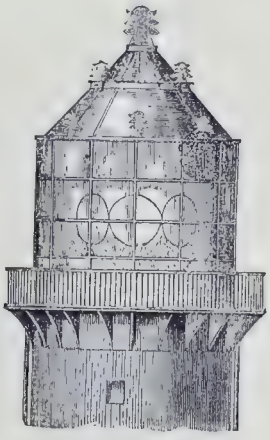


Fig. 6.

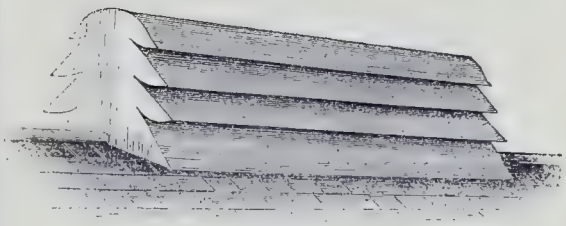


Fig. 7.

EXAMPLES OF NORMAN FONTS.

T AT DODFORD CHURCH, NORTHAMPTONSHIRE.

is beautiful Norman font adjoins the side of the western pillar of the nave of ord church; the stone of which it is d is the Northamptonshire oolite. The ure of the font is in good preservation, t is unfortunately cracked across. A of it is given in Van Voorst's "Baptisonts," who states in the description, that lately been cleaned, as well as the ma would permit, by the direction of the the Rev. W. Thornton.

T AT EYDON CHURCH, NORTHAMPTONSHIRE.

representation of this curious font is in the 3rd vol. of Baker's "History of mptonshire," from which it has been (without acknowledgment), on a little ale, for Van Voorst's work, where it the sixteenth example. The style of the font is late Norman; both Mr. Baker and, after him, Van Voorst's editor suppose the octangular base to be of a different date to the bowl or upper part. It certainly appeared to me to be earlier. A font very similar to this, with a square instead of an octangular base, is in Houghton-Regis church, in Bedfordshire, and is given by Fisher in his Typographical collections for that county, published in 1812. C. J. RICHARDSON.

REMARKS ON A NEW SYSTEM OF VENTILATION.

BY JAMES KITE.

VENTILATION has been of late so much the topic of consideration and discussion, as well as the subject of treatise, by eminent and scientific men, that it is with great diffidence the author of the present paper attempts to bring forward what he has to contribute on the subject. An inducement to do so is held out by the agitation on that point, and the conviction that may be said to rest on the mind of the public generally of the great importance of proper ventilation, as contributing to the comfort, happiness, and duration of human life.

Ventilation appears naturally to consist of two distinct divisions. The first and greater is in the manner of arranging and distributing the various streets, alleys, &c., forming a town; the second or lesser, in the construction of each separate house or building where human beings are either domiciled or congregated together.

The present paper has more especial reference to this latter part of the subject, and therefore has for its object the application of proper arrangements for the ventilating of churches, hospitals, manufactories, dwelling-houses, ships, carriages, &c.

It is not necessary to occupy time in attempting to describe the deleterious effects of the products of combustion or respiration, and the evil consequences which they produce upon the constitution when inhaled by reason of

badly ventilated apartments; these predominant evils occupy a considerable share of the attention of the scientific and legislating classes of society. We shall therefore proceed to describe the nature of our improvements, and begin by remarking that there are few who dispute the propriety and advantage of imitating nature as far as possible in works of art, and especially in such operations as ventilation: where we can render any particular natural law available to our service, to take advantage of it both for the sake of economy and effect. How far this has been accomplished in the present instance remains to be seen.

It is a well-known law, that when an elastic body impinges upon a firm plain surface, the angle of reflection is equal to the angle of incidence. Referring to fig. 1, which is a section of a roof suitable for being fixed on the top of a chimney or flue, or by being prolonged, to form a ventilating ridge for a church or other public building, it will be observed that this roof is formed of a series of surfaces inclined more or less from the perpendicular, of which those below form a less angle than those at the top, being in regular gradation in this respect from bottom to top.

When the wind blows against the roof, as it impinges upon the lower plain, it would be reflected upwards upon the under surface of the second reflector or plain surface, from thence on to that on the opposite side, where it is deflected downwards outside. When the wind blows against the roof, or cover, an upward current is produced, and even a wind falling perpendicularly will actually facilitate the upward draught.

It is a known fact, and one which admits of being easily illustrated, that when a very small stream of air or other fluid is propelled amongst a body of the same, it carries a very extended current along with it, which arises from the friction of the particles or atoms of the air in motion against that at rest. In the case now before us the friction produced by the wind, or current passing through, takes along with it that with which it comes in contact in the cover, causing a partial vacuum or rarefaction of the air in that part; and which cannot be supplied by a portion of that passing in at the entrance side of the cover, because it comes with an acquired velocity sufficient to carry it through, and therefore the partial vacuum must be supplied from that in the chimney or shaft, but as the action of the wind is constant, so the upward current is also constant. It is then upon the application of these principles, namely, the reflection of elastic bodies from plain surfaces at the same angle at which they impinge thereon, and the effects of friction, which is produced between one current of atmospheric air in passing over another, that the present improvements are carried out; it is upon the proper arrangement of the reflecting surfaces that the whole success depends; this being attained, there is no need for any mechanical arrangements such as require to be kept in constant motion, and are therefore subject to being speedily worn out, neither is there necessity for the application of any costly prime moving power which would be the source of increased expenditure. These covers, or roofs, are quite sufficient to create an upward current where they are exposed to the wind, and have been already found fully equal to any thing here reported of them; they are susceptible of great variety of form either as roofs or cowls, and may be combined with almost any of the present known forms, such as the lobster back, the malt-house cowls, &c., and it may be here remarked that one great peculiarity of this ventilating covering is, that however light the wind may be, still its action must be favourable, whereas, in almost all if not in every one of its forms heretofore in use, when the wind is light they are found in their most unfavourable position, or their action ceases to be effectual. For the ventilation of ships and carriages this top is peculiarly applicable, and when provided with a valve, a *downward* current can be produced with equal facility. By using two of these tops, one for producing a downward current, and another for the upward current, a ship may be most effectually aired and ventilated in either hold or cabin.

To prove the efficacy of these coverings, if a piece of flammable substance in a smouldering state be put in the bottom part of the ship, allowing room for the admission of air, the moment that a current of air is projected against the reflectors, the smouldering substance is brought into a flame from the upward current produced; the same will be the case when we blow right down upon it.

Fig. 2. The dotted lines in this sectional figure shew the course that would be followed by the wind in passing through the roof were each separate atom of the atmosphere coming at an interval apart from that preceding it; but as this is not the case, the atoms being in immediate juxtaposition, the resultant of these dotted lines will be in the direction indicated by the arrows, which has a tendency to create a partial vacuum in the upper part of the lowest chamber (*a*) of the roof, and thereby causes an upward draught in the shaft over which it is placed.

Fig. 3 is a section of a roof for producing a downward current in any shaft, flue, or opening over which it may be placed, when that is desired. For this purpose it is furnished with a valve (*b*) attached by a screw to the lower deflector on one side. When this valve is put up in the position represented, the current of atmosphere is thereby made to follow the course marked out by the arrows.

Fig. 4 has this valve put on in a permanent manner. Both these are peculiarly applicable to the ventilation of ships, and such places as are so circumstanced as to require the purer air to be taken in from an elevated situation.

Fig. 5 is expressly designed for shipping; the fresh air is admitted on the one side, the vitiated is ejected from the other; the two valves in the centre are hinged with their edges closely together, and may be put over to any side of the roof at pleasure by means of the cords represented by the dotted lines. The arrows shew the action in the position in which they are represented.

Fig. 6 is an exemplification of light-house ventilation, with fixed roofs, the action of which will be sufficiently obvious from the previous description.

Fig. 7 illustrates the application of the ventilating roof or ridge to a church or other public building.

HOUSES AND PEOPLE DESTROYED BY MUD.

The *Quarterly Geological Journal* gives the following account of a remarkable torrent of mud, translated from a newspaper lately received from Colombia. The facts are attested officially by the local authorities. The first extract is a simple translation of an account dated "Tasajeras, Friday, February 21, 1845," and signed "R. J. Treffery."

"On Wednesday, the 19th instant, a little before seven, A.M., there was heard a great noise in the plain of the river Lagunilla,* and at the same time an earthquake took place. Immediately there appeared in the strait or ravine in the mountains from which the river Lagunilla arises, an immense flood of liquid clay, which pursued its course with the greatest rapidity through the whole plain on both sides of the river, carrying away woods of tall trees like straw, rolling them away, and covering them in such a manner as to leave no sign of there having been a wood at all. The same happened with regard to the houses and cottages which it met with in its course, overwhelming them with their inhabitants, and carrying away and burying those unhappy persons who were fleeing from death, so that nearly all the population of the higher part of the valley has been destroyed, and many who had escaped from the torrent and gained some high or enclosed place have found themselves insulated, and have perished by famine. It was quite impossible to succour them, for the whole plain was covered with a layer of mud and sand, so deep that no one could pass without being swallowed up. Some few persons, however, found an asylum by being near the edge of the torrent, and saved themselves by roads formed of the branches of trees."

The space of land covered may be estimated at from four to six leagues; and the quantity of matter poured down at 250 millions of tons.

* The Lagunilla is a small stream emptying itself into the river Magdalena, and situated in the north-western extremity of South America, in New Granada. Ibague, the town alluded to in the subsequent document, is some distance to the west of Santa Fé de Bagotá.

LEAD PIPES.

We copy from *The Medical Gazette* the following statement relative to the deleterious effects of water impregnated with carbonic acid passing through lead pipes. It is written by Mr. Rust, of Windsor, who was consulted on the respective cases:—

"On the 23rd of last April a labourer, residing at Ascot, and employed by Mr. Hibburd, clerk of the race-course there, applied to me at the dispensary at Windsor, evidently suffering from the poisonous effects of lead; his complexion was sallow, and he was constantly suffering from severe pain in his bowels, attended with flatulence. He had the dark blue mark round the gums, so peculiar to those who are suffering from the deleterious effects of that metal. On inquiry I found that his children had been in bad health since they had lived at Ascot, and that they had become weak and sallow, and had suffered from pains in their bowels, and indigestion, and that he had sent one of the most affected away, believing that the air of the heath was prejudicial to their health. I immediately asked him if the water he drank, and used for cooking, passed through lead, and was answered in the affirmative. I procured a quantity of it, and, on the addition of water impregnated with sulphuretted hydrogen, a large precipitate of sulphuret of lead was thrown down. By the use of other water, and of appropriate remedies, the principal of which was alum, he is slowly recovering.

In November, 1842, one of the whippers-in at the royal kennel at Ascot, applied to me, suffering from lead palsy, after a severe attack of colic during the previous summer, which was believed to have been inflammation of the bowels. Having previously met with similar cases, I felt convinced that lead was dissolved in the water which he had used for cooking and drinking; and, on inquiry, I found that disorders which could be attributed to the effects of lead had for a long time been prevalent in the establishment at the royal kennel, and that the dogs had for a long period suffered from a species of paralysis denominated kennel lameness. The water was in consequence analysed by Dr. Ryan, at the Polytechnic Institution, the results of which were as follows: Water at the spring head, specific gravity at 60 degrees, 1·018. The contents of an imperial pint, on evaporation to dryness, yielded 2·3 grains of solid matter. The solid contents of an imperial pint being—Chloride of sodium, 1·51 grains; chloride of magnesium, 0·7 grains; sulphate of lime, 0·128 grains; a trace of carbonic acid: total, 2·378 grains. The water, after it had passed through the leaden pipes, was found to contain ·164 grains of carbonate of lead in an imperial pint, or one and a third of carbonate of lead in an imperial gallon.

Soon after I had treated the case of the whipper-in, a young man, Richardson, from East Hampstead, applied to me, with the worst form of lead palsy I had ever seen; this case on him when in service as footman in the family of Sir Willoughby Rooke, then inhabiting a mansion in the immediate vicinity of Ascot, and was attributed to drinking water contained in a leaden cistern. Recently I have seen other persons from the immediate vicinity of Ascot, suffering from various symptoms which might be caused by lead, and, on inquiry, found that they were supplied by water which passed through the leaden pipes of pumps.

I think it may be fairly deduced from the above facts, that the spring-water at Ascot contains a small portion of free carbonic acid, which dissolves portions of lead in passing over it surface, and it will readily account for the fact that the leaden cisterns and pipes usually so innocuous, should occasionally produce such deleterious effects. The paralysis of the whipper-in was entirely removed by alum, combined with guaiacum, and Richardson was very much relieved by the same remedy. From the almost specific effects of alum in painter's colic (a disease I have been frequently called on to treat), I was induced to try whether it would be found serviceable in the paralysis produced by lead, and have on many instances found it of the greatest service, although in many more it has been useless."

BRITTON TESTIMONIAL.—The subscription lists are still open, nor have the committee yet determined on the nature of the testimonial.

THE QUESTION OF SEWAGE IN METROPOLITAN SUBURBAN DISTRICTS.

Sir,—I hail with much gratification the extracts from the pamphlet by Mr. John Leslie in your number of this day, not as proposing either to vindicate the charges or defend the conduct of those so charged, but simply on account of the attention of practical men being thus drawn through your columns to a subject, that however deeply it has apparently arrested public attention, has hitherto been only theorized upon. According full credit to my Lord Lincoln for his untiring zeal in the matter, any broad legislation cannot meet the particular difficulties of individual localities; instead, therefore, of attempting to enter upon any discussion of this pamphlet, I will state the course I have taken in a suburban district, upon the wants of which, in regard to sewage, I have bestowed cheerfully much labour; and I would entreat our professional brethren, each in their own district, to address their attention to the subject; such a mass of useful evidence would thus be obtained, that subsequent legislation thereon would, by a variety of provisions, become applicable to each individual case; the parties interested (making such reports) knowing best their own grounds of complaint, which broad legislation may avoid giving relief to.

The power of appeal from a parish or an individual (described as existing in the Finsbury distict) would appear as of much advantage over the present irresponsible authority of most commissions.

I am not prepared with Mr. Leslie to charge any commission with malversation in the execution of their duties: I sincerely believe their powers are too prescribed to afford the relief they would desire to give; and it would be absurd to imagine they individually were all Solons, and at their appointed conclaves could divine the wants of large districts. If in a public question, then, parties are too indolent to raise their voice as to their particular grievances, it cannot be wondered at that, as of necessity, broad legislation takes the place of detailed enactments upon fair ground of complaint, which would, so to speak, bring relief to each man's door.

I will set the example (instead of discussing the question at large) of confining myself to what has recently fallen within my own observation; if such a course is approved and followed, then by a similar discussion, comes the suggestions for remedy, and, I again repeat, a mass of evidence would thus be obtained that must be irresistible, and cannot be expected to be within the knowledge of those to whom we look for relief through legislation. All commissions of inquiry can only grapple with broad facts, sometimes perverted for particular interests, and at no time developing the whole truth. Blue book upon blue book may be heaped, like Pelion upon Ossa and Ossa upon Pelion, and still the case of individuals, nay, of whole localities, may have been uncared of; if we are therefore longer silent, the blame is to a great extent with us.

I would state, as introductory to the remarks I intend making, that it must not be assumed that I condemn the deep sewage described in Mr. Leslie's pamphlet as constructed in metropolitan districts: confining myself to endeavour to shew my objections to such sewage in a suburban district.

No parish round London (that I am aware of) having the power of making a rate for internal operations of drainage, the application for relief must necessarily be made to the commission within whose authority the district chances to be situated; such, then, was the case which drew my attention to the subject: a large and respectably inhabited locality feeling they had no power internally, applied to a court of commissioners to form a new district, and by the authority they possessed to raise the necessary funds by loan, to be repaid through the medium of a rate within a prescribed period. It may be well to pause, and state the condition of this district with respect to drainage, as defining the position of most suburban districts; the ground, naturally rising, partakes of the acclivity of the hills—at the extremities of the boundaries to some considerable extent. The land when used for agricultural purposes was drained by boundary ditches, and the course of the hill water took that pointed out by nature, the whole of course flowing to the low lands. As the land became occupied by buildings, the front boundary ditches were arched over, but at no greater depth than they then existed, and the soil to the extent of these ditches was generally abandoned as public footpaths, under which was, and is, conveyed the filth of large neighbourhoods. In other cases, the ditches being in the rear of the buildings, drains were made thereto, but in this case the ditches were left uncovered. I mention these facts particularly, as I shall presently have occasion to allude to them as a strong ground of complaint against the limited and perfectly inefficient powers of commissions to remedy such evils.

With reference to the subsequent argument, it may be well to state what would appear to have been the intention of the original appointment of such commissions to be gathered from the recital of all the old Acts of Parliament, viz., to drain low lands.

The commission alluded to as being requested to append a new district, have under their control a considerable district below high-water mark, many portions of which were constantly flooded. They some years since exercised scientific and sound principles by constructing large, deep, reservoir sewers, having their exit at dead low-water, protected by gates during the tide, and having a fall of two inches in a mile only to prevent the pressure of back water forcing itself up the drains communicating therewith. This effectually answered the purpose, not only of affording relief to house drainage, but also as draining the level. These sewers were after a time extended to outlying districts, which, partaking of rising ground, the sewers naturally were at a very considerable depth. Thus stood the matter when application was made to append this new district; the houses on the portion thereof from which the application originated being situated 2,500 feet apart; the hill water taking its course through the centre of a large open space, partially deposited in a pond, and eventually finding vent by an easy, tortuous, deep ditch to the low lands. I was startled by the proposition of the mode of affording relief to house drainage (the object of the application) by finding it was the intention to construct a sewer 15 feet deep in communication with a sewer 20 feet deep, to be driven through this pond to take the hill water from its natural easy course at an immense declivity, which may be imagined when I state, had it been constructed as a reservoir sewer with the little described fall, it would have been 50 feet deep at its termination. I then considered that no owners of houses distant 1,250 feet would attempt to avail themselves of the proffered relief, and the water, like that in an inclined bottle, would always be at the bottom, and certainly flood (at times of unusual high tides and extraordinary run of hill water) the basements of all houses which had drains communicating, the heads of which were below the level of the back water; and I was confirmed in this by finding, that since the described continuation of the reservoir sewers in low land, the level was no longer drained, and basements frequently had water, under extraordinary circumstances, thrown back upon them to the extent of 2 feet in depth.

I took the liberty of addressing the court, stating the thorough uselessness of such a sewer for the desired object, and that there was no reason why the hill water should be taken such a depth under ground.

I also stated my opinion that the vast expenditure in the district in deep sewers had been money thrown away, to the damage of the rate-payer.

I have great pleasure in acknowledging the courtesy with which my communications were received, and the ready facilities afforded me to assist in the inquiry.

I then, after investigation, and having by the direction of the court been furnished with all necessary levels, suggested the construction of a small sewer near the houses on either side the common, to meet at a point of junction below the pond, and thence to take the natural course, which I found had a fall at its junction with these proposed new sewers of 13 feet, which, crossing a high road, say 10 feet deep, could eventually have its vent into the Thames t a higher level, but a depth of 20 feet could never thus be diverted. I met, at first, with some considerable opposition, but the eventual result was my report being agreed to unanimously by the surveyors, and proposed by the court to be carried into effect.

I trust I shall have convinced your readers that, taking a rational course, commissioners of sewers are not such impracticable overbearing persons as they are frequently described; they can have no private object to serve, but I believe their powers are far too limited, and that we do not sufficiently and clearly define our wants. A sketch of the mode I would suggest I will, if acceptable, intrude on your columns at a future period.

Having put myself in communication with Mr. Chadwick, I have great pleasure in acknowledging the courtesy with which he has received it. Greenway Robins.

Peckham, 8th August, 1845.

THE COURSE OF STUDY IN THE SCHOOL OF DESIGN.

I observe that your correspondents are continually arraigning the methods of instruction adopted in the School of Design, conceiving that at the most they produce but inferior draughtsmen, while they leave the primary object of design entirely disregarded. Mr. Pugin has given up all hope of its producing any good, as there is not enough study of nature. Your correspondent last week finds fault with some of the finest inventions of the ancients; and those most modest remonstrators, the students, consider it utterly useless, as the directors do not adopt that course of study which they, in their wisdom, think fit to prescribe. But among them all, for my part, I have read no attempt to disclose a practicable remedy. Fixing the capacity to design as the object of his exertions, the individual must first learn to draw straight lines and curves of every dimension, and in every possible combination. He must proceed to copy forms of acknowledged beauty, the productions of men who have studied the beauties of nature and concentrated them in their works; which will form his taste, and enable him to perceive what it is that constitutes real beauty. He should then study nature, in order to enrich and vary his knowledge. He must observe and imitate the various turns and combinations of leaves; the different forms of bodies, and most particularly the beautiful composition and arrangement which she everywhere presents; and, lastly, he must continually, unceasingly exercise himself in the production of works from his own imagination. These, I humbly conceive, are the most obvious means to the end proposed. It is clear that no one can design till he can make lines to express his intention, and to my mind at least equally clear, that he should not study nature till (as artists say) his eye is formed. There are many humpbacked, crooked, ill-formed persons in life, but no one would wish them to be imitated; and this remark in a proportionate degree extends to all nature.*

Now, Sir, should you allow these theses to be true, allow me to apply them to the case in point. The professors of Somerset House first set a student to simple manipulation; they lead him on to the imitation of the best forms that can be procured, allow him the frequent review of beautiful designs of ornament, the loan of treatises on all the arts, and finally, to crown all, encourage him to design himself by the offer of prizes, and the great chance of employ by those gentlemen who offer them. This is at least my view of the case. If you deem this paper worth insertion, I hope these gentlemen will favour us with their remedy as an answer. I am, Sir, &c.,

Frith-street, Soho. J. Morgan.

Bedstead without Screws.—We have recently examined a contrivance by Messrs. Palmer and Stepney, carpenters, of Church-street, Camberwell, for putting together bedsteads without screws. A metal projection fastened into one part of the frame fits into a socket at the other, and one turn of the hand makes the juntion secure. It seems to us, from its simplicity and the saving of time effected by it, deserving of notice.

* Which proves that all nature is not fit for elementary study.

RAILWAY ACCIDENTS.

The occurrence of two or three railway accidents, either simultaneously or in rapid succession, frequently elicit valuable suggestions, and sometimes significant hints from those in authority. Such has been the case lately on the the occasion of two great concussions in the neighbourhood of the metropolis, both of them originating in the purest negligence.

On the South-Eastern line, a train having been allowed to go away without its signal lights at the back, was in jeopardy from the possibility of an engine running into it; and an engine was accordingly sent off to realize the fear that was entertained. It is impossible to conceive any thing more grossly stupid than dispatching an engine at a rapid rate after a train which was only in danger from the chance of any thing coming behind it. Going away without the lights would have been, as it happened, of no consequence, for the train was the last for the day. It was only by dispatching a special engine, that mischief could be done.

On the London and Birmingham line, the morning was misty, and there was consequently more than ordinary danger in allowing the trains to be either later or earlier than usual. It was difficult to see further than a few yards; and by way of meeting the difficulty, the mail train was hurried forward till it came into violent collision with the luggage train. This, too, went out later than on ordinary occasions; though, as we have already said, the obscurity of the morning rendered exactness in all the arrangements on the line particularly requisite. Such are the usual causes of all railway accidents; for by a strange perverseness, whenever there seems to be a necessity for increased care, the persons employed on a line are guilty of increased negligence.

Mr. Bernal, a few evenings since, very properly called the attention of the House of Commons to the subject, when Sir G. Clerk observed: "that although the Board of Trade generally found that any suggestions they made were attended to by the companies, yet they had no power whatever to enforce compliance. It might certainly be hereafter necessay to impose some more efficient check on the railway companies for the prevention of accidents."

Sir Robert Peel also took occasion to say and with more than usual emphasis: "It is constantly urged that the accidents by railways bear no proportion whatever to those which used to occur by stage coaches. That is no answer—it is a mere sophistication. We have a right to be insured that those who derive the profits from these railways shall take every possible precaution on behalf of the public. If by the employment of ill-qualified subordinate officers these accidents are rendered more likely to happen or more frequent, then it will be the duty of Parliament to step in and demand a reduction of the profits of those who are concerned in the railway, in order that the due precautions may be taken to insure the public safety."

The Association of Architectural Draughtsmen.—At the last meeting of the Association, Mr. Colling read a paper upon the churches of Norfolk, pointing out their peculiarities: the subject was illustrated by many original sketches and drawings. Trunch, Ludham, and Knapton churches give ample scope for the research of the antiquary or architect. The roofs of several of the buildings noticed are well calculated to produce admiration, and the number and fidelity of their illustrations entitle Mr. Colling to praise for his industry. A proof of a lithograph of one of his quarterly subscription drawings was brought forward, to a copy of which each member is entitled. The Committee projects an exhibition of architectural drawings; if decided upon, it will open for a week upon the 1st September, the day of the *third* anniversary dinner.

The British Museum.—Last week the whole of the eastern wing of this building was disposed of by auction, in order to be removed for the erection of the new stone wing, to correspond with that on the western side, which is now finished. The foundation for the intended wing has been laid some weeks.

THE GLASS TRADE.

We receive many complaints of the conduct of the English glass makers in keeping the price of that material much higher than it should be. They may be assured that they are acting most unwisely; they will induce fresh competitors to come into the trade, and lead buyers to the foreign markets, whence they may not be able to wean them hereafter. The *Gardeners' Chronicle* invites attention to the fact, that an agency for the sale of foreign glass has actually been established in London, and that any quantity, from a single square up to as much as would glaze a village, may be procured by all purchasers. "We have examined that glass, and can say that it is excellent. It is as good in quality as English sheet glass, called the second quality of No. 1; and thus far better—that the English glass weighs only 16 ounces to the foot, while this glass averages 18 ounces, a very important difference.

As to the price, we find the difference to amount to this. We quote English prices from the tariff circulated by Messrs. Chater and Hayward.

	English glass 16 oz. to the foot.	Foreign glass 18 oz. to the foot.	Difference against the English glass and in favour of the buyer of foreign glass.
6 by 4, and under 9 by 7	0s. 9d.	5d.	4d.
9 by 7, and under 12 by 10 ..	0 10	5	5
12 by 10, and under 24	1 1	5	8
24 to 36 inches.....	1 2	5	9

And if larger sizes are required, the only increase in price is 2d. a foot, up to the greatest dimension made abroad, which we believe is much beyond any thing that can be required for glazing purposes.

And here we see one of the most striking differences between the system of glass dealing in England and on the continent. An English glass-cutter tells you that he cannot cut you a square of glass 9½ inches long, and 7½ inches wide, unless you give him 1d. a foot more for it than if it is 9 inches long and 7 inches wide. He sets out by charging in the first place 9d. a foot for little pieces of glass worth 2d. or 3d. If half an inch is added he claps on a 1d. more, until you arrive at the magnificent dimensions of 12 inches one way and 10 the other; for that you must pay 3d. a foot more. And so he goes on adding 2d. a foot, till at last, by this ingenious manœuvre, he contrives to extract 2s. 3d. out of his customer's pocket, for that which is worth 3d.; or, taking his own exorbitant standard of value, he converts that which he admits to be worth only 9d. into 2s. 3d. Our calculating powers are unable to determine how many thousands per cent. are pocketed by this scheme. That it is a mere scheme of trade is quite clear from the foreign practice. Messrs. Testa and Co. publicly advertized, that if their glass is under 40 inches long, they must have 14 francs *per* 100 *feet*, and if it is more than 40 inches long they must have 17 francs *per* 100 *feet*. This is a very reasonable advance, the necessity for which is intelligible. But the English glass trade say that they must have from 1d. to 3s. *a foot* extra. So that an English glass-dealer requires a greater advance upon a single foot of glass than a foreign dealer finds it necessary upon 100 feet."

Ordinary English glass can be had cheaper than is stated above, but not so cheaply as it should be, and as manufacturers would find it to their interest to make it.

St. Peter's at Rome.—We learn from *Galignani* that the dome of this celebrated edifice has excited serious alarm. For a long time past, the cupola has been cracked in many places, and ten arches of iron, weighing 60,000 kilogrammes, have been placed so as to prevent its fall. It has just been discovered that the lanternino, above which rises the cross that crowns the edifice, is cracked through and through. The numerous lightning conductors, which had been erected by Pope Pius VII. for the protection of the edifice, remove all idea of this mischief having been the effect of a thunder-storm. The lanternino is being surrounded by heavy iron chains, to prevent the cracks from extending.

Correspondence.

THE NEW DOORS FOR YORK MINSTER.

Sir,—In your valuable publication of the 15th July, I observed a letter from Mr. F. Tyrrell, of Tynemouth, near Newcastle, relative to the execution of three new doors for the west front of York Minster. Mr. Tyrrell is strictly correct in stating that the doors were originally made by Messrs. Scott and Wallace, of Newcastle. He says he considers it is only justice to name by whom the work was executed. I quite coincide in this opinion, but at the same time beg to state that when the doors arrived at York Minster, they were minutely inspected by Mr. Sydney Smirke, the architect for the restoration of the nave, and that that gentleman then distinctly declared "that he could not sanction the execution of the carving," and ordered Messrs. Scott and Wallace to take it all off the doors, and replace it by some other carving of superior quality. The contractors reluctantly renewed the carving, but only upon the lower part of the doors, where it now remains for the inspection of the curious; and they having subsequently refused to renew the carving upon the upper part of the doors, Mr. S. Smirke contracted with two of my fellow-citizens, viz., Mr. John Wolstenholme, to renew the said carving, and Mr. George Coates, the joiner's work, the expense of which was deducted from Messrs. Scott and Wallace's amount of contract. The doors were again inspected by Mr. S. Smirke, and ordered to be fixed forthwith; the original carving was then carefully packed up, "and sent to the place from whence it came."

The above are "stubborn facts," and as a convincing proof of the great superiority of the work executed by Messrs. Wolstenholme and Coates, the very rev. the dean and chapter have intrusted the execution of the new doors for the north-west tower to their care. The door is nearly finished, and will be fixed during the present month, when the public will be enabled to decide upon the merits or demerits of the respective works.

Justice demands the above explanation; and as you are a consistent enemy of trickery, and a staunch advocate of fairplay, I hope you will have the goodness to insert this letter in an early number of The Builder. — I am, Sir, &c. A Constant Reader.

York, Aug. 4, 1845.

BUILDERS' ESTIMATES.—CHARITY SCHOOLS OF ST. GILES' AND BLOOMSBURY.

Sir,—My attention has been called to a letter in The Builder of Saturday last, signed "J. S., Junr." (page 383), respecting a contract for some works now being performed at the School House of the Charity Schools of St. Giles' in the Fields and St. George Bloomsbury. I am surprised that the writer should have sent such a letter for the sole purpose, as it appears to me, of imputing to the committee of trustees of that charity, and to the architect (also a trustee, and a gentleman, who has for many years given his valuable and gratuitous services to the charity, both professionally and in other ways), improper motives in selecting the tender referred to. The facts are these; tenders were applied for to various parties, all, I believe, subscribers to the charity, for the works required; and the builders were requested to state separately the cost of the bricklayer's, carpenter's, and plasterer's works, and the cost of the painting. There were six tenders, as follows:—

				Brick-layers, &c.			Paint-ing, &c.	
A	£132	0	viz.	£80	0	and	£52	0
B (your correspondent)	136	0	,,	72	0	,,	64	0
C	160	0	,,	115	0	,,	45	0
D	135	14	,,	91	10	,,	44	4
E	99	5	,,	75	15	,,	23	10
F	,,	,,	,,	,,	,,	,,	39	0
G	99	0	,,	73	0	,,	26	0

The committee unanimously agreed to accept G's tender for all the works. Your correspondent, B, complains that the committee ought to have accepted his tender for bricklayers works &c., 72*l.*, as being 1*l.* under G's for that portion of the works, and E's tender of 23*l.* 10s., for painting, which together would have been 3*l.* 10s. under G's total. The trustees thought that under all circumstances it would be better to accept G's tender, that it would be inconvenient to have two sets of workmen, and that the difference of 3*l.* 10s was too slight a set-off on that account.

In consequence of this decision, your correspondent got a special meeting called (a very unusual thing) of the trustees. They assembled in a large number. A motion was made by A, one of the parties who had tendered, and a relative of B, that B's view should be adopted; but, after some discussion, the trustees present expressed so distinctly their conviction that the decision of the committee was a correct one, that A requested permission to withdraw his motion, which was granted, and I thought the matter had then been settled, until THE BUILDER was this morning put into my hands. I should mention that E, whose tender for painting was a little lower than G's, declined to execute the painter's work only, so that the committee could not have done what B wished.

I am sorry that B's disappointment has induced him to act as he has. He should remember that his tender for this trifling amount of work for the charity, exceeded the tender accepted by 37*l.*! He had the decision reviewed by the trustees, and now in your largely circulated publication charges the committee with unfairness, and infers that the architect recommended G's tender to be accepted, because he was "one of his own neighbours." When G's tender was accepted, the architect asked me who he was; for although certainly "one of his own neighbours," he did not previously know him.

I cannot imagine that the loss of this small contract is of any importance to your correspondent, but this I do know, that he has no ground for the complaint he makes against the committee of trustees of this charity, who, with other trustees, devote much time and attention to forward the objects of the very important and useful charity to which they are also subscribers.

I am, Sir, &c.,
Aug. 11, 1845. A TRUSTEE.

*** The name of the architect referred to, which we have just now learnt, is an ample assurance to us, that whether the decision was the right one or not, it was not influenced by any motive contrary to the *strictest* integrity and honour.

Miscellanea.

THE GRAVE OF SIR WALTER SCOTT—We are happy to learn that a monument at Dryburgh Abbey, to the memory of Sir Walter Scott, will be immediately commenced. Various obstructions and delays have occurred to interfere with this pious and patriotic duty, contemplated shortly after the death of the great minstrel. Sir Francis Chantrey had promised a design, but died ere he carried his intention into effect. Mr. Allan Cunningham, a friend and assistant of Chantrey, knowing what was proposed, drew a sketch of a monument; and it is a melancholy and interesting fact, that the last letter ever penned by the honest Allan" was one transmitting this sketch to Mr. Cadell, Edinburgh. The same day that he sent off his design for the tomb of Scott, Mr. Cunningham suddenly died, and followed his illustrious friends, the poet and the sculptor, to the grave. After a delay of thirteen years, the original object, however, will be attained, and beautiful as is the poet's tomb in St. Mary's Isle (where nature has decorated the Gothic ruins with a profuse and picturesque variety of foliage, and the murmurs of the Tweed are heard in the distance), the spot will be rendered still more impressive by this external commemoration, the offering of gratitude and affection, combined with those higher and more solemn feelings which consecrate the grave of genius.—*Inverness Courier.*

NASMYTH'S STEAM HAMMER.—It appears that a patent for an invention similar to the above was granted so long ago as the year 1806. In the "Repertory of Arts," vol. ix., second series, p. 387, the specification is given at length. The patent was granted to William Waterell, of Charles-street, Blackfriars-road, for "certain improvements in the mode of applying motion to hammers, stampers, knives, shears, and other things, without the application of wheel, pinion, or any rotative motion, by means of various powers now in common use." It does not however appear that Mr. Waterell, contemplated the application of his invention to the driving of piles.

ARCHITECTURE IN PARIS.—The *Art-Union* remarks that the prevalent taste in the architectural improvements of Paris may be said to resolve itself into very opposite styles—that of the twelfth and thirteenth centuries on the one side, and on the other that of the Renaissance; both of which being carried to extremity—forcibly, on the one hand, revert to a period of barbaric art; and on the other to the character of a time which, with our best efforts at progress, we have not yet been able to rival. We have from time to time noticed the progress of the works in the churches of Paris, and described those of St. Germain des Pres, St. Germain l'Auxerrois, of St. Denis, and others. The whole of the interior decorations of some of these are variously painted—flowers and foliage are represented on the shafts of the pillars; and all the superior embellishments, statues, painted glass, and other paintings are in the style of the twelfth and thirteenth centuries. Notwithstanding the yet effective taste for antique architecture, it is yet surprising that in Paris such a feeling should have arisen, where, in the memory of those professing such taste, nothing but pagan art was taught. This is, however, one of those extremes of which we have here so many examples—equally in things great and small. It is an excess of that principle which maintains the supremacy of early art. Among the architects whose works are most conspicuous in Paris are M. Gau and M. Hittorf, both of whom are natives of Cologne, but Parisians by education. The predilection of the former is strongly in favour of the architecture of the middle ages. It is to him that the erection of the new church in the vicinity of the Invalides is confided. This work is not yet commenced; the plans, however, are prepared. The position, on the contrary, assumed by M. Hittorf is more favourable: his name is connected with many of the most considerable architectural projects in Paris. A great part of the Place de la Concorde was planned and executed by him—he designed the candelabra here, and the fountains; also the elegant fountains in the Champs Elysées; he built the Cirque Olympique, besides numerous other edifices, domestic and otherwise. If evidence of his powers on a grander scale be demanded, it is only necessary to turn to the church of St. Vincent de Paul, which in 1824 was commenced, according to the ground plan of Lepere, but continued and finished for the most part by Hittorf, who has conducted the work since 1831.

REPARATION OF SEPULCHRAL MONUMENTS.—The little church of Greatham, near Petersfield, whose lofty wooden porch, with its carved gable-board and crowning canopy of ivy, attracts the attention of the traveller on the Farnham road, has recently been much improved in its interior by the renovation of the pews on the south side of the aisle, at the expense of their respective owners, and of the parish, in conformity with those on the north side, similarly repaired about ten years ago; and the tomb and recumbent effigy of Dame Caryll, lady of the manor temp. Chas. I., has been restored at the expense of Francis Love Beckford, Esq., as her ladyship's representative, although he possesses no property in the parish, nor, it is believed, in the county. The restoration of the above handsome monument was entrusted to Mr. Ubsdell, of Portsmouth, artist, who, having caused the alabaster and black marble to be cleansed, repainted the parts which had been originally coloured, applying ultra-marine and vermilion, so as effectually to resuscitate the gorgeous hues of former ages. It is to be hoped that the liberal example of Mr. Beckford will not be without its imitators, while such specimens of ancient art, mementos of human mortality and affection, and (where they speak sober truth) records of Christian virtue, may form integral portions of the decorations of churches; but, at the same time, the writer of this notice avows his opinion, generally that, except perhaps in large cathedrals, and even there he questions their propriety, the space monopolised by these erections were more suitably occupied by accommodation for living worshippers of God.—*Hampshire Chronicle.*

NEW CHURCH AT PRESTON.—A new church is being built at Preston, the fund for erecting which is being raised by penny-a-week subscriptions; 600*l.* has thus been obtained, and more is expected from the same means.

MONUMENT TO THE BROTHERS OF FATHER MATHEW.—A monument has just been executed in Tipperary to the memory of Francis and Thomas Mathew, Esqrs., brothers of the Rev. Theobald Mathew, from the design of Mr. James K. Fahie, of that place. It is composed of a dove-coloured magnesian limestone. The plan is rectangular. The opening forms three fronts, each bearing a tablet for inscription, surmounted by three trifoliated depressed carved arches; there are numerous buttresses, and crocketted pinnacles, terminated by carved finials. In the centre stands a square pedestal, on which is to rest a bust of the Rev. Theobald Mathew, covered by a projecting octagonal canopy. The whole is surmounted by a wrought Gothic cross; the extreme width is 15 ft. 3 in., and height from the floor 24 feet.

Tenders.

For rebuilding the house, No. 104, Oxford-street, under Mr. Lockyer.

Unwin....	£2,380	Plumber	£147
Stevenson..	2,222	,, ...	135
Matthews..	1,996	,, ...	136
Trego	1,895	,, ...	75

For rebuilding the Star Brewery, Oxford-street: Mr. R. H. Abraham, architect.

Furnival.....	£2,848
Lawrence and Son.....	2,818
Howard and Nixon	2,786
Stevenson	2,780
Jay.....	2,440

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the complete restoration of two Windows on the south-side of St. Thomas's Church, Salisbury; also, for Cleaning and Whitewashing the interior of the same Church.

For the execution of Works on the Leeds and Thirsk Railway.

For Coupled Locomotive Engine and four-wheeled Tender, to contain 700 gallons, for the Manchester and Birmingham Railway Company.

For the execution of several lengths of Earthwork on the Aberdeen Railway. There are 5 separate Contracts, varying in lengths from 3½ miles to 4¾ miles.

For the supply of 70,000 Larch, Oak, or Fir Sleepers, and Fencing for 50½ miles, or any part thereof, for the Ipswich and Bury St. Edmund's Railway Company.

For the erection of a Wesleyan Proprietary College at Taunton.

For the erection of a new Village Infirmary at Brampton, near Huntingdon, for the Lady Olivia Sparrow.

For the Construction of the Gas Works at Wells, in the county of Norfolk, with all necessary apparatus.

For a supply of eighty fathoms of Yellow Deal Ends and Boards, in equal proportions, of the best description, to the Trustees of the Parish of Islington, Middlesex.

For the execution of the works on the Nottingham and Lincoln Railway, in two parts; 1 from Nottingham to Newark, being a distance of 17¼ miles. 2 from Newark to Lincoln, being a distance of 15¾ miles.

For the construction of the entire Line of Railway through the County of Anglesea, for the Chester and Holyhead Railway Company. It is divided into four separate Contracts, being respectively in length 5 miles and 28 chains, 5 miles and 26 chains, 7 miles and 55 chains, and 3 miles and 60 chains.

For supplying her Majesty's several Dockyards with 11,000 loads of African Timber.

For the Buildings intended to be erected at King's Langley, for the Committee of the Booksellers' Provident Institution.

For the taking down the present parochial school-house at Bethnal-green, and erecting a new one on the same site.

For the supply of about 18,000 sleepers for the Canterbury Branch of the South-Eastern Railway.

APPROACHING SALES OF WOOD, &c.

BY TENDER.

In the Plantations of the Duke of Montrose, situate in the Parishes of Drymen and Buchanan, Stirlingshire: many Thousands of Larch Trees of some size, adapted for Railway Sleepers, Roofing and Joisting, and other purposes.

COMPETITIONS.

The Committee for the establishment of Public Parks, Walks, &c., at Manchester, offer two prizes, one of 50 guineas and the other of 25 guineas, for the best and second best set of Plans (with estimates), for the laying out, &c., of the sites already purchased by them.

The Board of Guardians of the Bridlington Union offer a premium of 10*l.* for a Plan and Specification of a Workhouse, the expense of which is not to exceed 2,000*l.*, and to accommodate 150 inmates.

TO CORRESPONDENTS.

"Wood Models."—*The correspondent who inquired as to architectural models last week, is referred to Mr. Smith, of* 49, *Millbank-street, Westminster.*

"An Old Subscriber."—*We have no doubt our correspondent can build over the passage without making the walls thicker, but the information sent is not sufficient for us to reply with certainty.*

"Subscriber" (Kensington.)—*The structure in question could not easily have been made uglier. Its utility is unquestionable.*

"A Builder" (Clapham).—*If the houses were commenced before January* 1*st and shops are part of the original design, notice need not be given to the district surveyor.*

"S. C. Fripp" (Architect.)—*The Glasgow Improvement Act, better known as the Glasgow Consolidation Act, stands cap.* 99, 6*th and* 7*th of Victoria.*

"Constant Reader."—*An edition of Bushell's price-book has not appeared since* 1816. *A similar work by Elsam has been published since, price* 8*s. Apply to Weale, of Holborn.*

"Cast Steel Bars instead of Bells."—*Another correspondent desires to know where cast steel bars can be obtained, and how they are to be struck.*

"J. I." (Kennington Common.)—*The district surveyor was authorized to interfere.*

"The District Surveyors."—*We cannot insert charges of improper behaviour or complaints, unless accompanied by the name of the writer, not necessarily for publication, but as a guarantee of their correctness.*

"R. G." *shall not be lost sight of.*

"J. L." *has our thanks.*

"Veritas."—*We are sorry we have not space for his letter.*

"A Young Bricklayer."—*Read Mr. Hosking's treatise on "Building," published by Longman.*

"U. S." (Clerkenwell).—*We shall be glad to see a specimen, and might then offer terms.*

"Friend to the Builder," *next week.*

"An Architect" (Leamington).—*The design shall be engraved.*

Received:—"A Constant Subscriber" (re curves); "Juvenis;" "W. F. S.;" "Quirk;" "Proceedings of Civil Engineers."

ADVERTISEMENTS.

TO CAPITALISTS.

REQUIRED, a GUARANTEE for 10,000*l.* in one or more sums, as part security to a Contractor for the Erection of a Splendid Building in London for a highly-patronized and well-understood purpose. The Guarantee will not be liable until the expiration of two years from the completion of the building, and it will be satisfactorily shewn, that the liability will be cancelled in one year. The Guarantee will have a security upon the building, and highly advantageous terms will be given.—Address W. W., 5, St. James's-square.

SNOXELL'S PATENT REVOLVING WOOD SHUTTERS.

WM. SNOXELL, 96, Regent-street, and 131, Chancery-lane. These Shutters combine Economy with perfect Security, having the edges sheathed with iron; the cost little more than common shutters, and of such simple construction, that the largest establishments can be opened or closed in a few moments with the greatest possible ease without the use of machinery. One great advantage over all other revolving shutters consists in their being made without metal hinges, consequently cannot rust or get out of order.—Highly satisfactory references of their utility can be given to establishments where they are now in use.

PATENT OFFICE, 5, CHANCERY-LANE, NEAR FLEET-STREET.

INVENTORS requiring protection by LETTERS PATENT should apply direct to the PATENT OFFICE, as above, where Patents can be speedily procured for the United Kingdom, &c., and by which a great saving of expense will be effected. CAVEATS are entered at this office, fee 1*l.* 1*s.* DESIGNS of all kinds are REGISTERED. Apply at the PATENT OFFICE, 5, Chancery-lane, near Fleet-street.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

NOTICE TO INVENTORS.

OFFICE FOR PATENTS OF INVENTIONS and REGISTRATIONS of DESIGNS, 14, Lincoln's-inn-fields.—The printed INSTRUCTIONS gratis, and every information upon the subject of PROTECTION for INVENTIONS, either by Letters Patent or the Design Acts, may be had by applying personally, or by letter, prepaid, to Mr. ALEXANDER PRINCE, at the office, 14, Lincoln's-inn-fields.

HOT WATER APPARATUS. — The attention of architects, builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of heating churches and chapels, halls, stair-cases, conservatories, forcing and green-houses, manufactories, and warehouses, kilns, rooms for drying timber, &c., and every variety of purpose for which artificial heat is required. Within the last twenty years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises. BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

POLONCEAU'S BITUMEN PAVEMENT for paving Foot walks, Terraces, Garden walks, Stables, Coach Houses, Granaries, Corn Stores, and Salt Warehouses. For the exclusion of Damp and Vermin in Basements it is particularly adapted, and for Roofing Dwelling Houses, Porticos, Balconies, and Sheds.

Price 3*s.* 6*d.* per square yard.

BITUMEN for covering the Arches of Bridges, Culverts, &c. &c. on Railways and other places (with instructions for laying it down), may be had at the rate of 45*s.* per ton, by applying to JOHN PILKINGTON, 15, Wharf-road, City-road.

TO ARCHITECTS.

IN consequence of many complaints having been made to the Company, by Architects, of a spurious material having been used in the execution of Works where the SEYSSEL ASPHALTE had been specified for, the Directors, with a view to ensure the fulfilment of any such specification, have authorized CERTIFICATES to be granted to Builders where the

SEYSSEL ASPHALTE

has been used. For the purpose of securing the use of the Genuine Article, Architects and others are recommended to insert in their specifications the "Seyssel Alphalte, Claridge's Patent," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used, gas-tar and other worthless and offensive compositions have been introduced. J. FARRELL, Secretary,
Stangate, near Westminster Seyssel Asphalte Company.
Bridge, Jan., 1845.

Books of Instructions for Use may be had at the Office of "The Builder," and of all Booksellers in Town and Country, price 1*s.*

*** In proof of the necessity of the above advertisement, it may be mentioned, that it has come to the knowledge of the Directors that in certain works which have been executed by Messrs. CURTIS, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

Also in the case of a work at Lewisham executed by Messrs. ROBERT and DANIEL YOUNG, of 10, Crown-row, Walworth-road, where Seyssel Asphalte was specified for, a spurious article was nevertheless laid down by them.

HOLBORN AND FINSBURY SEWERS, MIDDLESEX.

THE COMMISSIONERS of SEWERS for the LIMITS give NOTICE, that their Office, Hatton Garden, is open daily between the hours of Ten and Four, where information can be obtained gratis) by persons about to Purchase or Rent Houses or Property, or take Land for Building purposes, of the situation and level of the public Sewers, capable of affording sufficient Drainage, and which they recommend all such Persons to apply for at the above Office.

By the Court,
STABLE and LUSH, Clerks.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. (chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, or public way, or in any part intended to become a street, lane, or public way, or to carry or drain off water from any house, building, yard, or ground, into any sewer under their management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewer or sewers shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, upon application being made at this office previously to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, whenever the lower floors or pavements of buildings shall have been laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings taust in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners will be cut off, and the parties making the same will subject themselves to a fine.

The provisions of the Metropolitan Buildings Act (7 and 8 Victoria, c. 84) do not supersede the authority of the Commissioners of Sewers in the above respects, but their powers are expressly reserved, and their regulations made subservient to the purposes of that Act. The execution of such works, under the superintendence of the district surveyor alone, cannot therefore warrant the making of any sewers or drains within this commission, nor relieve the parties making them from the penalties above mentioned.

By order of the Court,
LEWIS C. HERTSLET, Clerk.

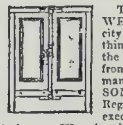
R. W. PIPES.

Messrs. NEILSON and MITCHELL beg to inform Builders that they have always on hand, at their premises, 15, Wharf-road, City-road, a large assortment of R. W. Pipes, Guttering, Sash-weights, &c., which they are disposing of at very low prices.

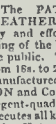
Castings of every description done to order.

BALLUSTERS.

TO ARCHITECTS AND BUILDERS.



The PATENT ALBERT WEATHER-BAR for simplicity and effect supersedes any thing of the kind yet offered to the public. The expense varies from 18*s.* to 25*s.* Invented and manufactured by T. WILKINSON and Co., Ironmongers, 77, Regent-quadrant. T. W. also executes all kinds of Iron-works,



Staircases, Warming by Hot-water, Fitting up Stoves and Ranges of all kinds; also Bell-hanging extensively executed. Estimates given.

CAUTION.—In the Case of CHUBB *v.* COOPER and Another. The Court of Chancery, on April 22nd, 1842, decided that it is illegal for any person or persons to stamp, engrave, or in any manner put our Name or Trade Marks (either by themselves or in conjunction with any other Words or marks) on any description of Locks or Keys whatever, and that all persons Making or Selling Locks and Keys so marked subject themselves to legal proceedings: and upon the trial of the cause, CHUBB *v.* DAVIS, in the Sheriff's Court, Birmingham, on the 17th April, 1844, the jury found a Verdict for the Plaintiffs, with 50*l.* Damages for the illegal use of the plaintiffs' name and trade marks upon locks not of their manufacture.—CHARLES CHUBB and SON.

N.B. The Trade are respectfully informed that C. CHUBB and SON have on sale every description of their New Patent Detector Locks and Latches.—Lists of Prices may be had on application, 57, St. Paul's churchyard.

PORTER'S GALVANIZED CORRUGATED and PLAIN IRON ROOFING, and IRON HURDLE and FENCE WORKS, Grove, Southwark.—The Patent Galvanized Iron Co. (Sorel's) process is now being used for the roofing of the new Houses of Parliament, at Woolwich Dock-yard, by the Trinity Board, &c. It is particularly suited for the colonies, and is shipped by J. Porter to the East and West Indies, Ceylon, &c.; also supplied by him to several English, and to the Jamaica Railway Co.'s. Moveable Feeding Sheds and Pens; farm-yard and fire-proof buildings of all kinds; a new description of Galvanized Iron Open Gutter, covered with tile for the circulation of hot water, much cheaper than any other kind. The Trade supplied with Corrugated Plates, Galvanized or not, and with Iron Fences of all kinds.

PATENT GALVANISED IRON, 100 PER CENT. STRONGER and from 200 to 300 PER CENT. CHEAPER than COPPER. The Patent Galvanized Iron Company are ready to Galvanise any Iron sent to their Works, either at Millwall, London; Phœnix Iron Works, West Bromwich; Lea Brook, Tipton, Staffordshire; or Bread-street, Birmingham, and to supply Roofing, Ship Sheathing, Fastenings, Chains, Bolts, Nails, Screws, Pumps, and the endless variety of articles to which Iron, not subject to rust, may be applied. The Patent Galvanized Iron is well adapted for Roofing, especially for Tropical Climates, being cheaper and more durable than Zinc, Lead, Tin, or any other material, calculating weight, strength, elegance, and durability; Sheathing Ships, being not more subject to clog by barnicles, sea-weed, or oxidation than any other Sheathing; Bolts, Chains, and all Iron Work about Ships, Boats, and Steam Vessels, Miner's Implements, Agricultural and Ornamental Fencing, Rick Covers, &c. The validity of the patent was contested in February last before Lord Chief Justice Tindal, when among others the following eminent gentlemen gave evidence: — Charles Barry, Esq., F.R.S., architect, "that he is roofing the new Houses of Parliament with the Patent Galvanised Iron, and is perfectly satisfied with it." Oliver Lang, Esq., master shipwright at Woolwich dock, on whose recommendation the Admiralty have ordered H.M.'s steamer Sphinx, about to be built by him, to be wholly bolted and fastened with Galvanised Iron. Captain Paulter, resident superintendent of the Trinity Board Establishment, "that it is employed by the Trinity Board for their buoys, &c., and found to be perfectly effective in protecting the iron from injury at sea, the buoys retaining their colour, a point never before attained." Captain Denison, Royal Engineer, superintendent of all buildings in Woolwich and Deptford dockyards, T. H. Brande, Esq., F.R.S., Professor of Chemistry, &c., George Frederick Young, Esq., of the firm of Curling, Young, and Co., all deposed in the strongest manner to the perfect efficacy of the Company's patent process for the preservation of iron from rust. Amongst other testimonials the following certificate has been received from Lloyd's surveyors.

(Copy.)
Lloyd's Register of British and Foreign Shipping,
2, White Lion Court, Cornhill, February 7, 1845.

This is to certify that the undersigned surveyors to this society did, at the request of Messrs. Malins and Rawlinson, examine the Patent Galvanised Iron Sheathing upon the bottom of the Jury Steamer lying at Messrs. Curling, Young, and Co.'s Dry Dock, Limehouse, and lately returned from a voyage to the Island of Ichaboe, on the coast of Africa, and found it unbroken and perfect throughout the ship's bottom, and no appearance of corrosion, or oxide of iron upon its surface. The iron that had been exposed by puncturing the nail holes had become coated with zinc; the sheathing was nearly clean and free from marine grass and animalculæ. It appears to have answered very well during the before-mentioned voyage, and the ship has sailed without its being found necessary to do any repairs to it.

PETER COURTENAY,
J. H. RICHIE,
JAMES MARTIN, } Lloyd's Surveyors.

Agents — Liverpool, John Hamilton, Jun., Esq.; Plymouth, Fox, Sons, and Co.; Falmouth, G. C. and R. W. Fox and Co.; Bristol, Morgan M'Authur and Co.; Gloucester, Cook and Butt; Bremen, Widow J. Lang, Son, and Co.; Hamburgh, Higson, Brockman, and Co.; Venice, F. Zuchelli, Esq.; Antwerp, W. Turner, Jun., Esq.

The Builder.

No. CXXXIII.

SATURDAY, AUGUST 23, 1845.

IN the last number of our journal we expressed a hope that a statement which had been forwarded to us, to the effect that a *Gothic* stained-glass window was about to be put up in St. James's church, Piccadilly, was erroneous; considering that consistency was as necessary in an Italian building as in one of the pointed style. We have since seen the design, and have been led to inquire into the circumstances connected with it. It seems that it has long been desired to fill the window at the east end of St. James's church, which is in six compartments and two stories, with stained glass. Nearly twenty years ago, Mr. Backler adapted to it Raffaelle's "Transfiguration," and had a small glazed model made, whereon he painted the picture. Recently, funds having accrued, the desire was revived, and a committee was appointed to carry it into effect, with Mr. Charles Mayhew, the architect, for honorary secretary. Mr. Fairs, in conjunction with Mr. Backler and Mr. Wilmushurst, submitted the "Transfiguration;" but, after inquiry and consideration, Mr. Willement, Messrs. Ward and Nixon, Mr. Hoadley, Mr. Warrington, Mr. Gibbs, and Mr. Wailes, of Newcastle, were invited to submit designs. The two first being much occupied, declined. The last, namely Mr. Wailes, with a candour which is creditable to him, stated in reply, that having devoted himself and his workmen exclusively to the production of glass adapted to Gothic structures, he hardly considered himself a proper person to execute a window for a church "in the modern style." At the same time, however, he gave the committee his reasons for thinking that stained glass of the Norman or Byzantine period was fitter for a *Roman church* than copies on glass of Italian pictures. In return, the committee said they would be happy to receive any design he might think fit to submit, without restriction as to style.

Accordingly, Mr. Wailes submitted a design in competition with the other parties named, and ultimately it was selected by the committee and ordered to be executed. It is unquestionably an admirable design, and the drawing in which it is set forth is very beautiful; in style, however, it is, as its author knew perfectly well, as different from the church of which it should form a part as Sir Joshua Reynolds' "Virtues" are from New College Chapel, at Oxford, and will be quite as much out of place. It is essentially Gothic, and even if the vesica-pisces, agnus Dei, trefoil, and other forms characteristic of the period be removed, will still remain so, and if put up, will entail opprobrium on those concerned. Inigo Jones, Wren, and others, shewed if not their contempt for pointed architecture, at all events their preference for Italian art, by destroying the unity of our noble cathedrals and churches with Corinthian porticos and Ionic altar-screens,—a proceeding which now forms the only drawback from our admiration of their great genius. If any man were to attempt to do so now, he would be laughed at by the public, and trampled under foot by the Cambridge Camden Society. Why then is consistency to be disregarded in a reverse case? Can we expect to shew *our* preference of one style to the injury of another without the castigation of those who, following after, will see clearer? Gothic doors would hardly be permitted *yet* in a Grecian or Roman church,—the idea would be universally laughed at,—no where approved of. Why are Gothic windows then to be suffered in such a position, or how can those who introduce them expect to escape the ridicule in which they would themselves indulge in the other case?

In the first letter from Mr. Wailes, which was read to the committee, he stated, that whenever he had been called on to fill "Roman windows" with stained glass, he had always inserted Norman glass, on the ground that that was the earliest style of glass painting known, and that as it partook strongly of the Roman character, so much as to be called Romanesque, the use of Norman glass did not entail *half* the anachronism or incongruity that introducing copies of the works of modern painters did, as these latter were removed six or eight centuries further from Roman architecture than the Norman. "I, myself," said Mr. Wailes in his letter (of which we gladly give him the full benefit). "I, myself, see nothing in the pictures of the old masters, as that school is termed, which at all approximates to Roman architecture. The earliest Christian decorations we know, are found in some of the Byzantine churches in Sicily, and these have all the characteristic features of Norman or Romanesque glass; whilst in a copy of an ancient picture, the material of the window (glass) is totally lost sight of, in most cases differing but little from the effect of a transparency on canvas. Glass, from its intractable nature, can only be applied in one particular way, as an architectural mosaic embellishment."

Further, when the artist submitted his design, which he said was totally at variance with the usual mode of ornamenting a Roman window, he urged that it was more in accordance with the Roman style of architecture than the manner adopted by most glass painters. Stained glass, he again maintained, could only be consistently applied in the manner of Roman mosaics.

Now, throughout this argument the artist and those who assented to his views proceed upon an entirely wrong assumption; they forget that St. James's church, like most of our "classic" buildings, is not after the *ancient* models, is not in what we understand, strictly speaking, by the term the "Roman style," but is in reality an *Italian* building, after the models produced by those great men who in the fifteenth century adapted ancient architecture to modern wants and their own views, and induced what was termed the revival:—men who sedulously avoided any thing that was Gothic, and in whose works the *principle* adopted is totally different from the principles exemplified in pointed architecture. The question is not which is the best style for stained glass: if it were, assenting as we do to the opinion expressed by Mr. Wailes, that stained-glass windows ought to be treated more like a mosaic device than a picture, we should have nothing to say. The question, however, is, what character of glass, if any, should be used in St. James's Church, and the obvious, incontrovertible reply is, NOT GOTHIC. We have great respect for the committee appointed (which includes the Bishop of London, and other names of high character), and would not willingly cavil at their decision. Feeling however, strongly on the subject, and knowing full well that if this wrong step be taken it may be the prelude of many others, we strenuously call upon the committee to reconsider their decision dispassionately. The selected design, as we before said, is admirable of its class,—it is simply to the proposed introduction of it in St. James's Church that we loudly object, being satisfied that if persevered in, it will prove a great and serious mistake.

GOTHIC IRONWORK.

CONSIDERED IN REFERENCE TO ITS INFLUENCE UPON THE FUTURE DEVELOPMENT OF THE STYLE.

THE constraining influence upon style in Gothic architecture, induced by an exclusive desire for reproducing works, which have, or might have been erected at a former time, has been in part indicated by us in previous numbers of this journal.* A reign of taste, which subsists entirely on the produce of former ages, fertile as those ages may have been, bids fair soon to be exhausted, and already there is that resemblance in most of the designs of our new churches, which betokens the probable aspect of the future. It is vain for the architect to trust to no ideas but his own; and without the suggestions, which ancient models afford, he will either lapse into a system of routine, in which the principle of life is wanting; or will run in quest of originality, into eccentricity and *bizarrerie*. But it is equally true, that unless the powers of the artist's own mind are exerted, and unless the advantages peculiar to present times are considered; if to the native ore the reducing flux be not added, the matter will remain an object of interest, but unproductive of those new combinations, to which the fusion in the crucible of art might have led. It is our peculiar humour at this crisis, to content ourselves with a very partial study of ancient models, and a total disregard of all internal resources. We have, therefore, endeavoured to urge the importance of an increased study of the principles of art in former times, and a more active use of the advantages of the present. Amongst these advantages are a greater ability to execute substantial work, through our better knowledge of the properties of materials. Many of the Gothic buildings, though constructed on principles, on which we have not improved, have failed from causes, which modern experience could readily avert. The disuse of uncoursed rubble, a better knowledge of the qualities of materials, the addition of proper drains and gutters, the employment of concrete, and the application of iron to constructive purposes, are some of the advantages which we may be said to be in possession of. Of these, not the least important is the knowledge of the properties of metals.

It must be considered, as one of the greatest merits in Gothic architecture, one which eminently distinguishes it from other styles, that each material, which became the vehicle of design, was invested with the precise character, which its peculiar physical properties and capabilities best admitted of. Whatever the occasional eccentricities, perchance observable in a style of such fertility, it was unquestionably the leading principle of the Gothic architect to give to stone the appearance of stone, to wood the appearance of wood, and of iron that of iron. Though to produce surprise was one object in view, he did not excite it by means, which were not evident; the arrangements, necessary for construction, were not less apparent, than those belonging to decoration, for they were identical. Whatever the space to be decorated, or the constructive object, he yet considered the particular advantages of the material employed, and held, that it was better to seize those advantages than to mimic, in one material, the form and treatment of another. In a screen, or canopy, the arrangement of mullion, and foliation was by no means similar in wood, stone, and metal, and in no case did he desire, by paint, or other mode of deception, to make any thing appear what it was not. Where metal was employed, we find the mullions of less thickness, the crockets of greater projection, and in every respect the

* Vide *ante* pp. 39, 98, 171, 181, 217, 266, 314, &c., &c.

peculiar capabilities of the metals availed of, and still with the minimum of labour and expense. By engraving, as in the monumental brasses, or by the simple use of a pair of pincers, a description of ornament was produced, having the true metallic character, and yet with less labour, than is needed for a similar effect, in a casting. Our modern ironwork—especially the Gothic—betrays a complete disregard of the nature of the material. It has become bulky and massive, in a degree, more suited to stone and wood; the great beauty of the old ironwork, produced by hand, is wanting, through the absence of relief and undercutting, and the ability to supply a multitude of copies is co-existent with the almost worthless character of the work itself. It is the duty of the architect, to avail himself of every aid to the proper execution of his design; but in the present use of casting, facility of execution, and reproduction are deemed to be advantages, to which every beautiful form must bend. If, however, the former treatment of metal work were more generally understood, and the little labour required to produce an effect in wrought iron, we might hope to see a more accurate definition of the limits of the two arts; whilst it would be found, that the labour now devoted to iron work, where casting has been employed, often is actually greater, than necessary to produce a better effect, when the process is entirely by hand. In "The true Principles of pointed Architecture," Mr. Pugin has very clearly pointed out the original method, and there shewn, that with plates of metal, laid over one another, and perforated in forms, differing in each, the character of Gothic panelling is given, in a manner better adapted to the material, and with less expense than by the process of casting. The execution of larger tracery, and of foliage is not less simple. It is not only in Gothic iron-work, that the misuse of the art of casting is apparent; the scrolls and antifixæ in modern park gates, and railings are elaborate, but unsuccessful attempts to imitate a school of art, in which, at one time, the painter and the sculptor were operators.* At the best, where the casting has been improved upon by subsequent labour, that labour is extreme, and indeed in many cases, where the pattern is costly, without being of further use, the want of manual dexterity can be the only impediment. The increasing taste for decoration will probably remedy this defect, and if the operative skill be properly directed, we may hope to see, in Gothic architecture at least, a condition of the art of design in metal work, such as the world has not yet known.

Though examples of Gothic iron-work are not very numerous, there is ample evidence of remarkable skill in the material. The railing, round the tomb of Henry VII. at Westminster, the monument of Edward IV., at St. George's Chapel, Windsor, certain canopies to recumbent effigies in Westminster Abbey, the hinges of the doors at Lichfield, and Windsor, and other examples, still existing in England, and on the continent are proofs of the fact, and will afford hints, as to the mode of working. Had the material been as plentiful as it is now, and the ready mode of reducing it from the ore been as well understood, there is no doubt, that it would have played a still more important part in the construction, and decoration of buildings. But we have iron in abundance; it has been applied to purposes, which our ancestors did not dream of; it has floated on the ocean, and carried the passenger over the strait; it does the work of men's hands, and work, which hands could not do, and has become the way on which in hours, we count the days of former times. Bridges, beams, roofs, whole houses are now made of iron; every day it is being applied to some fresh purpose, and therefore it is a material, which has influenced, and will most powerfully influence the decorative character of our architecture. Such being the case, it seems, that it may be employed in Gothic architecture. It may not be the most important item in the future style, but it is at least one, which may advantageously be used, decoratively, and constructively to a much greater extent, than it formerly was.

There can be no reason that its use should rigidly be confined to such parts of a building as we are accustomed to see it in, as railings, locks, and hinges; though in these, there is great scope for invention, and certainly for improvement upon their modern forms. It may be applied to more fundamental constructions, without violating any real principle, and with a new field for the display of Gothic architecture. Roofs, window-tracery, slender shafts, pinnacles and crosses, spires of openwork, and font covers may be executed in it, with the best results, and without offence to the taste of any one, who really understands Gothic architecture, and whose love of precedent does not blind him to the merit of originality, and the inspiration of inventive genius. But, say the book-learned, "tracery! columns! spires! in iron!! this is contrary to all propriety, and there is no *authority* for it!" But, if invention is a thing, which cannot or must not be, then do we at once sorrowfully abandon the practice of the style, along with all such, as are content to forget the artist in the *virtuoso*, who venerate less the creative power of mind, than the sweepings of centuries past, who live entirely in this comparative ignorance, and have no hopes in the prospect of the future, to all the cavillers at the Gothic style, during its, in such case, short-lived existence. We have ourselves urged the examination of ancient models, but we deprecate a state of—it cannot be art—where imitation is the only end and object. Imitation is an aid to art, the matter out of which originality springs, and not the point, at which art stops short.

Those who are conversant with ancient models can hardly think of Gothic bridges, or of columns of iron, without reverting to many attempts to imitate the forms, and proportions of timber and stone, unhappily, common enough. We do not wish to see more constructions of that solid character. Columns must not be painted like stone, but have the proper appearance, and proportions of the metal employed, whether iron or brass. In metal, we shall be able to carry out the forms of slender shafts with perfect security, and consequently better effect, than is discernible in the old buildings. The desire of the Gothic architects to make these shafts perfectly secure, led them to use a material, different to that of the rest of the building; this they found in the Purbeck marble; but it was still requisite to band them at intervals to the neighbouring pier. Where these bands were omitted, the shafts have failed, as in the Temple church, where it has since been necessary to tie them with iron to the mullion. Consequently, with iron we should be able to execute slender shafts with better effect, than in the original manner. It is well, sometimes, to listen to an opponent, and we quite agree with the following remarks:—"The grove at the east end of Salisbury cathedral, which, like the banyan tree, seems to be composed of pendants from the roof, in different dimensions, rather than columns to support it; beautiful, indeed, but so fragile, that the blow of a stick, or the movement of an awkward visitor would put the whole fabric in peril. If, instead of a friable stone or marble, the shafts were made of brass, the mind would relax into that security, which is ever the first requirement of our art."* Salisbury cathedral is a remarkable instance of the use of slender shafts, and it cannot be denied, that our satisfaction would be greater were those shafts of metal. A spire should not be, like that recently erected at Vienna, a reproduction of the forms of masonry, but should be of open work, not resembling the spires of stone at Freyburg, and elsewhere, but entirely *sui generis*, with the character of iron-work, and not with the form, and proportions of stone. On the continent, it is not unusual to find windows entirely destitute of stone mullions, the tracery being formed in iron-work. It is possible, that this idea might be turned to some account, though the absence of stone mullions is attended with a poverty of effect, the colour of the iron-work, not contrasting with that of the window, when seen from the exterior. As a matter of course, in combining iron with other materials, it will be necessary to consider the effect of colour.

Thus we think, that in iron, we have one aid to the future development of style in Gothic architecture, one of great importance, whose advantages were not unfelt by the architects of old, and were met by them in a manner, from which we can learn much in its more extended application. Hitherto in modern architecture, where iron has been used, it has been misused, and in employing it, it must be our endeavour to invest it with the character of ornament, for which its peculiar properties best adapt it; the masonic must be carefully avoided. When once so important a material is properly treated, and with the originality, which cannot fail to be the result, we may fairly hope to see a better style, influencing all parts of future Gothic buildings. E. H.

* Francia, who painted the "Dead Christ" in the National Gallery was a goldsmith, "Francia Aurifex" is inscribed upon one of his works.—Quentin Matsys painted "The Misers," at Windsor castle.

* Cockerell's Lectures on Architecture at the Royal Academy.

ASSERTED ABUSES IN THE WESTMINSTER COURT OF SEWERS.

In a recent number of THE BUILDER we inserted extracts from the pamphlet written by Mr. John Leslie, one of the Commissioners of Sewers for Westminster and part of the County of Middlesex, in which he alleges that great abuses have existed, and do still exist, in the Westminster Court of Sewers, in the wasteful and extravagant expenditure of large sums of money, levied on the inhabitants for sewer's rates, by the building of new and the repair of old sewers. At the time we made those extracts we did not pledge ourselves to the accuracy of Mr. Leslie's statements, but gave insertion to them simply with a view to inquiry.

At a Court of Sewers recently held at the Sewers Office, in Greek-street, Soho, a most important communication was made to the Commissioners from the Secretary of State for the Home Department, and which was read to the commissioners then present, and was as follows:—

Whitehall, August 13, 1845.

SIR,—I am directed by Secretary Sir James Graham, to transmit to you the inclosed copy of a pamphlet by Mr. John Leslie, one of the Commissioners of Sewers for Westminster and part of Middlesex, to which Sir James Graham's attention has been called by representations from various parishes in Westminster, and I am to request that the Commissioners of Sewers will favour Sir James Graham with any observations they wish to make upon the allegations contained in this pamphlet.

I am, Sir, your obedient Servant,

Lewis C. Hertslet, Esq., H. MANNERS SUTTON.
Clerk to the Commissioners of Sewers, 1, Greek-street, Soho.

Considerable discussion then ensued as to the best course the commissioners should take in reference thereto; at length it was decided that the clerk do simply acknowledge the receipt, and also state that the court will take it into their earliest consideration. It was resolved that a committee be appointed at the next court at two o'clock, "to draw up observations, in accordance with the request of Sir James Graham," and that these observations should be prepared and laid before the court at their earliest convenience. Considerable excitement seems to prevail at this court, and among the rate-payers under its jurisdiction with respect to this question of lavish expenditure of their money; and each succeeding court will be extremely interesting to the public, particularly the very large portion now so deeply engaged in the important question of the good and efficient sewerage of the metropolis.

For some time past, a very large sewer has been in course of construction along Gloucester-road, Paddington. It was ordered at a former court, that a further length of 450 feet of this sewer be built, estimated at 1,237*l*. On the question being put that the order be confirmed, Mr. Leslie moved the following amendment:—"That the work for building 450 feet of sewer in Gloucester-road, Paddington, be not done until after a plan, section and specification, carefully prepared, which must include every expense; and that when those plans, specification, &c., are prepared that the work be thrown open to public competition, by advertisements in the public papers and the weekly journal called THE BUILDER."

This amendment created an animated discussion, on which the commissioners divided when there appeared, ayes 6: Sir John Hanshler, Messrs. Biffin, Chambers, Fuller, Griffiths Leslie. Noes 6: Messrs. Cantwell, T. L. Donaldson, Eyre, Gutch, G. S. Smith, and the chairman, E. Willoughby.

This division was rather unexpected, and considerable excitement and confusion was the result in consequence of this near approach to what Mr. Leslie has been laboriously endeavouring to effect for some considerable time past, that is, that every large work under this commission be thrown open to public competition, so that the rate-payers may by this means partake of the benefit which must naturally result from the adoption of a good and wholesome system.

ON BRICKMAKING.

Sir,—Having seen an account in The Builder, (p. 182, *ante*), and considering it to set forth by far the best management of clay, together with other ingredients necessary for the purpose of making bricks and for their durability and colour, that I have ever before met with, I should feel much obliged if the writer of it would answer me the following questions, viz.:—1st. After the clay is raised, what sized mesh the sieve should have for passing the ashes through before being thrown on the clay, and whether the breeze might not be reduced so that the whole might pass through the same sieve, as I have put breeze in the clay, and though not coarser than a common white pea, it has invariably blistered the brick in the burning. 2nd. How to reduce the chalk to that state capable of being intimately mixed with the clay; my reason for asking this question is, that I have a field of fine red clay that does produce excellent building and floor bricks of a uniform red colour; I have also made floor bricks and facings with the same clay that have burnt a very good white by adding whiting, &c., &c.; but the process of grinding chalk and manufacturing it into whiting is attended with too great an expense for general purposes. Hence my wish to know a more easy process of reducing it by other means, if such can be done. I remain an attached friend to The Builder and

A Subscriber from the First.

Wisbeach.

Sir,—Your correspondent asks first of all, what is the most advantageous size of the breeze to mix with the clay in brickmaking? As a general rule, I believe, it may be asserted that the smaller the better, so long as the extreme case of mere dust is avoided; for it will be evident on consideration that the smaller the breeze is the more thoroughly can it be incorporated with the mass of the materials constituting the brick, and the more uniformly they are blended the better will be the brick in every respect. With regard to the case in which your correspondent states, that he has used breeze "the size of a common white pea," which has blistered the bricks in which it was used, this blistering must, in my opinion, have proceeded from some other cause than the mere consequence of the admission of breeze of the average size stated. I think the cause would more likely proceed from haste in burning, that is, that the bricks were not thoroughly dried in the stacks, when they are very apt not only to blister, but to crack; and if in such case they have not been well pressed into the moulds, every crack and split in them will open. The proper sized meshes through which to run the breeze to get rid of a uniform size is somewhat arbitrary, and depends in some degree upon the amount of labour intended to be given to the proper mixing of the clay, for it is clear that to obtain the breeze it will require much care in its various siftings; the general sized mesh used in the neighbourhood of London varies from about three-sixteenths to three-eighths of an inch in the square of each mesh, say from about four to six wires to the inch; but a five-sixteenth inch is as good as any, it neither being too fine nor too small, but of a medium size, fit for almost any purpose.

Many brickmakers, however, use their breeze much larger than the above meshes would do, but, as a general rule, I would not recommend such an extreme size to be used. The more thoroughly the breeze is incorporated with the clay, the more likely is the brick to turn out well in the burning, as the heat will be more diffused through the mass than if only had particles of breeze scattered through it in unequal portions and improperly burned, which statement may be well illustrated by breaking and examining a badly prepared brick, in which clinker breeze will be easily traced.

With respect to your correspondent's second question, I can only repeat what I have already often said before, viz., that the more thoroughly the chalk is cleansed and mixed with the clay the more clear and uniform will be the colour of the brick. I scarcely understand what your querist means when he speaks of converting the chalk into whiting before he mixes it with the clay; that would indeed be too expensive, but if he calls *washing* the chalk turning it into whiting, then I can scarcely tell him what to do, as there is really no way of getting good clean white stuff without washing.

In ordinary purposes, however, the chalk is often merely broken into small lumps, and well slaked with water before mixing with the clay, but this method requires that the clay itself should be well kneaded and worked to mix the chalk and clay, otherwise the bricks will turn out full of white lumps, rotten, and of very poor quality. To produce really good bricks, the chalk ought to be washed in a common circular horse mill, and poured over the clay in a fluid state; this I take to be the only means of giving any thing like certainty to the process. I have known many a clamp of bricks rendered almost valueless from the careless mixing of the chalk; and as a general rule it may be stated, that chalk cannot well be mixed too fine, and that it is more certain in its results if used in a fluid state before the clay is finally ground for the moulders.

I have seen some decent bricks, as far as regards colour, made in Yorkshire, without the application of breeze at all, or indeed of any other ingredient but the mere clay and a little chalk, but then they were coarse, and full of cracks, which appear to be characteristic of this mode of brickmaking. Brickmaking, as a separate trade, seems but little attended to in country districts, as it is not uncommon for mere farm labourers to turn their hands to brickmaking, as I have known in several cases; this probably accounts for the uniform coarseness of the bricks used in such parts of the country.

Joseph Lockwood.

6, Child's-place, Temple.

ART-UNION EXHIBITION.

The works of art purchased by the prize-holders of the present year in the Art-Union of London, are now being exhibited to the subscribers and their friends in the Suffolk-street gallery. They are nearly 300 in number and form a very interesting collection. Although there are no leading pictures, the increase of taste exemplified in the choice of productions is highly satisfactory. A very judicious movement has been made on the part of the committee, who have commissioned Mr. Marshall to produce his excellent work "The First Whisper of Love" in marble, for a 300*l.* prizeholder, who deputed them to select. This branch of art has been as yet neglected by the society, and we see with pleasure their determination of further encouraging this important department by offering premiums. Among the excellent pictures (of which there are not a few), we noticed the extremely clever work entitled "The Gaugers are coming," by Philip, which was committed to utter darkness by the Academy; Elmore's work, "The Origin of the Guelph and Ghibeline quarrel;" the fine landscape by W. Linnell, that worthily created a sensation at the British Gallery; a beautiful landscape by Müller; Inskipp's "La Cephaline;" Johnston "Trysting Tree," that was treated so ill by the British artists; some fine Lee's; one or two by Hart; a particularly good Clint, and many excellent specimens of Cooke, Pyne, Bright, Montague, Boddington, Kennedy, Witherington, &c.

The water colours contain some favourable specimens of Topham, Wehnert, the two Fripps, Bentley, Fielding, Richardson, and others. The two bronzes exhibited are in the highest degree good. The society have been most happy in their selection of subjects.

The exhibition contains a proof of a lithograph from Ward's picture "La Fleur's departure," commissioned by the committee, of Mr. Templeton, with a view to encourage the production of finer works in this manner than have yet been attempted in England. There is also a reduced copy of Gibson's "Narcissus," made by Stevens, fac-similes of which are to be issued in statuary porcelain next year. The Duke of Cambridge visited the exhibition on Saturday last, and was attended round the gallery by Mr. G. Godwin and Mr. Pocock, the Honorary Secretaries. His Royal Highness entered warmly into the merits of some of the pictures, and expressed himself as ever, warmly interested in the prosperity of the Association.

IMPROVEMENTS AT BRISTOL.

The corporation of this ancient city seem determined not to be behind in the movement towards improvement now making itself felt. Amongst the most important projects is that of forming a new street between the terminus of the railways and Bristol bridge. If efficiently and wisely carried out, this cannot fail to prove of great value to the city. At a meeting of the town council, on the 13th instant, the Mayor, R. J. P. King, Esq., said in the course of his admirable address—"The necessity of this improvement will be obvious when I mention that the present road was only tolerable when the whole traffic upon it was that from London eastward, and that it is now altogether inadequate for the great railway traffic which traverses it not only from the east, but from the north, south, and west. The subject has been taken into consideration by the Improvement Committee, and a remedy recommended by them to the citizens, and the only thing which deterred the Improvement Committee from before bringing it forward was the great expense. It has been before the committee for two years, and that was the only obstacle. One of the advantages of a broad street into Bristol would be the ventilation and fresh air introduced into, at present, one of the most crowded districts; the better drainage of that part would be another great consequent improvement. If we look at the expense it does certainly form an obstacle, but it is an obstacle we must get over. If the burden fell on us in one or two years it would be immense; but if the cost be spread over 20 years, it will be greatly reduced, and when put in comparison with the benefits to be derived, I do not think that the citizens will consider the taxation worthy to be set off against the advantages. One thing I wish gentlemen to guard against, and that is looking at the sum in the total only. If gentlemen would calculate what each individual had to pay, the sum would be found so moderate in comparison with the great improvements to be effected, that I do not think it would be felt. It is not the intention of the committee, nor the architects, Mr. Pope or Mr. Fripp, to recommend the erection of magnificent buildings. All that is recommended is a good wide street of 60 feet, leaving it to individual parties to construct such houses as they may deem most desirable for carrying on their business; by this means all the expenses attending enforcing strict uniformity in the plans will be avoided, and the street will still be, if not so handsome, as useful and sightly to the city. Another consideration, which I hope will not be lost sight of, is, that the money will be expended in our own city, and a great part of it amongst the industrious mechanics. It will merely be an exchange of property, from one class to another—an exchange the best of any—from the wealthy to the poor. If the money was to go out of our city, I confess I should think more of it."

Another thoroughfare is to be improved, and Bristol-bridge widened. The Froome, at present a source of infection, is to be deepened, and many other important steps taken. Relative to the proposed new street (Victoria-street it is to be called), we may mention that the length is 2,100 feet, and total width 65 feet. The number of premises required to be purchased is 263; the number of lots to be created in the new street, allowing 18 feet to each lot, is 167. Frontage in addition to the above-mentioned will be gained on the proposed line of improvement to the extent of 1,800 feet, equal to 100 additional lots. It was estimated that the first division, commencing at the terminus and ending in Temple-street, would cost, allowing as a set-off the value of ground to be cleared and sold for building lots, 13,000*l.*; the second, commencing in Temple-street and ending in Thomas-street, 11,550*l.*; the third, from the corner of Long-row to the corner of Red-

cliff-street, 15,740*l.* The general estimate of the whole cost of making the new street, together with the improvement concomitant with it, is 85,510*l.*; towards which it was estimated that 44,220*l.* would be obtained for sites for building, old materials, &c.; leaving the cost of the improvement 41,290*l.*

This amount seems very large; without however, now going into the question of the best means of opening a new road in the direction pointed out, we would repeat a remark made by Mr. Herapath at the meeting, and caution the committee against widening old roads instead of making new ones; the latter course wisely pursued will usually pay for itself.

The new Guildhall is approaching completion, and the restoration of St. Mary Redcliffe is to be commenced immediately

WORKS IN THE METROPOLIS.

New iron gates have recently been erected at the Albert Gate entrance into Hyde Park, from Knightsbridge. They consist of two openings for carriages and two for pedestrians, and are affixed to buttresses on each side, each buttress being surmounted by the figure of a stag. The whole is lighted by six large gas lamps. ——Additional apartments are being erected at the Government Offices, Whitehall, and at the General Post Office, St. Martin's-le-Grand, the former under the direction of Mr. Barry, the latter under that of Sir Robert Smirke. ——The new church on the west side of Chester-square, Eaton-place, is nearly finished. The consecration will take place in about three weeks by the Bishop of London. It is to be dedicated to St. Michael, and will accommodate 1,400 persons. This is the fourth church which has been built in that portion of the parish of St. George, Hanover-square, within the last few years.——On the south side of Vauxhall-bridge-road, Pimlico, the sites for two new churches are already marked out.——A new Roman Catholic chapel in the Gothic style is in course of erection, and rapidly approaching completion, in Farm-street-mews, at the back of Mount-street, Grosvenor-square. It is to give accommodation to between 1,400 and 1,500 persons.——On the 1st instant, the foundation stone of a new church in Charlotte-street, Fitzroy-square, was laid by the Bishop of London. It is to be dedicated to St. John the Evangelist.——The works connected with the Victoria Park are now in very active operation, and considerable progress has been made in the principal lodge entrance in the approach from Bethnal-green, which is being built in the Norman style of architecture. Adjoining this, the piles have been sunk in the Regent's Canal for the erection of the suspension bridge, which is at an angle of the two roads from the Hackney and Bethnal-green roads. Nearly the whole of the paling has been placed up round the park, and on the roads through it there is a handsome iron railing.

Improvements in Chelsea.— The Bill "for better paving, lighting, cleansing, regulating, and improving the parish of St. Luke, Chelsea, having received the royal assent, it becomes incumbent on the parishioners to see that its powers are wisely exercised. Its operations are to be guided by forty-five commissioners (to be elected by the parish), and five nominees. A society has been formed to promote the welfare of the parish, and they have issued a list of gentlemen eligible to serve as commissioners, who seem well qualified for the office. The parishioners should watch jealously lest the public good be made to yield to private interest.

Opening Exhibitions to the People.— The Royal Hibernian Academy, in order to enable the operative classes to visit the exhibition, reduced the charge for admittance to one penny. 1,300 persons availed themselves of it the first day, and the number afterwards increased to more than 4,000 a day. Not the slightest disorder occurred.

New Town Hall, North Shields.— The new Town Hall at North Shields was opened on Tuesday week. The interior of the building is said to be handsome, and well adapted to its purpose. Besides being used by the magistrates as a justice-room, the hall is intended as a repository for works of art and portraits of eminent persons.

IRON AND THE IRON TRADE.

Scarcely any change has taken place in the price either of pig or bar-iron since our last quotations.* In the former some large sales have been effected at 62s. 6d. and 65s., and the market remains firm at the latter price. Rails are in good demand at 9*l.* 10s. per ton.

The admission of British iron into France duty free is undergoing the most serious consideration of the French Government. The fact of Great Britain and other countries now so largely extending their navies by the construction of iron vessels has led to the raising of this important question. The preliminary investigation has been referred to the general council of mines, which, after examining the progress of metallurgy in France, and the cost of iron in England, Belgium, &c., is to decide whether iron shall be admitted into France duty free, or whether such duties shall still be levied. While on the subject of iron, it will be interesting to many readers to trace the progress of its make during the past century. In 1740 the quantity of pig-iron produced in England was only 17,000 tons, from fifty-nine furnaces; in 1750, it had increased to 22,000 tons; in 1788, the amount was 68,000 tons, and 121 furnaces; in 1806, the number of furnaces had increased to 169, producing 250,000 tons; and in 1820 the amount of pig-iron in England was 400,000 tons; while last year the total produce of pig-iron could not have been less than 800,000 tons, which has considerably increased in proportion in the first six months of the present year.

The use of iron as a material for bridge building has at length found its way to the United States. The first construction of this kind has just been completed at Pottstown depôt of the Pottsville and Philadelphia Railway: it is on the truss principle, 34 feet span, weighs rather over nine tons; the cords are of wrought-iron, and its cost is about 325*l.*

THE ARCHITECTURAL PECULIARITIES OF GALWAY, IN IRELAND.

By W. F. Fairholt, F.S.A.†

Before I had visited the western coast of Ireland, my attention had been frequently directed, by the remarks of previous travellers, to the striking peculiarities of the city of Galway. I was told that the houses and public buildings still remaining — the relics of the "high and palmy days" of Galway, when its port was the centre of Irish commerce—exhibited specimens of pure Spanish taste and style, and that the dark features and coal-black hair of the people also strongly indicated their Spanish descent. As I approached within a few miles of the city, I at once recognized the truth of these remarks; the peasant girls, who were returning from the market in that town, were, in many instances, strikingly dissimilar in figure and feature to the Irish peasantry I had before seen. Their slender, tall, and graceful forms, long black hair and keen eyes; their dress, a petticoat of intense red or rich brown, with a closely fitting black boddice, ending just below the waist; their arms and feet uncovered, and the head only shaded by the dark hood hanging down to the waist,— brought forcibly to the memory the paintings of Murillo. On walking through the town on the morning after my arrival, I could scarcely imagine myself in Ireland, so singularly Spanish were the relics of the old buildings exhibited at each step. I had never visited Spain, and knew it only from pictures; but N. P. Willis, the American, and our own countryman, Inglis, had both done so, and they had, in their repective notices of this town, recorded this curious feature. Inglis had indulged in "rambles in the footsteps of Don Quixote" but a short time previous to his visit here; and he says,— "I had heard that I should find in Galway some traces of its Spanish origin, but was not prepared to find so much to remind me of that land of romance. At every step I saw something to recal it to my recollection. I found the wide entries and broad stairs of Cadiz and Malaga; the arched gateways, with the outer and inner railings, and the court within— needing only the fountain and flower vases to emulate Seville. I found the sculptured gateways and grotesque architecture, which carried the imagination to the Moorish cities of Granada and Valencia. I even found the little sliding wicket for observation, in one or two doors, reminding one of the secrecy, mystery, and caution observed, where gallantry and superstition divide life between them."

Fig. 1 delineates one of the most perfect of the ancient residences of the town; it is known as "Lynch Castle," and was the dwelling-place of that powerful family of merchant-men for many generations. Their names occur either as provosts, portreves, or mayors of Galway, no less than ninety-four times between the year 1274 and 1654, and the last mayor of the family in that year resided in this mansion.* A row of gargoyles run round the summit, precisely similar in style to those so commonly seen in Spanish ecclesiastical and other buildings, of which the pictures by Roberts furnish so many fine examples. The windows have been modernized, and all the mullions and tracery that no doubt once existed have disappeared.† The mouldings that now surround the upper portion of each are in their original state, and are exceedingly rich in detail, and beautiful in workmanship. The corbels which support them flow at the ends into elegant foliations, and sometimes surround small shields bearing the arms of the family and its alliances, while the outer angles of the moulding which springs from them are sometimes similarly decorated. A blank window occurs above the two to the spectator's right hand, between the second and third stories, where the original tracery remains; it is divided by a central mullion into two lights, and a transom beneath allows a small space between that and the outer frame-work to be devoted to a display of decorated masonry resembling a Gothic canopy. The window on the first floor on the same side of the house is equally peculiar, but in a different taste; the mouldings are supported by shields of arms; a lion stands above, supporting a circular piece of enriched masonry, containing in its centre another shield. The execution of this bas-relief, and of one very similar on the other side of the mansion, is very peculiar, and indicative of its southern origin; the surface is cut in very low relief, and the entire depth of the carving forms a straight side, raised at once from the wall, when viewed at an angle. Over the principal door is another heraldic display similarly executed, and enclosed in a frame-work of ornament and coat-armour. The door beneath has no decoration, and is not ancient in its character; the smaller door beside it preserves a few decorations similar in style to the windows above. At the side of the mansion, beneath the further second-floor window, are projecting supports for a balcony; and the house altogether is a striking and remarkable specimen of the Spanish taste of its builder.

Many other such mansions exist in the town but they are in nearly all instances suffered to go to decay and ruin. There is one avenue known as "Dead Man's Lane," but which formerly bore the title of "Lombard-street," from its being thickly populated with the rich merchants of Lombardy; it has on both sides of the way a row of these highly decorated stone houses, standing roofless and untenanted, without a floor remaining, and the walls falling gradually away at the summit. From being the homes of wealth and luxury they have sunk down to receptacles for the dirt and filth of the lowest and most neglected of the poor of the town, who congregate about them, and are t

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* See *ante* p. 381.

† We are indebted to Mr. Fairholt and the committee of the British Archæological Association (Lord Albert Conyngham's division, if we may so describe it), for their ready compliance with our request to be allowed to transfer the following paper from the second number of their journal (published by H. G. Bohn, York-street), which is full of interesting matter, comprising papers on "The Transmission of objects of Antiquity to our times," by the Rev. Beale Post, "Ragland Castle," by Dr. H. Edwards; "Anglo-Saxon Masonry," by Mr. J. G. Waller; "The Nimbus," by Mr. Thos. Wright; "The Ancient Treasures of the Exchequer," by Mr. W. H. Black, &c. We hope shortly to refer to the journal of the other division of the association which also contains several valuable papers.

* Their arms, a chevron between three trefoils slipped o occur frequently on the public buildings and religious edific of the town. Their crest was a lynx *passant guardant*. T motto, *Semper fidelis*. They were descended from Willia le Petit, who came to Ireland in 1185, with Sir Hugh L Lucy. John De Lynch, the first settler in Galway, about t middle of the thirteenth century, married the daughter a sole heiress of William De Mareschall, whose father was t great Earl of Pembroke.

† In Inglis's "Ireland" there is a plate, after a drawi by Bartlett, of "a street in Galway," in which this ancie house is represented as it may have originally appeare although there is nothing said to give any other idea th that it is delineated faithfully as it now stands. I mer notice this to prevent a misconception of my own sketch.

e seen in some instances shrouding themselves the lower rooms, where the wind and the eather do not yet fully penetrate, the upper nes being unroofed and exposed to its full ifluence. The doorway here delineated (fig. 2), ands nearly opposite Lynch castle; it is a eautiful example among the many which ound in its neighbourhood. The deep ioulding above is elegantly varied at each de, where the flat projection from the wall ould only meet the eye, by an angular cutting esting upon the terminations of the hood ioulding, as upon a corbel. The doorway is rched, and the spaces between the arch and ne mouldings above is filled on each side with boldly sculptured triple leaf, radiating from central ball flower: the way in which the eavy hood mouldings terminate in delicately xecuted leaves at the base on each side, is ery beautiful.

The hood-mouldings of all the doors, and nany of the windows of these old mansions, lways terminate at each side by a gradually nward slope towards the wall, so that each rib ontracts to one point, from whence foliated rnaments spring forward and entwine in the nost quaint and beautiful manner. Two exmples are given (figs. 3), from doors in Lombard-street. They shew the single and double urn of these ornaments: when single, they nvariably turn on each side toward the door. The trefoil is the prevailing ornament, as in he instance here exhibited, as well as on the loorway already described; the vine is also qually common, as delineated in the second example. The trefoil was the national emblem, as well as the armorial bearing of the powerful ruling family, the Lynches; the vine may, independently of its beauty and fitness as an architectural enrichment, have been chosen as a badge of the staple trade of the town—wine, with which it supplied nearly all Ireland. In 1615, the records of the town state that "upwards of 1,200 tons of Spanish wine were landed here for account of the merchants of Galway."

Over many of the gates are sculptured shields, displaying the arms and quarterings of the persons residing there, with all their family connections, as well as others containing their marks as merchants; very frequently the names of the owners are also engraved above them, together with the date of erection. One of the simplest and latest of these decorated doors bears the arms and crests of the families of Brown and Lynch, joined by intermarriage as proprietors, surrounded by mantling, and inscribed above each MARTIN BROWNE—MARIE LYNCH, separated by a cross springing from I.H.S., beneath which is the date, 1627.

The cause of the peculiarities that thus existed in ancient Galway may be explained by the very singular laws and regulations made by the inhabitants for the exclusion of the native Irish; to the jealous manner in which they lived within their strongly walled town, enriched by an exclusive trade, and holding little or no connection with the people without. Among the bye-laws of the corporation for 1516, it was ordered, "that no man of the town shall lend or sell gally, bote, or barque, to an Irishman." And in 1518 it was ordered, that none of the inhabitants should admit any of the Burkes, M'Williams, Kellys, or any other sept into their houses; "that neither O'ne Mac shoulde strutte ne swagger through the streetes of Galway." Hardiman, the historian of this town, has given many other curious entries from these laws, which shew that Spanish pride and jealousy operated most forcibly upon the ruling powers of the town. He engraves a curious map of the town in 1651, which gives a bird's-eye view of every building, and displays the strong walls and bastions with which it was encompassed. He observes that this map "gives an accurate idea of the former opulent state and magnificence of Galway, adorned with superb and highly decorated buildings, and surrounded by every requisite for security and defence which either art could suggest or wealth command; it was universally admitted to be the most perfect city in the kingdom, while its rich inhabitants stood conspicuously distinguished for their commercial pursuits, public zeal, and high independence of spirit."

A brief notice of the rise and decline of this town, gleaned from Mr. Hardiman's quarto volume, may be here acceptable. In 1124 a strong castle was built, and the town put in defence, to the great jealousy of the Munster men, between whom and the men of Connaught, of which Galway was the capital, a deadly enmity existed, and which continued until very recent times.* In 1132, Connor, king of Munster, dispatched a body of troops under the command of Cormac M'Carthy, who took the castle, put all the inhabitants to the sword, and, after destroying the castle and town, soon after defeated and slew Connor O'Flaherty, the lord of Iar Connaught. In 1149, after recovering themselves from this invasion, they were doomed to another from Turlough O'Brien, the new king of Munster, who did them nearly as much mischief. With indomitable perseverance the inhabitants soon righted again, and in 1154 the ships of "Galway Dune" and of Conmacnamara were out upon an expedition to the northern part of the kingdom.

After the invasion of Ireland in 1170, the castle was fortified, and the town put into a state of defence. It at this time consisted of a small community, composed of a few families of fishermen and merchants, principally under the protection of the O'Flahertys, who held the castle and surrounding territory, as feudal lords, from the kings of Connaught; but it ultimately came into the hands of Richard de Burgo, and became his principal residence, and finally the capital of the province, which it still continues to be. He fortified against the incursions of the Irish, and appointed a magistrate, called a provost or bailiff, who governed the inhabitants and established laws. It now increased rapidly in wealth and importance, and being the stronghold of the De Burgos, was always receiving additional military strength; yet incursions became frequent and destructive. An entry in the pipe roll, temp. Henry III., informs us that Gillepatrick Mac Carthy was fined 50s. "on obtaining his pardon for burning the town of Galway, and for the death of David Bree;" a singularly reasonable rate of charge for so much mischief!

During the reign of Edward the First, the trade and prosperity of the town rapidly increased, and many new settlers appeared, laying the foundation of its future wealth. About this time some of the most important of the old families first came—families that continued for many centuries its wisest rulers and richest traders. The earliest settlers were the families of Blake, Bodkin, Ffont, Joyes, Lynch, Martin, and Skerret.† With the spirit and enterprise of these men Galway flourished greatly, foreign trade improved, and in 1277 Dermod More O'Brien, who resided at Tromra in Clare, received twelve tons of wine yearly, as a tribute from the merchants of the town, for protecting the port from pirates, and maintaining a suitable force for that purpose. In 1303, the revenue called "the new customs," being an impost of three-pence in the pound, due from merchant strangers only, upon all commodities imported or exported, was farmed out for one year only to Richard le Blake for 32*l.*

In 1375, the king's staple was fixed in the town for the sale of wool, sheepskins, woolfels, and leather; a privilege only before granted to Cork and Drogheda. During the fourteenth and fifteenth centuries the trade of the town wonderfully increased, both with France and Spain, from whence the merchants annually imported vast quantities of wine, as well as other commodities. They were still as exclusive as ever, and as anxious to keep out the Irish, as well as all external rulers. For this purpose they exerted themselves to obtain from the pope a separate religious jurisdiction within their own walls, which was granted them; and they also procured from Richard III. a power to remodel their corporation, turn out the De Burgos, who had become exceedingly unpopular, and elect a mayor and two bailiffs from their own body as rulers, and that no person, not excepting the king's lieutenant and chancellor (who were then privileged), should enter the town without their license. The first election of officers under this charter took place on the first of August 1485.

During the next century Galway was regarded as the stronghold of the English government and trade. Its wealth increased, and its improvement as a town continued. About the middle of the sixteenth century an Italian traveller is quaintly described in the annals as having seen at one view "the blessed sacrament in the hands of the priest,* boats passing up and down the river, a ship entering the port in full sail, a salmon killed with a spear, and hunters and hounds pursuing a deer; upon which he observed, that although he had travelled over the greatest part of Europe, he had never before witnessed a sight which combined so much variety and beauty."

The downfall of Galway began with the fall of the Stuarts. In 1642 the fleet of Alexander, Lord Forbes, consisting of seventeen ships devoted to the Parliamentary party, landed at Galway, took possession of St. Mary's church, planted ordnance against the town, burnt the surrounding villages, but did not gain the fort, which was, however, taken and demolished in 1643. Ludlow, the commander-in-chief, who, in 1651, was making the country around bitterly feel the "curse of Cromwell," was sent to by the people of Galway, to propose terms of capitulation, they having held out for the Stuarts. He coolly told them, that "if the Lord inclined their hearts to submission, such moderate terms would be consented to as men in their condition could reasonably expect;" refusing all other arrangements, and also forbidding an appeal to the parliament. The principal nobility and inhabitants now shipped themselves off and abandoned the town, which surrendered, and was placed under the military government of Colonel Stubbes, who tyrannized over the inhabitants, fining them at the rate of 400*l.* a month, and enforcing payment at the sword point of his soldiers, who would rush like banditti into the dwellings of the wretched inhabitants to obtain it. He even seized and shipped to the West Indies upwards of a thousand persons, of all conditions, under the pretence of insurgency and vagrancy. In July 1655, all papists were ordered to leave Galway before the following November; and "the superb houses which, in the language of the Annals, were fit to lodge kings and princes, and described as the best built and most splendidly furnished in the kingdom, were seized upon and occupied by the lowest of the populace, until they were completely ruined."†

Not only did the houses of the merchantmen of Galway display their taste and magnificence: they are described by Sir Henry Sidney as "refined, of urbane and elegant manners, contracting no stain from their rude and unpolished neighbours." Heylin calls their town "a noted empire, and lately of so great fame with foreign merchants, that an outlandish merchant, meeting with an Irishman, demanded in what part of Galway Ireland stood." With such men the churches and monastic buildings received their full share of decorative enrichment, but of which little now remains. Civil war originally, neglect afterwards, and recent "improvements," have all done their part in the demolition. There is still a convent in Lombard-street, possessing its old external features, but the collegiate church of St. Mary, originally founded in 1320, contains the most interesting vestiges. The porch was erected by James Lynch Fitz-Stephen, mayor in 1493, as a protection to the poor from the inclemency of the weather, and as a residence for the sexton, who still lives in the rooms above, which are reached by an external stair beside it. The door leading into the church (fig. 4), is a good example of the prevailing taste displayed throughout; the ornaments surrounding it resembling those so frequently seen in French architecture at this period, and known as that of *Francois premier*, or *the Renaissance;* but the slender pilasters shooting upward from the sides and centre, with their peculiar foliated pinnacles, shew its direct transmission from the country where that style originated. The windows of the church externally present the same features as this door, the tracery *flam-*

* In Hall's "Ireland," the following modern anecdote, remarkably characteristic of this hostile feeling between the inhabitants of the two provinces, occurs:

"We remember a man once expressing his astonishment that so much bother should have been made about a 'boy' who had been killed in a row at a fair, concluding his harangue by an exclamation 'and he was nothing but a Connaught man after all!'"

† "The fourteen ancient families of Galway" consisted of those already named, and Athy, Browne, D'Arcy, Deane, Ffrench, Kerwan, and Morris. Many of these still exist; a large importer of wines is a lineal descendant and bears the name of the merchants Lynch, who have for above 400 years carried on this branch of commerce. (Hall's "Ireland.")

* This must have been before 1568, when public mass was prohibited.

† Hardiman, "History of Galway." The town never recovered these fatal wars. Charles the Second, with his usual ingratitude, behaved ill to the Galway men, who had incurred debt and ruin in his cause. He left them to destitution, but he gave the town the privilege of being a free borough of itself, taking in two miles in a direct line round it, to be called the county of the town of Galway. The walls and batteries were levelled by William III. in 1691 after the surrender, and fresh Government forts erected by the sea.

ARCHITECTURAL RELICS FROM GALWAY.



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 1.



Fig. 3.



Fig. 2.



Fig. 7.

oyant and elegantly varied, the corbel heads quaint and peculiar. Gargoyles, like those at Lynch castle, project from the roof, and are occasionally more grotesque. Within is a noble nave, separated from the side aisles by a series of columns of great solidity. They are now unfortunately perfectly plain, but only a few years since they were richly sculptured with wreaths of flowers and fruit, with canopies and figures of saints, in the style, as well as I could guess from the description I obtained, of the famous pillars in Rosslyn chapel. I could hear of no view taken while the church was in this state, and I could listen only to the regret of all who described the "improvements," and join with them. The day of spoilation came, "a great builder" came from Dublin, and as ornament was not necessary, and canopied saints "smelt of papistrie," the beautiful pillars were cut smooth, and the whole interior, to use the old woman's phrase, made "as plain and plate as a new pin." A blank surface succeeds the enrichment of the olden time, and the exquisite pillars have become mere blocks of stone to support a roof! Some few remains of its former glories exist. The tomb of Nicholas Lynch still stands embedded in the wall of the south transept, or "Lynch's aisle," as it is termed. Long may it lie, and continue as perfect and beautiful as I saw it when the sketch was made for the accompanying cut (fig. 5). It is in a remarkably fine state of preservation, and the beauty of the flamboyant tracery which fills the space between the outer and inner arch is perfect. I can hope to give but a general idea of this on the small scale I have represented it.

In the wall of the south aisle is the elegant recess here engraved (fig. 6). The shaft of the pillar which divides it in the centre is decorated with a spiral line from top to bottom. The base and capital are sexagonal, and support ogee arches filled with elegant tracery. A curious plain doorway is near this, with a circular cap-moulding, at each side of which crouch hare and hound (fig. 7). The spandrils in the square-headed doorways, of the florid English style, were frequently decorated with some such quaint figures. The combat of St. Michael with the dragon was not uncommon, the saint occupying one side and the fiend the other. In the screen of St. Saviour's church, Southwark, a singular example occurs—a monk is chasing a fat pig, and endeavours to secure the animal by the tail as it runs down one side of the arch, while he scrambles up the other.

The font has originally been very beautiful, but it has suffered from mutilation. It is placed in the nave, on three steps. It is square, standing upon an octagonal base, richly sculptured with a row of trefoil or lozenge shaped leaves, having a smaller trefoil between, similar to the Tudor flower, which forms so common a finish to the screen-work of Henry VII.'s chapel at Westminster. Each face of the square basin is elaborately sculptured, with pointed arches filled with flamboyant tracery, or richly decorated quatrefoils. The Irish mound and three fleur-de-lys appear on one side; the arms of De Burgo on another. This font has been engraved from my sketch in Van Voorst's "Illustrations of Baptismal Fonts."

I cannot dismiss this imperfect paper without adding a few words on the interest and importance of Irish antiquities generally. Not only do many of their towns display architectural remains of much curiosity, but vestiges of early times of the most extraordinary character abound. Unlike the English peasant, the humblest Irishman has a love for the history of the great men of his country; he treasures their names, their deeds, and story; and he is always full of anecdote, and ready to accompany the traveller anxious to investigate the remains of "the fine ould ancient times," which he himself delights to descant upon, and to offer all information and service in his power. In his humble cabin the stranger always finds a warm welcome; and his deep-seated love of his native land urges him to treat any one as its friend who can lead his mind back to the days of its former glory.

Wentworth House.—Arrangements are making for the intended lighting of Wentworth House with gas, to be produced from coal in the immediate neighbourhood, the property of Earl Fitzwilliam.

ANCIENT CAPITALS FROM THE SOANE MUSEUM.



Fig. 7.

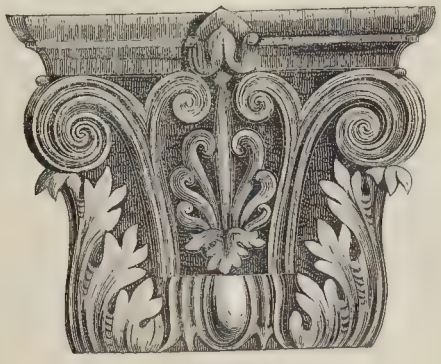


Fig. 8.

ANCIENT CAPITALS FROM THE SOANE MUSEUM.

In former numbers of The Builder* we have given representations, from drawings by Mr. Richardson, of various ancient fragments now in the Soane Museum. The annexed engravings, figures 7 and 8, represent two other marble capitals of the same class, and afford pretty examples for the ornamentist or modeller.

AIR A MOTIVE POWER.

An ingenious application of the power contained in condensed air to locomotive engines has recently been patented, and is now being exhibited, on a small scale, at the residence of Mr. Parsey, patentee, Spur-street, Leicester-square, who courts the fullest inquiry into the pretensions of his invention. The engines are to be filled at a terminus with highly condensed air, previously generated and replenished from stationary receivers at the various stations of railroads as often as occasion may require. To the receiver or receivers of the engine so filled, to obviate the excessive force and gradual decline of pressure as the working cylinders draw it off, a receiver is attached into which the air passes till it reaches a given working pressure, which it cannot exceed but by adjustment of the engineer, as the self-acting regulator belonging to the working receiver shuts or opens the inductive passage from the high-pressure receiver or receivers uniformly with the discharges from the driving cylinders, by which means as much power is carried by the engine as will propel it and a train any distance. It seems to have one advantage over steam, inasmuch as steam must be used as it is generated, whereas condensed air may be generated at leisure and can be kept any length of time without losing its elastic or expansive power, and therefore can be used at any time it is required.

Whether the invention will realize Mr. Parsey's expectations we cannot undertake to affirm. The working model has been seen in operation by many mechanicians and practical engineers, all of whom speak of it in terms of approval. Should success attend the carrying out the plan on a full working scale, a complete revolution must be effected in our railway system, as the wear and tear and numerous other expenses would be reduced to a mere fraction of what they are at present, many of the present causes of accidents removed, while any speed might be secured which could possibly be required. Our observations have been limited to locomotive engines, of course they apply equally to those which are stationary.

While Mr. Parsey has been devoting his time and ingenuity towards obtaining a motive power by means of a pressure from *within*, others both at home and abroad have been

* See pp. 211, 234, and 247.

attempting to produce the same effect and at the most expeditious and economical rate by means of a pressure from *without*; indeed the *vacuum* and *plenum* systems appear destined ere long to be worthy rivals for supremacy, when steam shall be known only as a thing that was, or at most as an auxiliary.

Mr. Nasmyth, in a letter to the editor of the *Mining Journal*, propounds a novel method of procuring a *vacuum* by the direct action of low pressure steam. He says "the object desired to be attained is, to remove the air entirely from the interior of certain large chambers, so that they may, as it were, become vast magazines of vacuum. The ordinary mode of doing this is to *pump* out the air by air-pumps, which receive their power from a vacuum, created above or below the piston of a steam-engine. The principle I set out upon is simply this—why employ one vacuum to create another, when we could, by the primary process, attain the desired object, without the intervention of any secondary action, or machinery, whatsoever? Now, let us examine how this is best to be done. One cubic foot of water, converted into low-pressure steam, will, in round numbers, yield 1,700 cubic feet of steam, which will be capable (on being introduced at the upper end of an *upright* air-tight vessel) of displacing, or forcing out at an aperture below, 1,700 cubic feet of air; if we now stop the further influx of steam, and close the aperture below, and either permit the steam to condense, *per se*, or perform that duty by a separate condenser, we shall have for our 1,700 feet of steam, 1,700 feet of *very nearly perfect vacuum* (supposing, of course, that our vessel was exactly 1,700 cubic feet capacity). Now, if we suppose a communication opened between this magazine of 1,700 cubic feet of vacuum, and an atmospheric railway pipe of similar capacity, we shall abstract one-half of its contents of air, and at once reduce it to the state of a vacuum of 7½ lbs. to the square inch, or thereabouts. Here, then, we have done some work so far, with our first 1,700 cubic feet of steam. It will be evident that the remaining vacuum in the exhausting chamber, and that in the pipe it has partially exhausted, will be similar in extent—namely, each a half perfect vacuum. Now, let us suppose that we have, during the performance of this operation, discharged the air from a second chamber of like capacity to the first—viz., 1,700 cubic feet, and that that vessel is just filled with steam on a balance with the atmosphere: if *before* opening the communication between our condenser and this steam-filled vessel, we first open a communication between it and our first vessel, which, as before described, is in the state of half vacuum, it is evident that this first vessel will abstract from the steam-filled vessel a very large portion of steam, until the two are then on a balance; on this simple system of mutual transfer we not only employ the first vessel to act on the second, as a preliminary condenser, but also, as it were, use the steam of the second vessel in great part *twice over*, inasmuch, as this transferred steam will so far act the same as fresh steam from the boiler in satisfying the wants of the first, or "used up" chamber: this being the case, the second vessel has its vacuum rendered complete, by being brought into communication with the condenser, while the first vessel has its complement of steam made up direct from the boiler; which steam, flowing in at the upper end, performs the air-discharging office to perfection."

New Churches.—On Saturday, the 25th annual report of the Commissioners for Building New Churches (which was presented to Parliament) was printed. It extends to fifteen pages. It appears that 343 churches have been now completed, and provision has therein been made for 402,259 persons, including 225,217 seats appropriated to the use of the poor. There are 36 churches now in the course of building, to the erection of which the commissioners have contributed pecuniary aid from the funds placed at their disposal. The commissioners state that plans for 23 churches have been approved, to be built at the places mentioned in the report. Applications have been made for further church accommodation to the commissioners from 74 places, which are detailed in the annual statement.

BARTON HOUSE, IN THE ISLE OF WIGHT.

Her Majesty the Queen having purchased the site of the old convent or oratory of Barton in the Isle of Wight, for the erection of a marine residence, the following notices of its history, from a paper read at the late Winchester meeting, by Mr. John Alfred Barton, of Barton village, may not be uninteresting to our readers.

In archæological remains, and more particularly those of an early date, the Isle of Wight has been represented by some writers to be very barren, which, if true, may have arisen from various causes; and amongst them, doubtless, the sweeping devastions, which have so frequently passed over it in by-gone times, are to be considered as primary ones. Yet there is much that will repay the antiquary for a patient investigation,—much that may yet be brought to light, hidden beneath the soil; and amongst those relics which time has spared, not the least interesting portion, is that which comprises the old manorial residences of ancient families, many of which still remain in nearly their original state, and being generally in secluded situations, have almost entirely escaped the notice of the tourist, or the antiquary. A considerable list of these might be given, but I shall now limit my remarks to the ancient oratory of Burton, or Barton, which has survived to the present day, and, till within a very brief period, presented a curious example of the domestic arrangements of a different state of society from the present. This fine old place is, at this time, an object of peculiar interest, from its having so recently become the property of her most gracious Majesty, and from the demolition (with small exceptions) of the venerable walls, which for nearly six centuries have withstood the assaults of time and the injuries of man. It is true that another building is in progress of erection, and that taste and genius preside over the work; but it is difficult to forget that, with its destruction, the associations attached to the time-hallowed and hoary dwelling of a distant age are passed away; and, however we may admire the new creation, still we must regret the old and the familiar. Very fortunately, during the last year, I had taken a series of sketches of the house as it then appeared, and as it remained till within these few weeks.

I shall briefly describe the old house as it lately stood, and then proceed to give such account of its uses and of its history as I have been enabled to collect from the scanty sources of information available. It is much to be regretted that these are so meagre and unsatisfactory; but the truth is, that the religious house of Burton having been dissolved long before the Reformation, it has escaped the attention of our writers on ecclesiastical antiquities altogether, and with the exception of a few scattered notices of it in old documents, some traditionary matters, and the preservation of the building to illustrate them, its history is involved in obscurity. Barton Court House *was* an extensive mass of buildings erected at various periods, and having that general character which has been denominated the Elizabethan style; but it is little to be doubted that it belonged to a period somewhat anterior, and that it offered a specimen of the domestic architecture of Henry VI.'s age. The reasons for the adoption of this opinion are, that the houses of Elizabeth's time are usually more ornamented, whereas the prevailing characteristic of Barton was a severe simplicity; and also, it is well known that when the oratory was surrendered in the reign of Henry VI. great alterations were made in the building; and to that era, therefore, the late dwelling-house was to be attributed.

There were two principal fronts, the eastern, in which was situated the porch entrance, and the southern; but from whatever quarter it was viewed, a picturesque and massive group of moss-grown walls, towering and elegant chimnies, and ornamented gables, the whole embosomed in fine old trees, formed a scene of the greatest beauty and cheerfulness combined. The eastern front comprised wings, with a central porch of two stories, and was very beautifully varied in its combinations, and exhibited a rich and interesting assemblage of details. The southern front was of much greater extent, and of greater simplicity in its outline, yet exceedingly impressive and noble, while, from its more weather-stained hue, it had an appearance of the most venerable kind. These two fronts are the only portions of the ancient building which will be preserved, and it is creditable to the taste of those entrusted with the restorations, that they should have spared these antique remains, although it might have been wished the chimnies could have been also exempted from destruction, as their elaborate and elegant design and massive grouping well entitle them to this distinction.

During the progress of demolition, a wall of very solid construction, the sole remainder of the original building, was brought to light; and it having been stated in the public papers that is was interesting with respect to its architecture, I made a visit of inspection to Barton, but was, unluckily, too late for the swift progress of destruction — a considerable part having been then demolished, and with it an arched door-way, which had been built up, and which the clerk of the works informed me was a plain chamfered one, possessing little of architectural merit. He also stated that the discoveries, concerning which so much had been written, were of a much less important character than had been represented, the arch being precisely similar to that at the eastern entrance, and the only point of interest visible. That portion of the wall which remained, certainly presented no features to distinguish it from any other, with the exception of its antiquity. It was a plain but massive piece of masonry. I was informed by the same gentleman, also, that a few coins had been discovered during the demolition of the house, which had been sent to his royal highness Prince Albert; but he could give me no information as to their age or character: they are of silver.

To describe the interior distribution of a dwelling which has ceased to be, may seem unnecessary, but there were some peculiarities about that of Barton which may entitle it to notice; and although it no longer retained its original monastic character, its details were of sufficiently remote period to excite curiosity, and to gratify it. One apartment, about 12 feet square, bore the title of the chapel, and was very singular, having been apparently fitted up as a secret chapel for the performance of the mass, subsequent to the Reformation, and within the memory of living individuals, retaining an altar, crucifix, and other Catholic accessories. The hall was also a spacious and noble room, though subsequently divided into two, and had its ample fire-place at either end, and its hospitable and antique table, formed from one immense plank of oak.

The oratory of Burton, or Byrton, as it is originally written, was founded about the close of Henry the Third's reign, or the commencement of that of Edward the First, by John de Insula (a member of the ancient family of that name seated in the Isle of Wight) the rector of Shalfleet, and Thomas de Winton, rector of Godshill, and by them dedicated to the Holy Trinity, and endowed with certain lands and manorial rights, situated in the parish of Whippingham and elsewhere, in the Isle of Wight.

By the Winchester register we are informed that in A.D. 1290, the prior being then a captive in France, and the buildings of the oratory in a state of dilapidation, instructions were issued by the bishop that the house should be repaired, and other necessary things be done.

A.D. 1439, about 150 years after its institution, and in the eighteenth year of Henry VI. the oratory of Burton or Barton, was surrendered into the hands of the bishop of Winchester by Walter Trengoff, the arch-priest, who afterwards became Archdeacon of Cornwall. This was undoubtedly through the influence of William Wainfleet, the bishop; and by the same influence the oratory with its lands were granted to the college of St. Mary, at Winchester, founded by William of Wykeham, and with this foundation it has remained till the recent transfer to our most gracious queen.

Devonport Dockyard.—For many years past, the Government has contemplated the enlargement of Devonport dockyard, but various interests have hitherto successfully prevented its execution. The additional powers recently given by parliament to the Admiralty having placed that department in a better position, very active arrangements are now being made to carry into effect as rapidly as possible the original design.

EXAMINATION IN CURVES.*

8. For what reason is an egg-shaped curve best, and what is the best egg form for the ion of a sewer?
9. What is the best egg shape or other ve for the section of a railway tunnel?
0. In what way can a workman describe h egg-formed curves for such purposes, size, by simple continuous motion?
1. What is an isometrical ellipse?
2. In what ancient Grecian building has isometrical ellipse been adopted?
3. Shew how a cylinder or cone may be to produce an isometrical ellipse.
4. State in which modern bridge the half an isometrical ellipse has been selected as form of the centre arch.
5. Can any reason be assigned why the ient Greek geometrical architects selected form of the isometrical ellipse?
6. And why should that curve be selected an arch in modern bridge building?
7. Shew how the varying ribs of a Gothic in should be formed from any given curve one rib, so that all the other ribs, differing length of span, but rising to the same height, d with the same transverse section through- t, shall be perpendicular over their plan, tersect truly, and each spring at the same stance from a point on the cap of the pillar.
8. Shew how several ribs of like sections, as in the last can be placed so that their tersections shall be all of the same length.
9. Shew how several ribs, as before, can placed so as to intersect truly, and although various lengths and making various angles ith each other on plan, will at the springing ot be more crowded in one place than nother.
50. What is a catenary curve?
51. Is it an asymptotic line?
52. Prove whether it is or not.
53. Shew the simplest way of setting out a ailway curve in a tunnel as the work proceeds—whether the line is a portion of a rcle or a line having two points of contrary xture to which the right lines of the railway both ends are tangents to the curve at those oints.
54. Supposing several radii proceeding from ne centre of the eye of any ancient example f the Greek volute, at what point of any revolution is a tangent to the curve perpendicular o a radius?
55. And at what point is a tangent most blique to a radius?
56. Compare these with any modern example of the Greek volute, and point out the ifference.

The study of architecture, engineering, and ecorative art, would be greatly facilitated by series of cones, right cylinders, circular cylinders and spheres, to as large a size as convenient; some of them being cut to shew their several distinct *plane sections;* others to shew their various distinct *intersections* with each other; and these accompanied by their several envelopes.

They would thus be proceeding on the same principle that the ancients made use of to ascertain true geometrical forms—true lines of beauty. The Greeks knew the right line, the circle, the true form of the ellipse, the hyperbola, and the parabola, *practically;* and their relation to solids. They also knew other varying curves, but if they had ascertained their relation to solids, that knowledge appears to have been lost.

Some hundreds of pieces may be necessary to complete the illustration that would be desirable. Even the platonic bodies and their plane sections should be included, and the importance of all these may be shewn by asking what are the distinct plane sections of a cube? In how many ways can a cube be cut by a plane section into two equal and similar parts? How can a cube be cut by a plane section so that its half shall have five, in other cases six, and in other cases seven plane surfaces?

The knowledge of intersections and envelopes is essential for the construction of groins, skew-bridges, &c. Mr. Morgan justly says the student should first have his mind formed by drawing straight lines and curves of every dimension, and in every possible combination. To what extent is this done at present in any British or foreign school from true geometrical forms? The better geometry is understood the more accurately nature can be examined—nature in perfection is geometry.

Jos. Jopling.

29, Wimpole-street, 16th Aug., 1845.

* See page 370 *ante*.

NATIONAL ANTIQUITIES.

Is the British Museum visited for curiosity alone? Can there be a higher proof of the intellectual appreciation of its contents than the desire so universal for a more liberal endowment,—the oft-repeated hope that it will be built as *one* national monument of which at least we may be proud? And the proposal to establish Museums of Art throughout the principal cities of the land,—was that no indication of the state of popular opinion? We say popular, for men do not discuss these questions as the interests of a class, but as the common benefit of all. Can any one doubt but that, after the expression of opinion in the House of Commons upon the National Gallery, that building must and will be ultimately given up? Can we suppose that when it is admitted by the premier to be inadequate, and that we have thrown away "the most magnificent site in Europe," it will be long suffered to exist as it is, or remain unaltered or unremoved? Not the most virulent opponent of measures connected with these subjects can be found willing to repeat a so stultified confession of faith. Very few we suspect would be found so courageous as to oppose them. Unless perhaps, the Chancellor of the Exchequer, for the time being, whose "Whole Duty of Official Man" is, apparently, to take from the public as much as parliament votes possible, and to return the little which government votes enough. We cannot, indeed, withhold the expression of our extreme regret upon the manner and arguments with which Mr. Wyse's motion, "To establish a Museum of National Antiquities," was met. Without a juxtaposition of works of art of different periods, how can we estimate the past, or produce for the future? How can artists conduct historical works without a knowledge of the spirit of each age? Manners, habits, costumes, ceremonial observances, and peculiar traits of national character are all incidentally or immediately connected with this study. Is there any one who does not feel an interest in the preservation of public monuments, who would not restrain the dilapidations, who would not restore them? Yet how shall we restrain, if we do not place them beneath the protection of public feeling; how restore, unless we know the origin, principle, and style of their construction? But is not the study of the antiquities of Art intimately connected with literature? has it not an historical importance? He knows but little of the history of civilization in Europe who has neglected this interesting witness of its progress. The French Government, the most liberal in Europe, has ever wisely considered the patronage of literature and art, and the protection of national monuments, as a stringent duty, and made it a distinct part of their administration. Those only who have read the documents transmitted to M. Guizot by the Committee of Art and Monuments can be aware of the proof it affords of the honourable feeling of the minister, and the general desire of the people to give effect to his intention. But in England we live under a different dispensation. History is here an old almanac; antiquity of no repute, unless as the record of fiscal regulations; and works, the evidence and illustration of manners, events, and arts, valueless, if not as tribute to the Treasury, or according to the gold and silver standard of the Custom-house. And we have, notwithstanding, an enlightened Government; and we are, as we say we are, an enlightened people!! The Chancellor of the Exchequer refuses the appointment of a commission for the establishment and maintenance of a Museum of National Antiquities, because, abroad, "these were the care of the Government, and in England they were not, for *custom* (or the Custom-house?) left the advancement of such objects to private individuals." Can any argument be more cogent? Sir J. Graham was equally concise, and equally argumentative. "Will you establish a museum?" "We will not." "Why?" "Because we have not!" and thereupon ensues the negative without a division. But we do not despair; the ministers are better than their speeches; "the grave consideration" the chancellor requires will be followed by the adoption of the measure which the country asks for. It is in cases of this kind that figures are more argumentative than facts; there is no solvent which acts so powerfully upon exchequer reasoning as the surplus on quarter-day.—*Art Union.*

NOTES IN THE PROVINCES.

Crosthwaite Church, Keswick, one of the most ancient in the kingdom, has recently been almost rebuilt at the sole expense of James Stanger, Esq. of Lairthwaite. The whole of the interior decorations were under the superintendence of Mr. Jones, the architectural carver and modeller of London. The alterations and adornments are said to have cost upwards of 4,000*l.*——During the past year the committee of council on education have made the following grants towards the erection of schools, masters' houses, &c., in Yorkshire:—400*l.* to Batley Carr; 400*l.* to Honley; 188*l.* to Bedale; 110*l.* to Connonley in Kildwick; 65*l.* to North Frodingham; 45*l.* to Dalton; and a few other smaller amounts for less populous places.——It is in contemplation at Hull to enlarge and improve the ferry boat dock. At a quarterly meeting of the Town Council, held last week, it was determined that means be instantly adopted towards obtaining plans and estimates. It is probable that an Act of Parliament will be applied for next session to empower the council to obtain loans of money to defray the immediate expense, and to levy funds in the form of borough rates, for the purpose of liquidating the loans and paying the interest.——A large body of quarry men have lately been employed in boring for stone on the Weston Hills, for the erection of the new docks at Runcorn, Cheshire, which when finished will extend nearly a mile in length. —— Her Majesty and Prince Albert recently had Mr. Webster's new patent hand-pipe and tile-machine exhibited and explained to them, and after seeing it in operation, gave instructions it is said to have the estate in which Osborne House stands, consisting of about 1,500 acres, thoroughly drained upon Mr. Webster's plan.——On Monday last the foundation-stone of the New Church at Middleton, near Leeds, was laid by C. J. Brandling, Esq., assisted by the architect, Mr. J. B. Chantrell. Upwards of 2,000 persons were present, including most of the neighbouring clergy and gentry.——The Commissioners of Woods and Forests have just determined upon several improvements in the Home and Great Parks at Windsor, according to the designs of Mr. Edward Blore. A lodge is to be erected at the entrance to the Great Park, close to Cumberland Lodge, the residence of Major General Wemyss, the manager of the farming establishments of his Royal Highness Prince Albert. The gardener's cottage close to Adelaide Lodge, in the Home Park, is to be taken down, and a picturesque building to harmonize, in the style of its architecture, with Adelaide Lodge, erected on its site. Flying Barn, the residence of the fisherman in charge of Virginia Water and the fishery at Cumberland Lodge, is also to be taken down, and rebuilt in the Elizabethan style.—— The first stone of a new church at Walton Breck, near Liverpool, was laid last week by William Brown, Esq., of Richmond-hill; Mr. John Hay is the architect, and Messrs. Richard and Paul Barker are the builders. The style is in the decorated Gothic of the thirteenth and fourteenth centuries, during the reign of Edward III. There will be two spacious school-rooms underneath, with every convenience, and the whole will be executed with a fine red stone found on the ground.——A coped tomb (of which there is an example in the Temple church, London) has recently been erected in the churchyard of Hanley Castle, Worcestershire, to the memory of the late head master of the Grammar School. The following is the inscription, which is in capital letters of an ancient form:—

ABEL SMITH B.A. PRESBYTER ECCLESIÆ ANGLICANÆ
IDEMQUE LVDI VETERIS PROXIME SITI MAGISTER
DISCESSIT E VITA DIE DECEMBRIS XVIII
ANNO SALVTIS MDCCCXLIII ÆTATIS XLV

——The parishioners of St, Peter's, Bedford,

have determined upon enlarging their church according to plans prepared by Mr. J. Wing, architect. They propose 1st, To erect an aisle on the north side of the nave; 2nd, To lengthen the gallery at the west end; 3rd, To take out and widen the arch under the west side of the tower; 4th, To re-arrange the whole of the pews in the church, and make them into open seats of uniform size and height. The estimate cost is 520*l.* It is further proposed to erect a vestry at an additional cost of 210*l.*——A deputation from Armagh had an interview last week with the Lord Lieutenant of Ireland to present a memorial representing the great advantages which that ancient city possesses as the most suitable site for the new college in Ulster. His excellency stated that he would take especial care to place the arguments in favour of Armagh before Sir Robert Peel.——During the first six months of the present year notices of the erection of sixty warehouses and of 1,645 dwelling-houses were lodged with the corporation surveyors of Liverpool. Since then several hundred additional notices have been served. It is estimated that during the present year upwards of 2,500 new houses will be erected in Liverpool.——After raising 600,000*l.* or 700,000*l.* for churches, the Free Church people of Scotland determined recently to have a college, and twenty individuals instantly put down their names for 1,000*l.* each for the purpose. Since then they have commenced a subscription to build parsonages for their ministers, and in a few weeks 40,000*l.* or 50,000*l.* has been raised for that purpose.——St. Ives Bridge, the property of the Duke of Manchester, is at present undergoing numerous extensive repairs. Various minor dilapidations, evidently, however, more affecting the external appearance, than the actual stability of the fabric, having become manifest, the noble duke has employed Messrs. Harratt and Balbirnie, of Huntingdon, to effect this restoration. The new stone work of some of the piers has already been completed, and considerable preparations appear in progress for the other parts. The wharf stairs and steps also, which have been long in an exceedingly dilapidated state, are to be replaced by substantial new ones.

NEW METHOD OF PROTECTING WOOD PILES IN SEA WATER FROM INSECTS.

The destructive effects produced by the insect called by entomologists tereno navalis, or sea worm, on wood piles subject to the action of sea water is well known. In the Trinity pier, at Newhaven, in the Frith of Forth, so rapid were the ravages of this insect (which when perfectly formed bears some resemblance to a diminutive shrimp) that in the course of six years the piles were reduced from 12 to 14 inches diameter to 9 or 10 inches. At the Brighton pier in the course of a few years the whole of the piles in the outer head which were all 14 inches square, were reduced to 8 or 10 in some parts, and the second or third stations were also much injured.

Many suggestions have been made from time to time, and many experiments tried, having for their object a protection against this evil, but hitherto with no success. In the case above referred to the piles had been charred and saturated with boiling coal tar in an iron trough made for the purpose. Kyan's anti-dry-rot has been tried, in a few years the piles were quite perforated; Prichard's oil of tar was tried, and failed; Payne's process was also unsuccessful; asphalte has been attempted, but, with the utmost care in driving, it breaks off.

Captain Sir Samuel Brown, R.N., in a letter to Admiral Sir Byam Martin, states that, from numerous experiments and observations, he is satisfied "that at present there is really no specific remedy against the attacks of the insect except iron nails." He proposes to encase the pile with broad-headed iron nails resembling scupper nails, but considerably larger, and says that in the course of a few months corrosion takes place and spreads into the interstices. He further suggests the adoption of *square-headed nails*, which leave the smallest possible extent of the surface of the pile exposed. Experiments tried at the Trinity pier, Newhaven, and Brighton pier have fully established the effectiveness of Sir Samuel Brown's method.

THE COLOURS AND FORMS OF FURNITURE AND ROOM DECORATIONS.*

Much has been written within the last few years respecting the choice of colours and of forms in the chief articles of household furniture. At present, each individual selects for himself according to what may appear to him beautiful or fitting; but no very considerable progress has hitherto been made in laying down rules of taste to be followed generally. Indeed, it is a much disputed question whether such rules could be laid down with any thing like general sanction. A few paragraphs may here serve to shew the views entertained on these points by writers who have paid some attention to them.

Mr. Pugin makes the following comments on certain kinds of paper-hanging patterns:—"I will commence with what are called Gothic pattern papers for hanging walls, where a wretched caricature of a painted building is repeated from the skirting to the cornice, in glorious confusion; door over pinnacle and pinnacle over door. This is a great favourite with hotel and tavern keepers. Again, those papers which are shaded, are defective in principle; for as a paper is hung round a room, the ornament must frequently be shadowed on the light side. The variety of these miserable patterns is quite surprising; and as the expense of cutting a block for a bad figure is equal, if not greater, than for a good one, there is not the shadow of an excuse for their continual reproduction. A moment's reflection must shew the extreme absurdity of repeating a perspective over a large surface with some hundred different parts of light; a panel or wall may be enriched or decorated at pleasure, but it should always be treated in a consistent manner. Flock papers are admirable substitutes for the ancient hangings, but then they must consist of a pattern without colour, with the forms relieved by the introduction of harmonious colours."

Mr. Loudon, in a work to which we have before had occasion to refer, takes the following view of the relations which ought to exist between the several parts of a room as to colour:—"Much of the opinion which we form of all objects depends on the effect of the first impressions which we receive from them. Our first ideas of any man or woman, in seeing them at a short distance, are taken from their height and clothing; and our first ideas of a room from its size, and the covering or colour of its floor and walls. Taking the room as a whole, and considering its effect as a picture, the colours of the carpet and of the walls will form the principle masses in the composition, and will necessarily influence every other component part. If the floor and the walls were of the same colour, there would be a deficiency of force and of effect from want of contrast; if they were of different colours, equally attracting to the eye, the effect produced would not be that of a whole; because a whole is the result of the co-operation of different subordinate parts with one principle part. The harmony of the colouring o a room, therefore, can only be produced by the same kind of knowledge which guides an artist in painting a picture. The principles of the art of painting supply the principles for the art of distributing colours in furnishing; but as this art cannot all at once be communicated to the reader, all that we shall attempt at present is to supply him with a few hints, drawn from the usual practice of upholsterers. These are, that neither the colours of the carpet should be so brilliant as to destroy the effect of those of the paper, nor the contrary; and that the curtains should always be of a colour suitable to both. It is not necessary that they should be of the same colour, but that they should be of colours that harmonize, or, in other words, look well together. A very brilliant colour, such as crimson, in the carpet, may have a drab or other subdued colour in the curtains and paper; but then there should be some of the brilliant colour introduced in both, as bordering or ornaments. Thus a room with a bright blue or crimson carpet may have white or yellow or drab curtains and paper; but then a crimson bordering or ornaments should be introduced in them, to harmonize the effect. It would not do, in the case of a blue carpet, to have green curtains or paper, or with the crimson to have scarlet, because these colours do not accord. A green carpet may have blac red, or white curtains, with green borders ar ornaments. A yellow carpet may have blac curtains, and a dark grey paper with yello borders and ornaments. Whatsoever wi apply to a self-coloured carpet, curtains, paper, will apply equally well in all case where those colours predominate. It shoul never be forgotten that the whole effect of a elegantly furnished room may be destroyed b the selection of a carpet, which, though hand some in itself, does not harmonize with th other furniture."

Mr. Pugin, in treating of the relations whic interior fittings bear, or ought to bear, to eac other, and to the general purpose of the whole visits with some severity the usual mode o hanging window-curtains. He says that what ever elegance may be shewn in such articles o room furniture, their use should be first con sidered. This use is, to exclude cold and win from windows and other openings, and yet t admit of the curtain to be closed or drawn aside at pleasure; and hence there is a rod, on which the curtain may be drawn aside by means of rings, and a short valance to hang down over the openings above this rod. "Now the materials of these curtains," says Mr. Pugin, "may be rich or plain; they may be heavily or lightly fringed; they may be embroidered with heraldic charges or not, according to the locality where they are to be hung; but their real use must be strictly maintained. Hence all the modern plans of suspending enormous folds of stuff over poles, as if for the purpose of sale or of being dried, is quite contrary to the use and intention of curtains, and abominable in taste; and the only object that these endless festoons and bunchy tassels can answer is, to swell the bills and profits of the upholsterers, who are the inventors of these extravagant and ugly draperies, which are not only useless in protecting the chamber from cold, but are the depositories of thick layers of dust, and in London not unfrequently become the strongholds of vermin. It is not less ridiculous to see canopies of tomb and altar screens set up over windows, instead of the appropriate valance or baldaguin of the olden time. It is proper in this place to explain the origin and proper application of fringes, which is but little understood. Fringe was originally nothing more than the ragged edge of the stuff tied into bunches to prevent it unravelling further. This suggested the idea of manufacturing fringe as an ornamental edging, but good taste requires that it should be designed and applied correctly. In the first place, fringe should never consist of heavy parts, but simply oft hreads tied into ornamental patterns; secondly, a deep fringe should not be suspended to a narrow valance; thirdly, no valance should be formed entirely of fringe, as fringe can only be supplied as an ornamental edging to some kind of stuff; fourthly, fringe should not be sewed upon stuff, but always on the edges. It is allowable at the very top, as it may be supposed to be the upper edge turned over."

Mr. D. R. Hay, of Edinburgh, in his "Treatise on Harmonious Colouring," dwells on the importance of so selecting colours in a room as to form a consistent and harmonious whole. He also insists on the point, that the colouring of rooms shall be an echo to their uses: the colour of a library ought to be comparatively severe; that of a dining-room, grave; and that of a drawing-room gay; while light colours are most suitable for bed-rooms. He also adds, "Apartments lighted from the south and west, particularly in a summer residence, should be of a cool tone; but the apartments of a town-house ought all to approach towards a warm tone, as also should be such apartments as are lighted from the north and east of a country residence. When the tone of an apartment is, therefore, fixed by the choice of the furniture, it is the business of the house-painter to introduce such tints for the ceilings, wall, &c., as will unite the whole in perfect harmony; and this it may be observed, is a difficult task. The colours of the furniture may be arranged by a general knowledge of the laws of harmony, but the painter's part can only be done by the closest attention to all the minutiæ of the art."

The late Sir John Robinson, of Edinburgh, sent to Mr. Loudon, for insertion in the "Encyclopædia of Villa Architecture," a description of a drawing-room which he had caused to be decorated, with especial reference to what was

* From the "Pictorial Gallery of Arts."

emed by the artists the proper harmony of louring in the principal parts. There were ly three decided colours throughout, viz., ite, crimson, and green. The ceiling, cor-es, woodwork, and canopies of the window-ngings were white, enriched with gilding; e hangings, the ground of the walls, and t of the carpet, crimson, while the pattern the carpet was a sort of tracery of creeping nts in shades of green. The chimney-ce was of white marble, reaching nearly to e ceiling, with a panel, equal in width to the ening of the chimney, filled with a mirror looking-glass. The walls of the rooms re painted in imitation of Morocco leather, riched with roses in gilding, shaded by nd, and the whole varnished with copal. ne woodwork was dead white, bordered with t mouldings. The window-curtains were of ery simple form, being merely large cur-ns, without draperies or fringes, and they ng in vertical lines, so as to catch no dust. ey ran on gilt wooden poles, and inside the rnice was a common French curtain-rod, on hich ran a very fine but plain muslin sun-rtain, edged with crimson cherry fringe. ne cords for drawing the curtains, instead of ing concealed, are made very conspicuous, d contribute much to the general effect: ey are about the thickness of half an inch, plaited worsted cord, with handsome termi-tion. In speaking of the general colours opted throughout, Sir J. Robison observes: The whole of the crimson is, as near as acticable with the different materials, of the me hue, the lake for the walls having been st procured, and the silk and worsted dyed match it. From this circumstance, and om its being contrasted by the green, and lieved by the white and gold, it has no more a predominant hue in the arrangement than perfectly agreeable, while it gives great stinctness in the pictures, and a general air warmth and comfort, without appearing aring or gaudy. In the design and con-ruction of every thing in the room, the aim s been to avoid harbourage for dust.

In tracing the principles on which the early nglish builders are supposed to have acted in ne construction of churches and edifices, Mr. ugin states that they adapted their designs to e kind of materials employed, and made no empt to hide any of the latter. With us, nges, locks, bolts, and nails are, as far as ssible, hidden from view, as if unsightly; nereas in the "pointed" style (whether of chitecture or of room-decoration) they were ndered conspicuous features in the general sign. The hinges covered the whole face of e doors with varied and flowing scroll-ork; a lock was made the object of much rious decoration; and the key was often st or carved with emblems appropriate to e purposes of the lock belonging to it. Mr. ugin adduces as an argument in favour of rving instead of metal-castings wherever th may be used, that "all castings must be ficient of that play of light and shade conse-ent on bold relief and deep sinkings, so sential to produce a good effect. Cast-iron likewise a source of continual repetition, bversive of the variety and imagination hibited in pointed design: a mould for cast-g is an expensive thing; once got, it must worked out. Hence we see the same ndow in greenhouse, gatehouse, church, and om; the same strawberry leaf, sometimes rpendicular, sometimes horizontal, some-nes suspended, sometimes on end; although, the principles of pure design, these various sitions require to be differently treated." hether or not, according to any particular eory of the principles of art, the employ-ent of casting leads to the heterogeneous xture of things that ought to be kept sepa-te, we must not forget that the power of pid and cheap production, possessed by and herent in the system of casting—whether rnamental impressions from a mould, or inted impressions from a stereotype plate—as been, and is, one of the most powerful of . means for diffusing among the many that nich had before been attainable only by the few.

Operatives in Paris.—We learn from *Valignani* that nineteen journeymen carpenters ve been ordered by the council chamber of the ivil tribunal of the Seine to be brought to trial r illegal combination against their masters.

LIST OF NEW PATENTS RELATING TO ARCHITECTURE, ENGINEERING, &c., GRANTED FOR ENGLAND.

Furnished by Mr. A. Prince, of the Office for Patents of Inventions, Lincoln's-inn Fields, London.

[SIX MONTHS FOR ENROLMENT.]

Stephen Hutchinson, of the London Gas Works, Vauxhall, engineer, for certain improvements in gas meters. July 2.

John Hopkins, of 1, Rector-place, Woolwich, gentleman, for certain improvements in rails and trams for railroads and tramways. July 3.

Thomas Walker, of Euston-square, mechanic, and George Mills, of Dover, coal-merchant, for certain improvements in springs, and elastic power, as applicable to railway carriages and other vehicles, and to other articles and purposes in which springs or elastic power is now used. July 3.

William Mather, and Colin Mather, of Salford, Lancaster, engineers, for certain improvements in boring earth, stone, and subterraneous matter, and in the machinery, tools, or apparatus applicable to the same. July 3.

William Newton, of Chancery-lane, civil engineer, for certain improvements in railways, and in the means of propelling carriages. July 3.

George Myers, of Laurie-terrace, Westminster-road, Lambeth, builder, for improvements in cutting or carving wood, stone, and other materials. July 8.

Jacob Brett, of Hanover-square, Middlesex, esquire, for improvements in propelling carriages on railways, and other roads and ways. July 8.

John Samuel Templeton, of Sussex-place, Kensington, artist, for improvements in propelling carriages on railways. July 12.

Edmund Ratcliff, of Birmingham, manufacturer, for a certain improvement, or certain improvements, in the furniture of door-locks and latches. July 12.

Joseph Fulton Meade, of Dublin, gentleman, for certain improvements in steam-engines and boilers. July 12.

Horatio Sydney Sheaf, of Waterloo place, Old Kent-road, artist, for certain improvements in obtaining and employing motive power. July 12.

Samuel Tretheway, of Watergrove Mine, near Stoney Middleton, Derby, civil engineer, and Joseph Quick, of Summer-street, Southwark, engineer, for an improved combined expansive steam and atmospheric engine. July 12.

Joseph Malcolmson, of Portlaw, Ireland, for improvements in apparatus used for propelling carriages on roads, and vessels on inland waters when employing atmospheric pressure. July 12.

John Shaw, of Broughton, in Furners, Lancaster, chemist and druggist, for a hydro-pneumatic engine. July 12.

Julius Adolph Detmold, of the City of London, merchant, for improvements in the means of applying steam as a motive power. July 21.

Angier March Perkins, of Francis-street, Regent-square, an extension for the term of five years of an invention for certain improvements in the apparatus or method of heating the air in buildings, heating and evaporating fluids, and heating metals. July 21.

Jacob Brett, of Hanover-square, Middlesex, gentleman, for improvements in atmospheric propulsion, and in the manufacture of tubes for atmospheric railways and other purposes. July 21.

William Breynton, of the Inner Temple, London, esquire, for certain improvements in rotary steam engines. July 25.

George Beadon, of Battersea, Surrey, commander in the royal navy, for improvements in propelling vessels and land-carriages, in raising and drawing off water for driving machinery, which means of raising and drawing off water are applicable to other useful purposes. July 29.

Sir Samuel Brown, of Blackheath, knight of the Hanoverian Guelphic Order, captain of her Majesty's navy, for improvements in the formation of embankments for canals, docks, and sea walls, and in the conveyance and propulsion of locomotive engines, and other carriages or bodies on canals and other inland waters, and also on rail and other roads, and in propelling vessels on the ocean and navigable rivers. July 29,

John Paltrineri, of Skinners'-place, Size-lane, London, gentleman, for certain new and improved modes of obtaining and applying motive power. July 30.

Joseph Quick, of Summer-street, Southwark, engineer, and Henry Austin, of Walbrook, civil-engineer, for improvements in the construction and working of atmospheric railways. July 31.

New Books.

Memoir of John Aubrey, F.R.S. By John Britton, F.S.A. Published by the Wiltshire Topographical Society. 1845.

The object of the Wiltshire Topographical Society is to collect materials for, and publish occasionally, historical and descriptive accounts, either illustrated or otherwise, of places and things in the county of Wilts and the adjacent districts, which have not hitherto been satisfactorily elucidated. The present work forms the second volume of the society's publications, and is a valuable addition to biographical literature. It seems that Mr. Britton had commenced for the society a history of the parish of Kington St. Michael, of which Aubrey was a native. It was proposed therefore to include in the work a notice of Aubrey's life. In arranging the materials for this, however, it was found that they were sufficiently copious and interesting to make a separate volume, which was accordingly done, and the result is one of the most charming memoirs that we have seen for some time, well calculated to sustain the reputation of its author and increase that of the society. It includes some very singular and interesting auto-biographical notices of his early life and studies, copied from a manuscript in the Ashmolean Museum, Oxford, which have never been printed before.

Aubrey was born at Easton Pierse, March 12th, 1625, and when very young shewed a love of antiquarian pursuits. "He may be regarded," says Mr. Britton, "as essentially an *archæologist*, and the first person in this country who fairly deserved the name. Historians, chroniclers, and topographers there had been before his time; but he was the first who devoted his studies and abilities to archæology in its various ramifications of architecture, genealogy, palæography, numismatics, heraldry, &c. No one before him investigated or understood any thing of the vast Celtic temple at Avebury, and other monuments of the same class; and certainly no person had preceded him in attempting to distinguish the successive changes in style and decoration of ancient ecclesiastical edifices, or to ascertain, by observing architectural features and details, to what era any particular building belonged. Aubrey's remarks on this subject are certainly interesting, and their publication at the present day, when the study of architectural antiquities is so deservedly general and popular, would add much to his credit as a careful and discriminating observer and delineator of the peculiarities of Christian architecture."

He was entered as a gentleman commoner of Trinity College, Oxford, in 1642, but was removed thence soon afterwards in consequence of the hostilities between the King (Charles I.) and the Parliament. He wrote twenty-two works, and died in 1697, after being much involved in debt and oppressed by litigation.

We trust that the appearance of this interesting and valuable work, with the promise of the early publication of a history of Castle Coombe, by Mr. Poulett Scrope, M.P., will lead a host of new members to join the Wiltshire Topographical Society, and enable the committee to carry out efficiently what it has so well begun.

A Peep into Architecture. By Eliza Chalk. Bell, Fleet-street; Meggy and Chalk, Chelmsford, 1845.

A very pretty little illustrated book; well adapted for a present to youth of either sex. It traces the history of architecture from the earliest times, and describes in a pleasant manner the peculiarities of the various periods of Gothic art.

In our leading article last week we urged the value of architectural knowledge to the general student, and expressed a desire that

it might become a part of ordinary education:—

"The public buildings of a people say,
How unrefined, how far advanced were they;
And on the temple's architectural page,
We read the mind, the manners of the age."

The book before us contains much information, and, moreover, is calculated to induce a further and more precise study of the subject; as such we recommend it to our non-professional readers.

The London Art-Union Prize Annual of 1845. R. A. Sprigg, Great Russell-street.

This work, to which we referred briefly a fortnight ago, contains 250 engraved sketches by Mr. Henry Melville of pictures and sculpture purchased by the London Art-Union, and cannot fail to be acceptable to a large number of persons. Apart from the interest of the volume in the eyes of subscribers to the association, who will find it if continued, the most comprehensive catalogue of the works annually purchased by the Art-Union, it presents a collection of interesting and useful memoranda to artists and others studying composition, and is moreover, a pretty drawing-room book. It would be easy to find fault with the execution of some of the engravings, but we are contented, in consideration of the boldness of the attempt and its general value, to overlook minor defects. A large sale alone can remunerate the proprietor, and this we cordially hope it may have.

Tender.

For rebuilding the Prison at the back of Clerkenwell church, delivered to the magistrates of Middlesex on the 12th instant, according to the plans of their Architect, Mr. Moseley. The lowest was that of Mr. Grimsdell which was accepted.

Mr. Trego	£38,051
Messrs. J. and W. Bennet	36,365
Messrs. Hayward & Nixon	36,170
Messrs. Lock and Neasham	35,970
Messrs. Piper	34,995
Mr. Winsland	34,766
Messrs. Baker and Son	33,600
Messrs. Lee	31,860
Mr. Grimsdell	28,684

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the execution of Works on the Leeds and Thirsk Railway.

For the execution of several lengths of Earthwork on the Aberdeen Railway. There are 5 separate Contracts, varying in lengths from 3½ miles to 4¾ miles.

For the supply of 70,000 Larch, Oak, or Fir Sleepers, and Fencing for 50½ miles, or any part thereof, for the Ipswich and Bury St. Edmund's Railway Company.

For the erection of a Wesleyan Proprietary College at Taunton.

For the execution of the works on the Nottingham and Lincoln Railway, in two parts; 1 from Nottingham to Newark, being a distance of 17¼ miles. 2 from Newark to Lincoln, being a distance of 15¾ miles.

For the taking down the present parochial school-house at Bethnal-green, and erecting a new one on the same site.

For Lighting a portion of St. John's district, Notting-hill, with Gas.

For Paving and Relaying the Footways and Paving or Macadamizing and Relaying the Carriageway in Somers-town, St. Pancras, for the term of three years.

For the supply of 500 Tons of dark-coloured hard Guernsey Granite to the Guardians of the Brentford Union.

For supplying the Aberdeen Railway Company with Scotch Fir Sleepers.

For supplying the Dundee and Perth Railway Company with 50,000 Scotch Fir Sleepers.

For supplying the York and North Midland Railway Company with 2,000 Tons of Chairs.

For executing that portion of the Dundee and Perth Railway, commencing at Dundee and ending at Kingoodie, being about five miles 360 yards in length.

For supplying her Majesty's several Dockyards with Cast-iron Articles for twelve months certain.

For the erection of a Malting at Bury St. Edmunds.

For the supply of 100 Wrought-iron Bedsteads to the Portsea Island Union.

For supplying 300 Sets of Wheels, Axles, and Guard Irons to the Great Southern and Western Railway (Ireland).

For the supply of 4,400 Tons of Rails and for about 900 Tons of Cast-iron Chairs for the Dundee and Perth Railway.

For taking up and relaying the Carriage-way Pavement of a part of Maze-pond.

For taking up a certain portion of the present Carriage-way Pavement of Maze-pond and Great Maze-pond, and relaying the same with Wood Paving, to consist of Dantzic or Memel Timber.

For making a Cylindrical Sewer in the town of Cambridge. The length will be about 48 yards, and the average depth about 12 feet.

For the execution of the whole works of the first ten miles of the Howick branch of the Edinburgh and Howick Railway.

For Raising Mud in the Ship-basin of the Regent's Canal Company, for a term of three years.

For the execution of that portion of the Cumnock Branch of the Glasgow, Paisley, Kilmarnock, and Ayr Railway, situate between Loch Brown and Auchinleck, being about 7 miles in length.

COMPETITIONS.

The Committee for the establishment of Public Parks, Walks, &c., at Manchester, offer two prizes, one of 50 guineas and the other of 25 guineas, for the best and second best set of Plans (with estimates), for the laying out, &c., of the sites already purchased by them.

The Board of Guardians of the Bridlington Union offer a premium of 10*l.* for a Plan and Specification of a Workhouse, the expense of which is not to exceed 2,000*l.*, and to accommodate 150 inmates.

APPROACHING SALES OF WOOD, &c.

BY TENDER.

In the Plantations of the Duke of Montrose, situate in the Parishes of Drymen and Buchanan, Stirlingshire: many Thousands of Larch Trees of some size, adapted for Railway Sleepers, Roofing and Joisting, and other purposes.

A Quantity of Old Wrought and Cast Iron, in store, at the Royal Arsenal at Woolwich.

TO CORRESPONDENTS.

"A Constant Subscriber."—*In reply to our correspondent's inquiry, Mr. Jopling says: "It is now more than twenty years since I invented the Septenary system. For many years I used every effort to shew the necessity of a complete illustration. Absence from town for several years retarded those efforts which I now revive with an increased and increasing conviction of the desirableness of the object, your columns contributing greatly to the impression that I am right. If taken up as extensively as it would be useful, it might be published at a small cost to each purchaser.*

"A Constant Subscriber."—*We believe Weale's work is the best. Five-feet rods are generally used.*

"Level of St. Paul's."—*In reply to "Juvenis," the floor of the cathedral is 52 ft. 8 in. above high-water mark.*

"X. Y. Z."—*The awards can be seen at 3, Trafalgar-square. We are making arrangements to publish them regularly.*

"Timber."—*A correspondent inquires if there be any published tables to afford the following information for retailers of boards and sawn-timber. The cost of balk-timber being given:—What is the value of boards of various thickness, including price of balk and cost of sawing, and also of various scantlings?*

"J. C." *reached us too late for insertion. We shall be glad to receive the decision of the Court.*

"A. A." *and* "E. B. L." *next week.*

"R. S. F."—*The only work on Elizabethan furniture, designs, is Mr. Bridgens'. The price, 2l. 12s. 6d. The next, on furniture generally, by Mr. Henry Shaw, price, 2l. 16s. There are several plates of furniture in Mr. Richardson's books, which can be had of M'Lean, at 2s. 6d. each. The best examples for chairs are given in "The Builder." The printseller alluded to is Evans, at the corner of Queen-street. R. S. F. had better commission some person in London to select examples for him.*

"G. S."—*We have endeavoured, without success, to obtain information as to the "glass tiles." We will try again.*

"J. S., Jun."—*The letter contains no fresh fact requiring publication.*

Received:—"B. B.;" "J. Dredge;" "G. R.;" "A Learner;" "J. B."

To Correspondents.—All letters must be post-paid, or they will not reach us.

ADVERTISEMENTS.

TO ARCHITECTS AND BUILDERS.

DOOR SPRINGS AND HINGES.
GERISH'S PATENT DOOR SPRINGS, CLOSING every description of DOOR, consists of Sin and DOUBLE-ACTION BUTT HINGES in Brass and I for Doors to open one or both ways, and Rising Hinge the convenience of Doors opening on uneven Floors. Li wise Swing Centres, which consist of a combination power unequalled by any made at present. Manufactu by F. W. Gerish, East-road, City-road; and sold by all spectable Ironmongers in the United Kingdom.

PATENT METALLIC SAND CEMEN
requiring no Colour or Paint, and free from Cra and Blisters. Mixed ready for use at 8s. 6d. per ce 2s. 6d. allowed for each cask returned in good or 2½ bushels common sand to be added to each cask of Meta Cement, which will float fourteen square yards Stucco. ply at the Metallic-Cement Wharf, King's-road, Cam New Town (opposite Pratt-street), London.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT
GROUND BLUE LIAS LIME, at 2, South Wha Paddington, London, and Works, Southam, Warwickshir Agents for Liverpool, Mr. WYLIE, 56, Gloster-street; di for Manchester, Mr. J. THOMPSON, Back King-stre ditto for Chester, Mr. J. HARRISON, Linen Hall-street

ATKINSON'S CEMENT.—The public respectfully informed, that the price of this very cellent Cement, which has now been in use for Architect and Engineering works upwards of thirty years, is reduced 2s. 3d. per bushel, and may be had in any quantity at Wya Parker, and Co.'s Wharf, Holland-street, Surrey side Blackfriars-bridge.
N.B.—This Cement being of a light colour, requires no ar ficial colouring or painting, and may be used for stucco wi three parts its own quantity of sand.

KEENE'S PATENT MARBL
CEMENT.—The Patentees of this composition h to refer to the British Museum, the Royal Exchange, the n works at Bethlem Hospital, Greenwich Hospital, and the C liseum in the Regent's-park, as buildings finished or in pr gress, in which Keene's Cement has been used as an inter stucco. Its superiority to common plastering consists in extreme hardness, and the rapidity with which it dries, whi qualities fit it to receive paint or other finishing soo than other water Cement.
When employed for skirtings, architrave, and oth mouldings, in place of wood, it checks dry-rot, is impervio to vermin, prevents the spread of fire, and is more ec nomical in its application than the material for which it b becomes the substitute.
Confirmation of these statements is to be found in t almost universal adoption of Keene's Cement for Skirti and Hall flooring in the new houses on the Hyde Park Est where its application is to be seen to the fullest adva tage.
In Liverpool and Manchester, Keene's Cement has several cases been used for the covering of the fire-pr warehouse floors, where its lightness and hardness give it preference over tiles and flagging, which are much heavi and necessarily leave the floor intersected with numero joints, whilst Keene's Cement is laid down in one unbrok surface.
The high polish and marble-like hardness of which t Cement is susceptible render it the most suitable mater for the manufacture of Scagliola.
Patentees, J. B. WHITE & SONS, Millbank-stre Westminster, Manufacturers of Roman and Portla Cement.
Depôt in Liverpool, 36, Seel-street; James Woods, Age

TO ARCHITECTS, ENGINEERS, CONTRACTOR BUILDERS, MASONS, AND PLASTERERS, ME CHANTS, SHIPPERS, AND THE PUBLIC GENERAL.

JOHNS and CO.'S PATENT STUCC
CEMENT.—The following are the positive advanta possessed by this Invention over every Cement hitherto troduced:—It will effectually resist Damp. It will ne vegetate nor turn green, nor otherwise discolour. It w never crack, blister, nor peel off. It will form a compl Stone casing to any Building covered with it. It so clos resembles Stone that it is impossible to detect it. It ne requires either to be painted or coloured. It will keep fre and good in the cask in any Climate for any number of ye This is the only Cement that can be depended upon for expo It is the only Cement that can be used with confidence by t Sea-side. It may be used in the hottest or coldest Climat at any season. It will adhere to any substance, even Wood, Iron, or Glass. It will carry a larger Proportion Sand than any other Cement. It matures by age, and b comes perfect when other Cements begin to perish. It m be worked through the Winter, as frost has no effect upon It may be used on the Inner Walls of new Houses, wh may be papered over or painted directly. Roofs laid pointed with this Cement will remain undamaged by severest Storms. Any Plasterer may apply it, the Instru tions for use being very clear and distinct. The first cost this material does not exceed that of the cheapest Cem now in use; but with all the above-named extraordinary a valuable advantages, nothing can approach it in point economy.
Architects and Builders who have used this Cement ha declared that it requires only to be known, to be universa preferred.
Specimens may be seen, and a Prospectus fully describi the Cement and its mode of application, together with volume of Testimonials from every part of the Kingdom, m be obtained on application to MANN and CO., SO AGENTS for the Patentees, 5, Maiden-lane, Queen-stre Cheapside, London: of whom also may be had,
JOHNS and CO.'S PATENT STONE-COLOU STUCCO PAINT, expressly intended for Painting over e terior Walls of Houses that have been covered with Rom or other Cements, and which have become dirty and disc loured. It is in every way better suited for this purpose th White Lead Paint, which will frequently come off in flak being in direct chemical opposition with Cement; where MESSRS. JOHNS and CO.'S PATENT PAINT having affinity for Stucco, binds itself with it, stopping the sucti thereby rendering the wall proof against weather, and in t finish producing a pure stone-like effect, produceable by other Paint whatever. It is cheap in its application,—as may be used by any Painter, in any climate, even in the mo exposed Marine situations.

The Builder.

No. CXXXIV.

SATURDAY, AUGUST 30, 1845.

NOTWITHSTANDING the search that is now made after old buildings, and the efforts used to induce their preservation, there are numerous interesting structures in the villages and hamlets of England falling to decay unknown and disregarded,—structures which are most valuable as records of the past, and evidences of the skill of our forefathers. Shrouded by a clump of trees, in some cases not a hundred yards from a high road, they remain unnoticed, even by the passer-by, although worth a pilgrimage,—and, full of the accumulated remembrances of past centuries impressed in the varying handwriting of different generations, are allowed to fall into ruin, or, worse still, are destroyed for the sake of the materials of which they are composed, and so disappear entirely.

It would hardly be thought that this could occur in a locality so close to the metropolis as Slough, the much-frequented station of a railroad. But so in a great degree it is: for we will venture to say that of the crowds of railway-seers who daily go from that place to Eton and to Windsor, not one in a *week* is aware that he passes within five minutes' walk of an interesting structure six or seven centuries old, if not more, dismantled and deserted; and perhaps there is not one in a *month* who leaves the road and wends his way to visit it. Yet there it is. Old Upton Church, so called to distinguish it from a modern monstrosity near it in the high road to Eton, is a genuine specimen of the Norman period, consisting of nave, chancel, and solid square tower, the latter standing between the two former. The chancel is peculiarly interesting, and should on no account be suffered to fall further into ruin. It is small and low; lighted by narrow, semi-circular-headed windows in the sides, and a good three-light window, of small dimensions, in the east wall, this latter being an interpolation of later date. It is cövered with groining, and is paved, or rather *was* paved, with encaustic tiles. There is a pretty Norman doorway on the north side of the nave, and another entrance, through the tower, on the south side. The tower itself is covered with masses of ivy of extraordinary magnitude, the main stem being no less than three feet wide at one foot two inches thick.

The interior presents a melancholy scene; the fittings are removed with the exception of the rude desk with a prayer-book upon it: the stained-glass and brasses have been stolen, the plastering is tumbling, and the whole in decay. Full service has not been performed in the church since 1837, but the burial prayers are sometimes read here, in the midst of the congregation, over the bodies of those who have desired to be buried in the quiet yard around it,

"The rude forefathers of the hamlet sleep."

This line from Gray's "Elegy in a country churchyard" reminds us, that independently of the interest thrown around this structure by age, there are other circumstances which render a visit to it pleasing, and should aid in securing its preservation. It was probably this very church that Gray had in his mind's eye when that elegy was written:—"the ivy-mantled tow'r," whence "the moping owl does to the moon complain." Gray was educated at Eton, and long bore it in memory. The elegy in question was not written there, but was commenced a few years after he had left, about the same time that he wrote the ode on a distant prospect of Eton College, beginning:—

> "Ye distant spires, ye antique towers,
> That crown the watery glade,
> Where grateful science still adores
> Her Henry's holy shade."*

Further, in this interesting old church rest the remains of our eminent countryman Sir William Herschell. In the tower, amongst ruin, is a modern slab of marble recording his name and merits, looking sadly out of place and suggesting to the mind the uncertainty of such memorials. "In perpetual memory," writes upon marble an affectionate son or sorrowing widow:—In a score of years the church may be a ruin, and the "lasting testimony" part of the paving of a churchwarden's pig-sty!

> "So perish monuments of mortal birth,
> So perish all in turn, save well-recorded worth."

Surely, however, Herschell's grave is not yet to be desecrated. Every tomb that can awaken some sentiment, excite to enterprise, or stimulate to good, should be religiously preserved as of national importance.†

As regards the church itself, it is seriously to be hoped that means will immediately be taken to preserve it yet for many years to come. Mr. Britton interested himself warmly to effect its restoration some time ago, and at this moment Mr. Jesse, well known to the reading public, is seeking to raise a subscription for that purpose. We trust he will not relax in his endeavours, and that he will be aided by all in the district who have influence.

* Gray was one of the first to apply himself to the revived study of pointed architecture, and from him Mr. Bentham derived much assistance in his celebrated "History of Ely." Horace Walpole was one of his most intimate associates at Eton, and they afterwards set out together for the tour of France and Italy, but quarrelled on the road through Gray's greater love of antiquities. Gray died 1771.

† We take this opportunity to refer to a letter on the present dilapidated state of Chaucer's tomb, in Westminster Abbey, which appeared in *The Times* a few days ago. The writer says that the name of the father of English poetry can only be deciphered by the assistance of a tracing in chalk over the letters. Thus few persons are aware when loitering through Poet's-corner, that they are treading over the ashes of one whose memory ought to be respected by all his countrymen; and foreigners visiting England must feel surprise in viewing the ruinous appearance of the grave of our oldest English poet. Were the tomb only repaired in some degree, and a slab of marble inserted in the wall, with the old inscription, which is extant, cut neatly upon it, this would be something, and might be done at but a trifling cost.

The tomb of Edmund Spenser was restored by private subscription in 1778. Shall we feel less alive than our forefathers seventy years ago, to the claims which these fathers of verse have upon our loving and respectful memory? The tomb of the great father of poetry was erected by N. Brigham, who, in the year 1556, "in the name of the Muses," placed the present inscription (now by the hand of all-devouring time rendered almost illegible). Let us then entertain a hope that very shortly, in these days of light and knowledge, some respect will be shewn to the mighty dead, and that the author of the "Canterbury Tales" will not be suffered to lie in a spot unmarked, and with scarcely his name discernible, except to some inquiring antiquary. Let us in this imitate the excellent feelings of our continental neighbours, who treasure up with the most sacred love the tombs and inscriptions relating to their poets and statesmen.

THE UNREWARDED EXHIBITORS IN WESTMINSTER HALL.

THE following letters have passed between the royal commission on the Fine Arts, and a certain number of the competitors at Westminster Hall.

Chester-street, July 17th, 1845.

SIR,—In concurrence with a general feeling among the competitors whose works are now exhibited in Westminster Hall, I have the honour to transmit to you the accompanying memorial to the royal commission on the Fine Arts, signed by a few of the competitors who happen to be in town. The necessity for its being submitted without delay prevents its being signed by several who are out of town, and who, I am informed, would hasten their return for the purpose of signing it if that were deemed necessary.

A consideration of delicacy alone prevents some of the rewarded candidates from affixing their names to the suggestion, which they cordially approve.

I am, Sir, Your obedient Servant,
F. Y. HURLSTONE.

To C. L. Eastlake, Esq., R.A.
Secretary to the Royal Commission of Fine Arts.

To the Right Honourable Her Majesty's Commissioners on the Fine Arts,—The memorial of the undersigned Artists, Competitors for the decoration of the New Houses of Parliament, and exhibitors in the present exhibition in Westminster Hall.

Sheweth,—That the improvement of public taste and the encouragement of those artists who are disposed to forego the more lucrative branches of art for the higher walks of historic and poetical composition, are essential objects of your royal commission.

That three experimental exhibitions have now taken place under the authority of your honourable board; an amount of talent far beyond expectation has afforded gratification to the public, and received the repeated approbation of your honourable commission. On the first occasion 137 artists responded to your invitation. In 1844, besides sculptors, sixty-one painters applied their exertions to cartoon-drawing and fresco painting, and received the sanction of your honourable commissioners, as worthy to be selected for public exhibition. In 1845, thirty-seven painters and twenty-nine sculptors are again before the public, with the approbation of your honourable commission.

That the advantage of these exhibitions to public taste and to the arts are indeed great, but unfortunately they have been attended with serious injury to most of the artists from the great expense (as well as loss of time and connection) that has resulted. The actual outlay of the painters for materials and models cannot be less than 8,000*l.* or 10,000*l.*; a loss sufficient to check their progress in future attempts, and in some instances perhaps to involve them in serious difficulties. Their desire to co-operate in this great national experiment, and to assist in furthering the noble course marked out by your honourable commission, will surely be listened to with that indulgence and respect that is seldom denied to men who have suffered in a good cause, and must be their excuse for thus troubling your honourable board with the following remarks.

That it appears that the receipts of the exhibitions of the first and second years were, repectively, 2,900*l.* and 1,400*l.*; and if we suppose 1,000*l.* to be received this year, the amount is 5,300*l.*, of which sum 1,000*l.* were given in 1843, in additional premiums, leaving 4,300*l.* unappropriated. If 500*l.* are deducted from the second, and 200*l.* from the third years' receipts for the sculptors, who according to the general opinion were not, like the painters, led out of their accustomed course, there will be the following sums to be divided by the number of unrewarded candidates in each year.

1843,	1,900*l.* among	116	unrewarded Candidates,	give	15*l.* 10*s.* each.
1844,	900*l.* —	55	ditto	ditto	16*l.* 8*s.* —
1845,	800*l.* —	26	ditto	ditto	30*l.* 15*s.* —

Thus, to those who have tried but once, there would be a return of from 15*l.* 10*s.* to 30*l.* 15*s.*; those who have competed twice would receive from 31*l.* 18*s.* to 47*l.* 3*s.*, and the few who have struggled on through all the three years, would have 62*l.* 13*s.* out of a fund raised from their own previous sacrifices; not indeed half the amount of their actual outlay in models and materials, but each in proportion to his former exertions and sacrifices would be enabled to make another effort in this great national experiment, with fresh energy and increased experience.

Your memorialists humbly submit to the wisdom of your Honourable Commission the advantages of a self-supporting system of emulation, instead of that of premiums which renders each succeeding competition more unequal; and in the hope that the proceedings of your honourable commission will secure to

the arts of this country high honour and pre-eminence, your memorialists will ever pray.

R. W. Buss. F. Y. Hurlstone.
S. Bendixen. James Fogco.
Alex. Blaikley. Geo. Fogco.
Ford M. Brown. W. P. Salter.
W. Riviere.

July 25th, 1845.

"Whitehall, 31st July, 1845.

"Sir,—I beg leave to acknowledge the receipt of your letter, accompanying a memorial, dated the 25th instant, from numerous artists who are competitors for the decoration of the New Houses of Parliament, and who are exhibitors in Westminster Hall, recommending the division of the receipts of the exhibitions in Westminster Hall among the unrewarded candidates in each of such exhibitions.

I had the honour to submit the memorial in question to her Majesty's commissioners on the Fine Arts on the 29th instant, when the commissioners, referring to their decision respecting similar applications in 1843, directed me to reply that they do not think it expedient to adopt the course suggested by the memorialists.—I am, Sir, your obedient servant, C. L. Eastlake, Sec.

F. Y. Hurlstone, Esq."

"7, Fitzroy-square, 31st July, 1845.

"Sir,—Herewith I have the honour to send you the answer which her Majesty's commissioners on the Fine Arts have directed me to return to the memorialists referred to in your letter, received on the 29th instant.

In further explanation I venture to state, that in consequence of various applications, similar in their object to that of the memorialists, during the exhibition in Westminster Hall, in 1843, the question respecting a division of the receipts of the exhibition was frequently submitted by me to the consideration of the commissioners.

This subject was, from first to last, considered to admit of discussion only in one form, viz., the appropriation of the nett proceeds of the exhibition, after payment of the expenses.

The statement contained in the memorial, respecting the gross receipts of the exhibition, is incorrect. In 1843, instead of 2,900*l.*, the receipts were 2,472*l.* In 1844, instead of 1,400*l.*, the receipts of two exhibitions (in King street and Westminster Hall) were 1,259*l.* 5*s.* The receipts of the present exhibition up to the 28th instant are 638*l.* 8*s.* 6*d.*

The balance, after payment of the expenses incident to the exhibition in 1843, including 1,000*l.* in additional premiums, was 569*l.* 2*s.* 11*d.* In 1844, the expenses far exceeded the receipts of both exhibitions (the rent of the premises in King-street amounting alone to 850*l.*) That cost being defrayed by the Treasury, through the Office of Woods, the balance was 400*l.* 3*s.* 4*d.*

Before the exhibition took place, the cost of advertisements (with other expenses strictly relating to the exhibitions) was necessarily defrayed by the Treasury. Such expenses would, if enumerated, cause a further considerable reduction from the receipts. Again, the woodwork fittings in Westminster Hall, and in King-street, and the cost of the workmen employed on them, has not been defrayed from the receipts of the exhibitions.

This is the state of the case applicable to the view taken by the commissioners, and by the treasury, with regard to the proceeds of the exhibitions.

I have lately made application to the Treasury respecting the payment of the three premiums of 200*l.* each this year awarded. In the event of my receiving instructions to make such payment (600*l.*) from the fund arising from the present and the balance of the former exhibitions (amounting on the 38th instant) to 1,007*l.* 16*s.* 10*d.*, the balance at the close of the exhibition will probably be insufficient to cover the expenses.

It will be apparent that the Lords of the Treasury may justly require such payment to be made from the funds referred to, in consequence of having defrayed the extraordinary expenses above mentioned during the last year.

In entering into this explanation, I have perhaps taken a course unusual for official agents. I have done so on my own responsibility, from a desire to put the memorialists in possession of the facts which, in the view of the commissioners, bear upon the question herein referred to.—I am, Sir, your obedient servant, C. L. Eastlake, Sec.

F. Y. Hurlstone, Esq."

The memorialists have since published the correspondence in the shape of a small pamphlet, and have added some remarks expressive of their disappointment, and their opinion that the expenses of the exhibitions should be defrayed by the nation.

"One small circumstance that concerns all the exhibitors must not be omitted. There is a principle, founded on equity, till now invariably maintained at our exhibitions, viz.: that every contributor shall have free admission, and be supplied with the catalogue that contains the account of his productions without charge. The royal commissioners alone have rejected this wholesome and just regulation: the charge of a shilling on the paying days, and of sixpence for the catalogue, has been exacted from the competitors; thus, regardless of their previous sacrifices and their rights, they have been made to contribute to the very last towards expenses over which they were allowed no control.* This has been the treatment of the artists; but that of members of both Houses of Parliament, of ministers and officers of state, of the high and puissant of this wealthy kingdom, has been more considerate; they were, to the number of 2,000, admitted gratuitously at the private view, and were presented with catalogues, for which they were not required to pay!

Is it love of money that induces artists to memorialise, or a desire for emulation and fame? Their past deeds must decide this question.† In the last century, when our artists first attempted exhibitions, the profits were given by them to public charities, and they received the grateful acknowledgments of the governors of the Foundling, the Middlesex, and other hospitals, for their generous liberality. In our own time, if parks are required for the health and recreation of the people; if literary and scientific institutions have to pay off a building debt, or to extend the means of their usefulness, an appeal to artists for disinterested assistance is never made in vain. At Manchester, Liverpool, Leeds, and other towns, the liberality of British artists is in this respect fully established. But how can they continue their voluntary exertions for the good of others, if a system is adopted that deprives them of all their means? If the example of the royal commission were followed, if its mode and measure of patronage and munificence were to be adopted by our corporate, parochial, and other authorities, what must be the fate of artists? In this model of encouragement at the conclusion of a great national experiment for the promotion of art and the introduction of the proudest style of historical painting, the outlay of a great nation is about one-half the actual expenses of artists who enthusiastically responded to the invitation of the royal commission."

Fresco Painting.—The Commissioners on the Fine Arts having received various applications from artists, candidates for employment as fresco painters, respecting the mode in which specimens of fresco painting may hereafter be submitted to them without reference to public exhibition, have issued a notice to the effect that such specimens may be sent to Westminster Hall from the 1st of March to the 1st of May next. The subjects and dimensions are left to the choice of artists, but those who have not previously exhibited are required to send specimens of drawing with their fresco paintings.

* If the royal commission had looked to parliament, as it should have done, for the expenses, the artists would have had no concern in them; but as the funds raised by the exhibition of their works are applied to the liquidation of those expenses, some control ought to have been allowed.

† The same love of art and desire for fame that impelled Barry and his contemporaries to offer to paint St. Paul's at their own expense would have induced the artists of the present day to nerve their energies and exhaust their means in the great experiment at Westminster Hall if no premiums had been offered by the royal commission. But however enduring their energies may be, their pecuniary means are limited; as they become exhausted, their zeal is rendered impotent, and the struggle for pre-eminence in historical composition hopeless. The principle recommended by the memorialists, of a *self-supporting* emulation, is surely the most economical, as it is the most effective mode of promoting genius.

ARCHITECTURE, A STUDY OF UNIVERSAL INTEREST.

There is no circumstance in the preser
period of architectural history so conduciv
to a future prosperous state of the art, as th
increasing love of the study of it among
those who are not practically engaged in t
pursuit. The day may be far distant when th
high and wealthy of the land will aspire, by
similar course, to attain to the eminence whi
the great Lord Burlington reached, not on
by means of an arduous inquiry into the pri
ciples of the art, but by the labour of th
craft; and it can hardly ever be deemed
wise proceeding to submit constructive detai
to the consideration of others than architect
But we deem that in the other department
the art no mistake has led to worse result
than that very common one, that architec
must necessarily be the sole judges of archite
tural works. We hail, with pleasure, the i
creasing knowledge of ecclesiastical archite
ture, which has already done more towar
the acquirement of correct principles in churc
building, than the years subsequent to the R
formation which preceded it. As alrea
urged in this journal (vide *ante*, p. 385), a sour
of infinite pleasure is entirely lost, throug
the want of that knowledge which we recor
mend; one-half the page of history is blar
to the tourist, who discovers nothing in t
monuments of art, but their abstract form
The collecting of stones and minerals, wit
out a knowledge of the mighty revolutions
the earth's surface, and the component parts
the specimen, or the contemplation of t
form of man, without the perception of t
intellect, which animates and ennobles; the
would be fit parallels for that state of ign
rance to which non-professional perso
have been for a long period ready to subm
and which professors have not desired to r
move. Do the hundreds, that annually pa
along the stream of the "exulting and aboun
ing river" leave the scenery of their ov
islands unnoticed, because this is of inferi
beauty, or rather for the sake of that intere
with which legends and the chroniclers
wars have invested the "chiefless castles"
the Rhine? But how much their inter
would be enhanced could they feel that th
"gay but leafy walls, where Ruin gree
dwells," contained "matter to be learne
more than cicerone and sight-seer think
"sermons in stones," vocal of the customs
habits of centuries. The decorative charac
of an architectural work, the system adop
in points of detail, or the constructive
rangement, have more to tell, than the writ
chronicle, of the past. But it is not only
antiquarian part of the art, which might
studied with advantage; an earnest appli
tion to the theory, an elaborate study exte
ing into all points of detail, could tend o
to the improvement of architecture.

It would at least be some advantage
those who will probably always be the jud
of architectural works, were acquainted w
the mode of expression in plans and
tions. Without this necessary knowledge,
member of a committee is quite unable ever
know what is placed before him, and i
therefore the highest injustice that he sho
be allowed to sit in judgment. He is
much in the position of one who looks ove
foreign author, without having opened a
tionary. But, much more than this is ne
sary; we wish that such an extent of infor
tion as the late Mr. Hope possessed,
become a thing of common occurrence ra
than a solitary exception. Architects wo
then gain from those by whom entirely
ideas are most likely to be imparted, and ar
tecture would no longer be "a thing of sh
and patches," but an art expressive of the s
of national manners and acquirements.
praise any thing in such a building as Fon
Abbey would now be deemed a proof of i
rance; yet the builder of that pile manife
that he was one of those who might
aided the art, though he was ignorant of
fashions in style. The architect has still
to do, though he may be well acquainted
the grammar of his art, and, however
the details of certain Gothic buildi
erected a short time since, are at vari
with the original method, the whole
ception is often grand and imposing.
their errors we may learn as much as
their successful features, and may discern

way to a style in architecture, in which elegance and novelty of effect shall be co-existent with the most scrupulous attention to points of detail. In doing any thing to repress the study of architecture amongst non-professional persons, architects would be acting most blindly against their interest; hasty and incorrect judgments are the result of want of information, and a slight study of the art would lead to the conviction, that much greater study was needed ere the ability to give a correct opinion could be reached. Perhaps the want is not easily supplied, the information is scattered through a multitude of books, and is gained by the professor only by extreme difficulty and labour. But with the conviction that we have still to learn, and the earnest desire to do so, every difficulty is removed; the art becomes a source of delight, an index to the records of history, an intellectual accomplishment to men and women, alike. The field of the profession is expanded; it enters into the scheme, where building alone was thought of; it is alike called for in the palace and the manufactory. Let architects, therefore, aid in spreading the knowledge of their art, and themselves be prepared to learn, whilst teaching, and the second half of the nineteenth century will be more remarkable for the prosperous state of architecture, and the estimation in which its professors will be held, than the first, for its thousand copies of old examples, and its ignorance of the pleasures and advantages which the pursuit is so amply able to afford. E. H.

THE VENTILATION OF BUILDINGS.

That many of our readers agree with us in considering this subject one of the greatest importance is proved by the number of letters relating to it that we receive. Efficient arrangements in this respect universally applied, in conjunction with others for draining, cleansing, and an ample supply of water, would effect an improvement in our social condition, and increase the sum of happiness enjoyed by the community, to an extent that cannot be duly estimated. Perhaps we should not be far wrong if we asserted that less than the enormous amount annually expended in England for the maintenance of hospitals and dispensaries, would be sufficient to effect this and render the great majority of these establishments unnecessary, *if we but knew the way*. Let us earnestly strive to find it.

The second volume of the second report published by the Health of Towns Commmission, contains twenty-one valuable plates illustrative of the principles of ventilation, accompanying a report from Dr. Reid on the state of Newcastle-upon-Tyne and other towns in the northern coal-mine district. From this report we take the following notes on the subject:—

"The state of ventilation in any apartment depends essentially on three conditions,—the purity of the external air; the quantity that can be made to flow throughout it at a given time, including its mode of distribution, and the regulation of which it is susceptible, whether we regard the temperature communicated to it or the force with which it impinges on the system; and its freedom from every noxious ingredient that may be developed by lamps, candles, fire-places, or any other artificial cause. Where sanatory measures sustain a pure external atmosphere by effective drainage, cleansing, and prevention of nuisances, one-half of the remedy may be said to be already secured, and without such measures no system of ventilation can be successful. Examples are not wanting where it would be a fair subject of discussion, whether it were not better to suffer a certain amount of deterioration of the atmosphere from within, than this does not proceed to extremities, so as to permit a free and overflowing atmosphere from without where it is overloaded with emanations from drains or extreme accumulations of decomposing refuse known to produce disease. Such cases, however, are to be considered as rare exceptions,—a stagnant atmosphere without receiving in general only additional contamination from within, which renders it still more deleterious and oppressive by its impurities communicated to it in all inhabited apartments. It is thought right, however, to advert to the extreme importance of cleaning, in all cases where it is practicable, with a pure atmosphere, as cases have occurred where disease has been propagated by ventilating apertures, selected without reference to the nature of the air which necessarily entered by them, particularly when taken from the surface of the ground, or from sites not regularly cleaned or subject to inspection.

In the northern district, as in other places, little or no ventilation is in general observed in any of the dwellings of the different classes of society beyond those usually accessible by the medium of doors, windows, and fire-places. In such examples of any attempt at systematic ventilation as came under observation, the leading defect was, that though an escape was provided for vitiated air, systematic arrangements were rarely adopted for securing the admission of fresh air.

The consequence of this was, that the discharge could not operate, except with such casual force as the irregular entrance of air permitted. It did not appear to be practically understood that, where there is no entrance there can be no exit, except through the conflicting process of a double current (an ascending and descending movement) through the aperture that ought to act as a discharge alone. Nor did the operation of the fire and fire-flue, in relation to ventilation, appear to have been more specifically investigated than in most other places. Again, where ventilation had attracted considerable attention (and in this mining district certainly many individuals were well aware of the important relation which it bears to health), the means of regulating the quantity, or diminishing the offensive impression produced by local currents, had not been brought into extensive operation. The constant complaints were—'we have too much air;' or, 'we have too little;' 'the draught is too strong;' or, 'we are oppressed with heat;' 'our feet are cold, but there is a sense of fulness and of headache.' These evidently indicate the necessity of controlling and regulating the ingress to a much greater extent than can be effected by doors or windows alone; of establishing a proper relation between the ingress and the egress, and of proportioning the ingress to the amount of supply, required both for any fire-place that may be in action and for such egress as may be provided.

It fortunately happens that the means requisite for these essential positions are much more simple for individual apartments (which are not densely crowded like public buildings) than for larger structures, for if an aperture for the admission of air of sufficient magnitude be always left open, then it will only be necessary to diminish the extent of opening left for the discharge by a superior aperture, or the opening in the fire-flue, according to the relative rapidity with which it may be required that the ordinary ventilation, or the heating power of the chimney shall act.

In the preceding observations no reference has been made to ventilation by forced currents, induced by any means, except those accessible in almost every apartment, as these are not considered absolutely essential for ordinary purposes, though very desirable when provision is made for them by arrangements incorporated with the original structure. I cannot omit to notice, however, that, where gas is introduced, or any brilliant illumination is employed, there the saturation of the air with moisture, and the extent to which it is vitiated by carbonic acid, demands in general a special provision, in order to secure satisfactory ventilation. Few cases presented themselves where gas is so largely used as in the metropolis, and none such as are so abundant there, more especially in shops and offices, in which the ordinary gas-lamps are lighted during the day (when required for heat and not for light), and the external air excluded as much as possible, that the vitiated air with all its warmth and oppressive deleterious products may be retained, no other source of heat being provided.

Were it more generally known, that the movement of an ascending current from lamps is always accompanied in non-ventilated apartments by a proportionate descent of vitiated air which may have previously supported combustion, and that this descent, though limited at first, may ultimately reach the floor, greater anxiety would be manifested in removing such products by a superior aperture. Nor should it be forgotten, that this ascending power which gas-lights, candles, and all other warm objects usually have, is in reality a ventilating power, which may, almost universally, with proper management, be made to correct the evil they otherwise induce, and even to assist or command general ventilation. Further, independent of the occasional presence of sulphureous and other offensive products from gas, the quantity of air consumed by excessive illumination produces an amount of carbonic acid and moisture far exceeding that commonly evolved by lamps and candles, and this necessarily demands a proportionate increase of ventilation. In some cases, gas-stoves may be observed, which in very small apartments not provided with fire-flues, often prove more manageable than any other stoves or fire-places, notwithstanding the expense of fuel; but these also, unless the products of combustion are removed by an iron or other tube as systematically as those that proceed from a common coal fire, are still more injurious than lamps, from the lower position in which they are usually placed.

Ventilation is universally observed to be most defective where great destitution prevails, as a low diet renders the system less capable of bearing that amount of air which would otherwise be agreeable. Protection from cold is the first and great desideratum which the constitution demands in any apartment, and the less the supply of the air, where the chemistry of the system is not in high condition and amply supplied with materials for producing internal warmth by those processes that elaborate the products of digestion and apply them in every part of the living system, the less is the extent to which its influence is felt. Hence, in the habitations of the poor, economy in the management and application of fuel, and diffusion to an extent, such as will render the air gentle in its impulse upon the person, become more and more important in proportion as the circumstances of the inmates are reduced. Similar remarks apply in all cases when the constitution has been enfeebled by disease, want of exercise, or a vitiated and too warm atmosphere, even among those whose means command every luxury that can be purchased for their gratification.

Again, the extreme difference in the demands of the same constitution at different periods (passing over the diversity of different temperaments) scarcely satisfied with one or two hundred times that amount of air when it is warm and loaded with moisture, which is abundantly sufficient when comparatively dry, and at a very low temperature, shews the necessity of providing in each individual apartment such openings as may admit at all times of a gentle and regulated movement, though cases constantly occur when, without a wide opened window, or a special ventilating power, an adequate supply of air cannot be obtained.

The application of any measures for forced ventilation in ordinary apartments beyond what can be commanded by their natural warmth, and the influence of the fire, or of the fire-flue in warming the wall, does not appear to have been made a particular object of attention. Were the kitchen fire-flue—or any separate flue immediately adjoining it—to be arranged so as to receive a communication from each individual apartment being made of a magnitude corresponding with their number, great facilities for ventilation could be introduced in all new structures for promoting those natural movements by which ventilation is most satisfactorily sustained.

The ventilation of workshops and manufactories claims as much attention and is fully as important to those who are engaged in them as the ventilation of their dwellings. In the latter they may spend from a third to a half of their life in a vitiated atmosphere, and at all events that period of repose which is often oppressive and unrefreshing from this cause. But in manufactories, more especially where the occupations are sedentary, where the vicissitudes of temperature are extreme, where siliceous, metallic, or other particles are received into the lungs, and induce disease by mechanical irritation, or when acid and corrosive or other deleterious emanations produce still more rapidly dangerous consequences, the subject of ventilation demands a more earnest attention, and is important to the manufacturer who is deprived by early death of skilled and valuable workmen, independent of the

severity with which such causes prey upon them and their families.

In all such cases the great point which the manufacturer should endeavour to attain, when practicable, is the direct removal of noxious emanations from the very source at which they are developed. General ventilation must be superadded to give complete relief, but if noxious emanations be once permitted to escape into the atmosphere of the apartment or workshop, the entire change of atmosphere is essential to restore freshness to the air: whereas if every noxious product be treated as much as possible on the same principle as smoke, by providing arrangements for the direct exclusion of the products of combustion, a much less amount of ventilation is sufficient, and at the same time the ventilation becomes much more effectual.

Excepting sedentary occupations, where no peculiar noxious product is to be guarded against, the extreme variety of circumstances peculiar to each occupation in which noxious ingredients are communicated to the air in confined apartments, renders any general plan of operations impracticable beyond what has been indicated, without introducing an amount of interference that might be too prejudicial to the interests of the manufacturer to be generally supported.

The amount of suffering, however, and of early death under many circumstances, is so great, that any systematic means of fixing public attention on this subject, to such an extent as would explain the cause of death in factories where it is excessive, and the economy of sanatory measures, would be attended with very beneficial results, equally apparent both to the proprietor and the workman. To the former alone can we look for the general introduction of sanatory measures in their respective establishments; but more intelligence among the workmen is essential to enable them to appreciate and take full advantage of such opportunities as they may have.

As to the improvement of ventilation in crowded workshops occupied by tailors, milliners, shoemakers, and all persons engaged in sedentary occupations, where few or no deleterious products are evolved beyond those that arise from respiration and combustion, the question would be more justly stated were it described as a question of warming as well as one of ventilation, as it is rarely observed that there is any objection to the discharge of vitiated air when that which enters is adapted to the state of the system. Undoubtedly, a regular egress for the escape of vitiated air is seldom provided; but this can never be placed on a right footing, however much it may relieve distress, till the ingress of air, and the warmth it may be necessary to communicate, shall have been satisfactorily adjusted.

In no case do the evil effects of the imperfect distribution of air manifest themselves in a more palpable manner than where rooms are crowded with individuals engaged in sedentary occupations. An under-current passing along the surface of the floor to the fire-place in winter may occasion, on the whole, a considerable change of air, but its local movement deprives it of almost all its value. The fire may receive pure air, but little or none moves upwards to supply the organs of respiration.

The evils from defective ventilation are then of great magnitude, and the continuity of their operation gives them a power and influence over the system which cannot be too minutely investigated. Few pause to consider the necessary consequence of twenty respirations per minute, 1,200 per hour, or 28,800 in a single day and night, where not only a noxious atmosphere is inhaled, and brought directly in contact with the blood, but where also the state of the air diminishes the amount of discharge of those noxious products which the system discharges more and more largely, in proportion to the purity of atmosphere inspired.

Bad ventilation, also, is as injurious to the mind as to the body; and in its more aggravated forms not only induces headache and apoplexy, but, conjoined with other circumstances, is prone to favour that depression which leads at times to low spirits, or even to suicide.

If the progress of air be examined in a room of ancient date, where neither the doors nor windows are air-tight, an ingress of fresh air is almost invariably observed below, and an equivalent discharge of vitiated air above; the fire-place being in this case supposed to be inoperative and closed by an air-tight board. Stagnation is thus prevented, and a continuous, though subdued ventilation, maintained through the apartment, to an extent dependent on the magnitude of the crevices in the doors and windows, and the condition of the internal and external atmosphere.

Again, if the fire be in action in the same apartment, the air in general enters by all crevices to supply the draught it creates, so that in this manner also the freshness of the air is maintained. Farther, the great altitude of the open fire-place in ancient chimney-breasts sustains a very powerful circulation at a higher level than is commanded by low cottage-grates in modern rooms, when the feet may be bathed continuously in cold air, while the head is placed comparatively in a warm stagnant atmosphere, unless crevices in doors and windows permit a considerable change.

It is a matter of much regret that in many houses the supply of air is so perfectly inadequate, both for individual rooms and for passages, that they act continually upon each other, the powerful fire in one room overcoming the weaker draught in the other, and communicating through the passage, which is accordingly more or less filled with smoke, that is—carbonic acid gas, mingled with various visible impurities, particularly charcoal, oily, or other substances.

Vitiated air from lamps and candles, as well as from respiration, tends to ascend, though, as projected from the nostrils and the mouth, it moves, at first, more or less downwards, or in a horizontal direction. In experiments made on this subject, the temperature of air from different individuals placed in a box lined with cotton and open above and below, was found to be generally four degrees higher above the head than below the feet (the box was suspended in the air), and, at natural temperatures, a current constantly ascended on every side from the person. Thus then it is obvious, that, if the natural movements of vitiated air in ordinary apartments be facilitated by one opening at the lower part, and another above, every room will ventilate itself sufficiently to prevent the more extreme effects that are so often observed at present.

If the lower opening be diffused by extending it along the skirting, the current becomes more mild and equal and less liable to strike upon the person, so as to produce an offensive draught.

If the upper aperture be led into a chimney flue, or into an independent flue warmed by its near position to a hot chimney, its action is more powerful and more uniform than a mere aperture in the wall near the ceiling, and not so subject to modification in windy weather. If it communicate with a powerful chimney-flue, it works still better, except when the fire declines, or the supply of fresh air is interrupted, a dangerous recoil taking place, and the upper aperture discharging smoke into the apartment: this defect may be obviated to a great extent, though not entirely, by the use of valves, unless they be regulated, and adapted from time to time according to the varying circumstances of the case.

Two apertures, then, at different levels are the great essentials in each apartment, and so ample a supply to all stairs and passages, that they shall not borrow or draw down air from individual rooms, but give freely to all that do not draw their supply from an external source. The most serious evils from offensive draughts and currents may be greatly diminished by proper diffusion of the air, as well as by the previous communication of warmth to it. Diseases from exposure to draughts appear principally to arise when the constitution has been heated excessively, in consequence of a defective supply of air; but, were a small aperture left continually open, the constitution could never attain that extreme susceptibility of cold, and aversion to the slightest breath of air which so often accompanies too limited a supply, and that reduction of the insensible cutaneous and pulmonary exhalations by an atmosphere loaded with moisture which leaves the surface of the lungs and skin unduly excited and turgid with a load of material that would have been dissipated by exhalation and evaporation with a better supply of air.

When a fire-place is in action, it necessarily complicates the ventilation. But all cases of this kind resolve themselves into the following classes:

The first comprehends those in which the fire-flue alone becomes the discharge of vitiated air. This cannot be considered the best, as, under ordinary circumstances, the fresh air travels along the floor, and little rises to the head, where it is most largely required.

In the second class, the evil effects of the vitiated air, which is prone to accumulate above the chimney breast, are diminished by its being raised to a higher level than is now common, or by admitting the external air from an aperture above, near the ceiling, so as to sweep across the apartment in its descent to the fire-place.

In the third and best class, the chimney flue is reduced to a minimum, and carries off solely the products of combustion; another superior aperture discharging the products of respiration and of lamps and candles, while a free ingress of air prevents all interference of the fire-flue and the ventilating flues. This adjustment is carried still farther in some places by the union of the fire and ventilating flues, and by the provision of a sufficient local supply for the fire in its immediate vicinity, which reduces greatly the general force of the current throughout the apartment.

The above principles involve the more important bearings of the question of ventilation so far as it affects the individual apartments in tenements occupied by the poorer classes of society, it being taken for granted that the evils arising from defective drainage, closets and cleaning, and a bad external atmosphere have been removed. Practically then, a well-constructed window, capable of being opened above and below, realizes, when the fire-place is well arranged, all the essentials for effective ventilation in such apartments. Windows, however, are not recommended as affording the best means of insuring ordinary ventilation, though they may be resorted to with advantage when the weather is not severe, or under peculiar circumstances, and should therefore always be available when large supplies of air are required; but for that more minute ventilation which the system requires and tolerates in the severity of the winter's cold, and at a time when the dryness of the air promotes rapid evaporation both from the skin and lungs, a much less extended opening is required, and one capable of more minute and delicate adjustment to the ever-varying circumstances of the case, than a window can be made to command. The complaints arising from draughts and currents exist only when the movement of air becomes excessive, and is not suited to the temperament on which it impinges. The human frame is so constituted that a movement of air is perpetually sustained around it by natural causes during life. Very cold air having a very gentle movement around the person may not be offensive, while a much warmer atmosphere moving rapidly may be productive of extreme annoyance.

Taking these circumstances into consideration, with the fact that doors and windows appear generally, if not universally, to have formed no barrier against the most defective ventilation, great improvements may be anticipated when every apartment shall be provided with an independent ingress for fresh air, and an egress for vitiated air, which, though small, shall be incessantly operating, much more capable of regulation, and one which can never induce those violent and extreme changes which are produced by the occasional opening of doors or windows that may have been closed for too long a period.

In the great majority of cases where an attempt at systematic ventilation has been carried into effect in ordinary apartments, the objections which have followed its introduction appear to have arisen principally from two causes, viz., the excessive introduction of fresh cold air, or its local movement arising from cold surfaces or defective diffusion, which might have been obviated by leading in the air at any more remote part of the room, or in any position, so as to admit of the first impulse being broken by a diffusion board, or by extending the aperture of ingress along the skirting.

Another cause which appears to have

tarded considerably the introduction of ventilation in ordinary apartments, is the idea that some special force or power is required for this purpose. It is true, indeed, that a power is required; but nature has provided this power in the movements which the warmth of the person necessarily induces in the air which it vitiates; and hence, if the natural movements of vitiated air in ordinary apartments be not opposed and resisted by the absence of apertures at those levels where air, if left to itself, will enter or escape, the discharge of vitiated air upwards by ordinary currents is as fixed and certain as the descent of water by its natural gravity in draining operations; and, if a modification be induced in apartments by kindling a fire, still, if the chimney-flue be not excessive in size, and an adequate supply be given for it, as well as for superior ventilation, these natural movements will be sustained, and proceed in harmony with the functions of the system.

Apertures such as are now adverted to may not command the extended movements that give the most complete ventilation that machinery, furnaces, and other arrangements can sustain; they may be rendered more or less irregular by the action of the wind; but, without inducing severe draughts, they will remove the extreme evil that induces so large an amount of weakness, disease, and death, and it is this result that is necessarily most important to society.

It is also important to know that mere openings operate in another way than by facilitating ordinary currents, according to the relative pressure within and without in any apartment, though this second mode of action is to be regarded principally as an auxiliary force, in respect to its power of changing the atmosphere in any apartment, however important its functions may be, where the air comes in direct contact with the living frame. So careful has nature been in the securities taken to prevent any stagnation of air around the person, that, besides the movements dependent on an alteration of the specific gravity of each successive portion of air that is received into the lungs, or brought in contact with the surface of the body, a power of penetration, revealed in modern times more especially by the experiments of Dalton and Graham, is found to be incessantly in operation, promoting natural ventilation, and discharging vitiated air from every place in which it is prone to accumulate. This force operates in every direction with a power superior to that of the pressure of the atmosphere, and its tendency is slowly to diffuse all gases and vapours through each other, whatever may be their difference in specific gravity; its action is never arrested except where air-tight barriers are interposed between one portion of the atmosphere and another. Hence, then, where internal and external temperatures approximate so closely as to reduce the movements that commonly ensue between the atmosphere within and that without, and even where they may be reversed (as when a higher temperature prevails externally than is found within), still the power of penetration between the particles of different gases or vapours never ceases to reduce the intensity with which they may be prone to accumulate in any individual place, provided a communication be maintained between it and the external atmosphere.

HOLBORN AND FINSBURY COMMISSION.

Tenders for new sewers.—Copenhagen-street, White Conduit Fields: length, 1,040 feet; surveyor's estimate, 852*l.*

G. Smith (Bayswater)	£1,018 15
Hill	1,012 0
Johnson	996 0
Cooper	940 0

Gray's Inn-lane, &c.: length, 800 feet; estimate, 816*l.*

Cooper	£1,020 0
Eldred	975 0
Ward and Son	922 0
Hill	905 0
G. Smith	787 11

Red Lion-street, Clerkenwell: length, 480 feet; estimate, 440*l.*

Hill	£560 0
Cooper	554 0
Johnson	548 0
G. Smith	460 19

THE TOOLS AND IMPLEMENTS OF INDUSTRY AND ART.

A lecture on the above important and interesting subject was delivered on Thursday, 21st inst., at the City of Westminster Literary and Scientific Institution, Great Smith-street, by Mr. Wm. Higgs. The lecturer commenced by observing, that man was distinguished by the possession of the inventive faculty, by the proper exercise of which he is enabled to administer to the comfort and happiness of himself and all by whom he is surrounded. The mechanical powers, the means whereby muscular force is augmented and man is enabled to perform with ease many things, of which his unassisted strength would be quite incapable, were next glanced at, and an experiment or two given in illustration. Hunt's Patent Receiving Box was also alluded to as an ingenious and useful invention, illustrating the employment of the lever.

Having taken a brief view of the progress of the building art from the most primitive hut to the convenient dwelling and the elegant and stately mansion, the lecturer next commenced a detailed examination of some of the implements by which that art had been advanced to its present state. The spade first engaged attention; the properties of a good one were described, and the audience put on their guard against the spurious, but good-looking article formed by rolling, &c. The axe was then described, and its varieties exhibited, with notices of ancient instruments of this kind, of stone, and subsequently of an alloy of copper, as preceding the use of iron and the more improved steel-edged and steel-polled axe and adze of the present day: the Canadian, or Backwoodsman's axe, from its formidable appearance, excited much interest. After detailing the manufacture of these important tools, the hammer was noticed, and many of its varieties submitted to the inspection of the audience. The delicate hammer of the watch-maker, weighing together with its handle not more than 140 grains, was contrasted with the metal helve of our ironworks, weighing seven or eight tons, a diagram of which and of the tilt hammer made their mode of operation easily understood; the sledge of the smith, and the highly-wrought and beautifully polished planishing hammer of the silversmith were also examined. A form of mallet, differing from that in use by the carpenter, was also suggested, as having its weight so concentrated as to strike a heavier blow with less expenditure of labour.

The saw was described as an instrument of great importance, both as regards facility of operation and economy of material; its history and high antiquity were noticed, and its principal varieties submitted to inspection in a number of most beautiful and highly-finished specimens. The manufacture of saws was described as calculated to call into operation the skill and ingenuity of first-rate workmen. The properties of a good saw were thus described: "It should not be so thick as to be heavy or clumsy, nor so thin as to be easily crippled by fair use; the plate should be equally ground, not gouty or thick in the middle, for then it will require too much set, but if it gradually taper from the teeth to the back it will work with the smallest amount of set to the saving of wood and labour; it should not be too hard, but be capable of being filed, nor to soft, for then it will not retain its edge; upon examination, it should not discover any weak or crippled part, but all the particles should have an equal tension." A tool not much known but very useful was noticed, the flote, as intermediate to the saw and file. The antiquity and importance of the file also claimed attention. File-cutting was described, as also the subsequent process of hardening; many beautiful varieties were exhibited, some of the most exquisite workmanship, and some so exceedingly small as to bear a value of 2*l.* per ounce.

New Railway Break.—The Rev. F. H. Maberly, of Stowemarket, has lately obtained a patent for a break, by means of which he states, "every carriage of a whole train may be easily, safely, and almost instantaneously stopped," and further, that "if applied in all parts, it will be the means of preventing the carriages being thrown off the lines by oscillation or otherwise."

THE OLD CHURCH AT FULHAM.

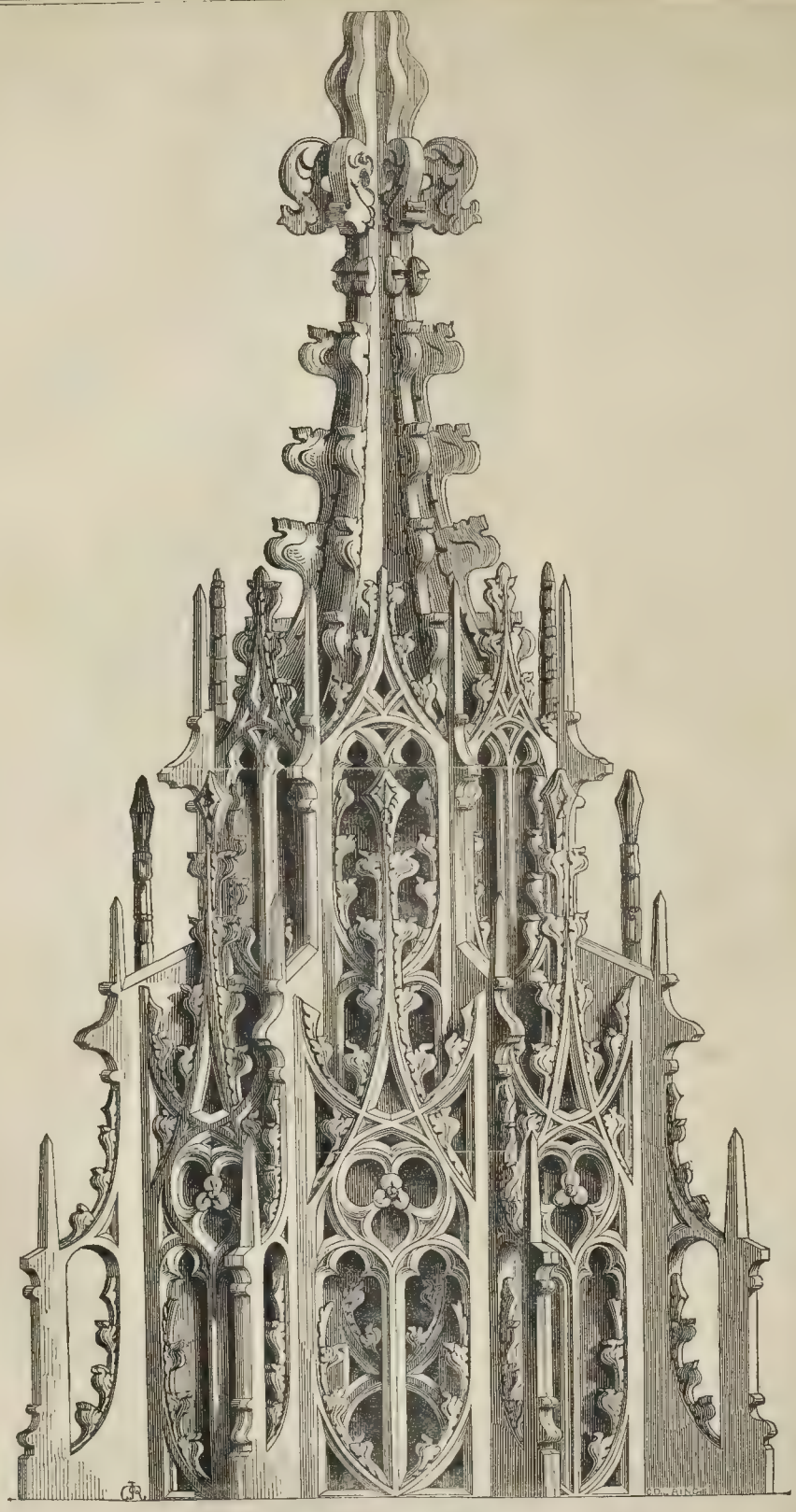
The venerable tower of Fulham church, adjoining the palace of the Bishop of London, has long called for restoration: brickwork capped with Yorkshire paving formed the battlements, the turret was stunted, the belfry windows, strings, and plinth, were tumbling to pieces, and the great west window had disappeared altogether, and was boarded up. Partly by a rate, and partly by subscription, funds have been raised, and the work is now rapidly proceeding, under the direction of Mr. Godwin, the architect. His lordship the bishop, the Rev. Mr. Baker, the rector, John Gunter, Esq., and several other of the principal inhabitants of the parish, have exerted themselves to effect this restoration. Mr. Samuel Cundy, of Pimlico, is the contractor. When completed we shall give some account of the church, which has several points of considerable interest.

PROTECTION OF BUILDINGS FROM LIGHTNING.

The effect of a thunder storm on the hot-houses and frames of the Marquis of Lansdowne, at Bowood, has led to a correspondence on the subject of conductors in the *Mark Lane Express*. Mr. White, of Walworth, says:—"I am fully persuaded that if a range of conductors had been placed on the nearest rising ground, the severity of the storm would have been drawn off, and the noble marquis's property preserved in part, if not altogether. But it frequently happens that many mansions are provided with "numerous conductors," like those erected by Pope Pius VII. for the protection of St. Peter's at Rome, the cupola of which edifice is *cracked in many places*, and ten arches of iron, weighing 60,000 kilogrammes, have been placed so as to prevent its fall. The lanterino above the cupola, which supports the cross, is found to be cracked through and through, and has been surrounded by heavy iron chains to prevent the crack from extending. All this heavy iron they say is to *prevent mischief by thunder storms!* Now the fact that conducting rods judiciously placed will protect buildings from injury, is fully established, as shown by Dr. Franklin; but if numerous conductors be erected about the same building, it is evident that they will attract the passing storm to that focus, and there the elemental strife will rage; and again, the application of ten iron arches, and heavy iron surrounding chains, are sufficient to draw from the thunder clouds such a vast amount of the electric fluid as to shiver the building to atoms. We not unfrequently see a tall chimney, or a stack of chimneys, supported by slanting bars of iron fastened to the roof of the building. It commonly happens that the electric fluid will follow the slanting irons, and, not finding a free passage, frequently damages the roofs or the walls; and then the wonder is, how came the walls cracked? An architect is consulted, the foundation must be defective, and the walls must be shored up; whereas if the conductors had been simple, and there had been no lateral bars of iron, the walls might have stood for years uninjured. Conducting rods, if judiciously placed—that is, if they are properly insulated from the building—are great safeguards to the property under protection; but if placed in such a manner that a lateral discharge may come in contact with the building itself, they are then instruments of destruction rather than safeguards or protectors.

Views in Saxe Coburg and Gotha.—Mr. Hogarth, of the Haymarket, is preparing for publication a series of views of the ducal palaces, castles, and hunting seats in Saxe Coburg and Gotha, drawn on the spot, and lithographed by Douglas Morison. The work is announced under the patronage of the Queen and Prince Albert, and will be dedicated by permission to the Duke of Saxe Coburg Gotha.

Royal Dublin Society.—The appointment of drawing-master in the figure school of this society is at present vacant. Candidates are required to send in probationary drawings by the 25th of October next. The election will take place in the following month.



Font Cover, St. Dunstan's Church, Canterbury.

ONT COVER, ST. DUNSTAN'S CHURCH, CANTERBURY.

It is very probable, that in ancient times overs were considered a necessary adjunct o fonts, and that there were few erected in ngland without them. The material of hich they are mostly constructed being wood, id liable to decay and accident, but few of ese interesting objects are now found. The bject of the plate is a very fine one, it still re-ains suspended over the font at St. Dunstan's urch, Canterbury. It is a good specimen, st, of the rich architectural features these nt covers must often have presented, and condly, of the ease with which they were con-ucted, for though they appear to be elabo-te when completed, they are in truth of mple design. In this cover there are only ree pieces of separate pattern, these by being peated eight times each, form the font cover. r the assistance of the young designer, I ve given sketches of the three pieces with portion of the plan, to shew how they are put gether.

The font cover at Ewelme, in Oxfordshire, d that at Fosdyke, in Lincolnshire, are con-ucted upon similar principles. The effect such composition, curious as it may seem some, is the more beautiful, as the parts are s dissimilar.

The font at St. Dunstan's is a plain stone agon one, standing about 4 feet 10 inches in ght, it is of similar date to the cover. rter, in his great work on the ancient archi-ture of England, gives a print of the font d cover complete, but the latter is most ngely drawn, totally unlike the object it cts to represent. He places it among the cimens of the latter part of the reign of ward the III. The style of the cover ap-rs to me to be that of the middle of the eenth century, when Gothic architecture rapidly becoming debased.

ew, very few font covers remain in Eng-d of earlier style than the one at St. Dun-'s church, but several can be found of ilar character; at Littlebury church, in ex, is a very curious one of very novel de-, but it has been lately removed from its inal position, and half destroyed.*

he facility, through the aid of machinery, which all sorts of Gothic tracery and abethan ornament, in wood or stone, can be produced, will, before long, change the arance of our architecture, giving the resque enrichments of the olden time both ur churches and domestic edifices; a font r in oak, equally as rich as that of St. stan's, can be made in London by Pratt's ing process for 15*l*. The young carver exert his ability, and make the powers of nind the rival of the forces of mechanical cy.

C. J. Richardson.

STAINED-GLASS FOR ST. JAMES'S CHURCH, PICCADILLY.

e designed in *keeping* with the interior, which is con-red one of the finest specimens of Sir Christopher n's abilities."—Vide Mr. Mayhew's Circular to Ar-, on July 16, 1844.

,—As a constant subscriber to your ble journal The Builder, your able and d protest against the absurdity and mani-holecism about to be perpetrated in St. s's Church has naturally come under my e, and is so correct, that it must, and will, ubt, carry with it a conviction of justice propriety to every rightly-informed mind, thereby arrest the progress of such a trosity.

at can be inferred of a committee who select for an Italian building an altar-w of a Gothic design, a positive com-t of Norman and Early English, and in ce too of their very circular and the ted terms of it, viz. that it should "be ed in *keeping* with the *interior*, which is ered one of the finest specimens of Sir opher Wren's abilities?" I boldly the only conclusion that can be come to candid person is, that they have acted ntly and unjustly—ignorantly, seeing committee of their own paupers could ve committed so great a mistake, each of er designs being in perfect accordance and in *keeping* with the interior; the one selected being the only exception—and unjustly, because by the terms and conditions they put forth they have misled and wasted the time and talent of artists, as well as wasted, by misapplication, the funds intrusted to them by the subscribers, by adopting an unfitting design, *not* "in keeping," &c. &c., from an artist who candidly confesses his incompetency to any other. What, Mr. Editor, would Sir Christopher Wren have said? that perhaps which Boileau has said—"nothing is beautiful which is false."

Mr. Willement and Messrs. Ward and Nixon wisely declined the *competition*, and, Sir, can it be wondered at, if, after such exhibitions of thoughtlessness in a number of eminent persons (who ought to know, and some of whom, no doubt, do know better)

> That artists in future should decline
> To throw their "pearls before the swine;"
> Donors, too, devotionally bent,
> May have a care their meed is not mis-spent.

I am, Sir, &c.,
William Warrington.
42, Berkeley-street, Hyde Park-square,
August 25, 1845.

In your article I believe you are not exactly correct in one point. The persons originally applied to (as I am informed) were Mr. Willement, Messrs. Ward and Nixon, Mr. Backler, and myself. Eventually the Duke of Cleveland and the Bishop of London wishing Mr. Wailes to be applied to, it was thought proper by the committee to open it to an extended competition. The Bishop of Armagh, the Bishop of London, and the Duke of Cleveland are, I perceive, the three principal subscribers with Mr. Byng.

*engraving of this font and cover has been in our or some time, and will shortly be given in The s.—Ed.

DETAILS OF FONT COVER TO ST. DUNSTAN'S CHURCH.



FREE ADMISSION TO PUBLIC BUILDINGS.

On Saturday last a petition, signed by the mayor, magistrates, town council, clergy, and principal inhabitants of the city of Lincoln, to the number of 160, was forwarded to the Right Honourable Sir Robert Peel, Bart., the premier, praying him in the appointment of the new dean to the cathedral chapter of that city, to have regard to the free admission of the public to the cathedral at proper periods. At present a fee of one shilling is demanded to view the interior; this acts as a severe tax upon the citizens, who may have visitors, and who, in shewing "the lions" of the city, do not like to be charged with a payment of one shilling per head for walking through an edifice, profusely rich in sculptured decorations and magnificent in its lofty slender columns and groined vaultings of the nave, yet possessing few attractions of stained glass or monumental records. The recent decease of Dean Gordon, the discussions in Parliament, the correspondence with the Dean of Westminster, and the various articles in the public prints, about the example given by the Deans of Durham and Norwich, have all suggested to the citizens of Lincoln the propriety of making the present effort for a free admission to the interior of the cathedral. Of course it is not intended to exempt those who are curious enough to clamber up the rood-tower, to visit the great "Tom bell," from the payment of a proper fee to the guide. The same remarks apply equally to York and other cathedrals in the country, where a disgraceful system of fee-taking is too frequently carried on.

As regards Norwich Cathedral being open to the public, we are disposed to think any person applying to view it would find they

ould see very little of the building without payment, and that only during a certain number of minutes each day. While on this subject, we would allude to the insolent and discreditable behaviour, in his office, of the principal verger at St. George's Chapel, Windsor, a man named Tucker, who seems to regard every person that looks into the nave of that building, in the half-hour previous to divine service on week-day mornings, during which it is open, as committing a robbery; and when the first lesson is over, drives them out of the door with the greatest incivility. We seriously advise this worthy functionary to alter his course before stronger representations are made.

ENGLISH DECORATORS AND THE NEW HOUSE OF LORDS.

Complaints have reached us, that either the Royal Commissioners on the Fine Arts have behaved ill to the decorative artists who submitted works in competition, or that their recommendations are put aside by others. A communication in the *Spectator* of last week contains the whole complaint: we extract from it the following:—

"There are at this time some sixty or eighty decorators — wood-carvers and ornamental painters—at work upon the enrichments of the Chamber of Peers in the new palace; and among them, I believe, are only one or two of those artists whom the commissioners expressly recommended for employment. Certain it is, that the most skilful and experienced practical workmen among the carvers and painters thus recommended have not been engaged; and what makes this still more extraordinary, is the statement of Mr. Pugin, who superintends the interior decorations, that for want of competent assistance from Englishmen he is compelled to send for foreigners.

When the royal commission in 1843 invited the English decorators to send in specimens of their ability in the various branches of ornamental art, no premiums were offered; it being understood that the prizes for successful competitors would be employment. In pursuance of this arrangement, a committee was appointed to inspect the specimens exhibited in the spring of last year at the St. James's Bazaar, and to report on the merits of the artists. These reports, from which I shall presently quote, are printed in the third Report of the commissioners. That the ornamentists whose specimens were approved have been officially recommended to be employed *in preference* to others, I know for certain; having seen letters signed by the secretary to the commission, Mr. Eastlake, and sent for the information of the parties. I can also state of my own personal knowledge, that the artists in question have applied to Mr. Barry for employment, and are both willing and able to enter upon the work, but have been put off with smooth words and promises. Not being aware of any but wood-carvers and ornamental painters being employed at present, I confined my inquiries to these two branches of decoration. Six carvers, namely, Messrs. Cummings, Ollett, Ringham, Freeman, Browne, and J. Thomas, were favourably noticed in the Report of the committee; and another, Mr. Rogers, is especially mentioned in these terms: 'It is the opinion of the committee, that among the carvers whose works have been exhibited he holds the first place; and they consider him as the person best qualified to be entrusted with those parts of the woodwork of the House of Lords in which great richness of effect and delicacy of execution are required.' Nothing can be stronger or more explicit than this. And that the commission adopt the recommendation of the committee is proved by a letter from the secretary, directing Mr. Rogers to communicate with Mr. Barry. Mr. Barry says there is nothing for him to do at present; and bows out the applicant with this flattering excuse,—'There is nothing worthy the exercise of your talent, Mr. Rogers, in the House of Lords!' So that the doors, for which designs were especially required, the stalled and canopied seats of the peers, and the throne, are all to be left to common workmen. The soffits of the ribs of the ceiling, though they are of pierced carving, gilt and relieved upon a coloured ground, cannot be considered very important, since they are cut out of Canadian pine, the commonest and most fragile wood that could be chosen, and a favourite haunt of insect vermin. Of the other six carvers I have only heard of one being employed, and he only as a journeyman; and two individuals might be named who have suffered serious loss and disappointment by leaving their business in the country, in consequence of the committee's recommendation.

'In the department of arabesque painting, the artists noticed in the detailed report of the committee are Mr. Collman, Mr. Goodison, and Messrs. F. and J. Crace,' say the commissioners; and they add the opinion of the committee, that the specimens sent by Mr. Johnson 'evince considerable taste and ability.'

The following significant hint was appended to their report:—'The commissioners, having had reason to suppose that some of the persons who have exhibited works of decorative art *may have employed other hands*, or even the assistance of foreigners, in the execution of such works, have resolved that those persons who may be selected for employment in those branches of decoration shall, if the commissioners think fit, be required to produce specimens of their art, to be completed under such conditions as the commissioners may think necessary.' The meaning of this is, that the commissioners will employ none but practical men—working artists. Mr. Collman is an architect, and employed German painters to execute his design. Messrs. Crace are very respectable shopkeepers, who undertake decorations and employ artists to execute them; but they are men of business and taste, not working artists. Of themselves they are incompetent to the production of the specimen they sent in; on which various artists, French and English, were employed. Mr. Goodison and Mr. Johnson were the only successful competitors in arabesque painting who designed and executed their specimens themselves; yet neither of them is employed; while Messrs. Crace have both the honour and profit accruing from the painted decorations of the House of Lords, which are being executed by foreign and English artists, from designs furnished by Mr. Pugin, and under his direction, to the exclusion of the only two artists who were qualified for employment according to the decision of the committee. To the application of Mr. Goodison, the same flattering answer was given by Mr. Barry—that there was no scope in the House of Lords for the exercise of his talent; it was mere journeyman's work. If this injustice be suffered, the inference is inevitable, that the Royal Commission either wants the will or has not the power to enforce its recommendations. In either case, the artists whose labour has been taxed, and whose hopes have been disappointed, will have good ground of complaint of a breach of faith. The country also will have reason to be dissatisfied that the best native talent has not been engaged on a national work, that is intended to exemplify the highest state of perfection to which British art can attain in this age. The pecuniary loss to several ornamentists, through their being thrown out of employment by competing against their masters, or their giving up private business in the country to come to London, has been almost ruinous.

But, taking a wider view of the matter, there is great cause for regret that such a grand opportunity as this for calling out any original talent in ornamental design that exits in the country should be suffered to escape, by excluding from employment all but merely mechanical copyists of Gothic patterns."

Rare Building Ground. — The beautiful domain known as the White Knights Estate, near Reading, to which we referred a short time ago, is now fairly in the market as building ground. A company is in course of formation to make the roads and drains, build the lodges, and grant leases of plots for building on, and will not fail by a spirited and judicious outlay to secure a large return. The American and Chantilly Gardens, the wilderness and lake are to be reserved for the enjoyment of the inhabitants. It is impossible for the most graphic pen to describe the exquisite grouping of the splendid timber, shrubberies, and the slopes of sward, forming as a whole, perhaps the happiest effort of landscape gardening this or any other country in Europe can produce. We know of no such sites for houses at the same distance from the metropolis, and have little doubt that the shares will be eagerly sought after.

STIR IN THE SCHOOL OF DESIGN.

Sir,—As an article has appeared in you paper of the 16th instant on "the course o study in the school of design," the writer o which appears to have settled the matter ver much to his *own* satisfaction, will you permit m to prove that he is either ignorant of th course pursued by the students, *or* that he h endeavoured to produce wilfully erroneo impressions of the grounds of their complaint After mentioning the opinion of Mr. Pugi end a previous correspondent in your pape he goes on to say, "and those most modest r monstrators, the students, consider it utter useless, as the directors do not adopt th course of study which they, in their wisdo think fit to prescribe." Immediately follo ing this comes, "But among them all, for m part, I have read no attempt to disclose a pra ticable remedy." How those two assertio can be both true I do not see, unless t students have offered a practical remedy whi Mr. Morgan has not taken the trouble to rea But the first assertion is utterly false, w without the slightest foundation: the studen never have attempted to prescribe any cour of study, or even to offer any suggestions the council or the authorities of the scho The facts are simply these:—The council l down for the students a certain course study, and they offer to them a certain amou of instruction; they appoint a director a clearly define his duties. Now what are t complaints of the students? They compl that the course of study prescribed by t *council* has never been followed out; that t instruction promised by the *council* has nev been given; and, that the duties of the direc as defined by the *council* have never been f filled. These are questions of facts, r matters of opinion. We have never discuss the merits of the system laid down by t council; we have never attempted to dictate criticize their plan: we have laid before th depositions which prove (beyond all cont diction) that the instruction promised never been given, and the duties of the direc never fulfilled. If any further proof w wanting, hear the director's own admissio In a special report of his, delivered to council on the 4th of February (exactl month previous to our petition being s in), he says:—"As the subject of l turing is of much importance, I wish state briefly what has been the amount my efforts to comply with this duty." . . . "I have delivered a *very few* written dresses," . . . . . "and from time to ti when a new example or set of examples purchased, I have prepared myself and d vered a little lecture upon them." And *little* ones they must have been; and in s very snug corner they must have been d vered; they most certainly were never gi to the students, nor did they ever benefit th One solitary effort was made to get up a ture upon architecture, but painful to relat was found to draw too heavily upon talents of the director, and it was abando Immediately following the sentences qu above, he says (speaking of his *little* lectur "This cannot be deemed any sufficient sub tute for the course stipulated for by council."

At the same meeting of the council at w this report was read "Mr. Wilson was dire to obtain from Mr. Herbert a written st ment of the most efficient mode in whic conceives the figure can be taught in school with reference to ornament." I report accordingly prepared by Mr. Her he thought fit to suggest that a black b should be used by the director, practicall demonstrate to the students the various p of the lectures upon the history and princ of the various styles of ornament which it his duty to give. Now, immediately o sending in this report by Mr. Herbert, Wilson wrote to him, saying, that in co quence of the feeling which had incited hi suggest to the council the use of the board, he should hold no further corres ence with him. Now what reason could be to consider this suggestion as so sev personal affront. I have attended lectur various subjects connected with arts sciences, and I have found it a common (a a universal) practice for the various profe to draw upon a black board in the pre

f their audience, various diagrams illustrative f their subject. Is it possible then that the entleman who undertook to furnish original esigns for the various classes in the school, ho agreed to teach the whole body of the udents in the varied round of instruction romised in the school; and who took exclu- vely upon himself the task of teaching the *pper* class of the school, should feel himse f competent to the use of so common and enerally received a vehicle of instruction as e black board? And yet upon what other rounds is it possible to account for such a essage as that sent by the director to Mr. erbert, or for the virulence with which he as pursued that gentleman, until at last has procured the dismissal of one ho had done, and was doing, more for the ccess of the school, and the benefit of the udents, than any one else at any time con- ected with it. The truth is, the council had pped to have veiled from the public their ant of foresight, in appointing to the office director a gentleman practically ignorant, d to have imposed the belief that the school as rapidly progressing to perfection under eir management. The students have dared rend the mask from before them. They ve said to the public what the council had id to each other over their own tables long fore; and we are punished accordingly. ot for uttering falsehoods, but for daring to eak the truth.

I trust, Sir, that you will excuse my intrud- g so long on your valuable time, and I re- ain, yours, &c., R. Burchett.

August 25th, 1845.

SUSPENSION BRIDGES.

Sir,—I do not think Mr. Hosking, in his Treatise on Bridge Building," investigates principle illustrated by the diagrams in your 8th number. I cannot contradict "B. B." on s point, but can say I have never seen it, and ould like very much to have it pointed out to . I did not make a choice of the works at rby and Ashton, but inserted them in my ter because they were the first instances that curred to me at the time, probably for the ason that they had lately happened, and were refore fresh in my memory. I know nothing the particulars in either case further than given by the newspapers at the time; but, my recollection serves me, the centres in th bridges were being struck, and therefore y were completed. Neither did I require se examples to fill up a vacuum in an argu- nt which was of minor importance, and ich I did not enter upon in my first letter il after stating I had replied to "all that ncerns me;" for I could adduce a score of dges that have fallen, and an immense num- in a very dilapidated state, if it were not idious to the engineers to mention them.

"B. B." mistakes my position if he sup- es it to be suspension *versus* compression dges. It is the *principle upon which both spension and compression bridges are generally ld* to which I object, and which I say is in- rect. To set it clearly before you, let it be wed, that of two principles (which require their investigation data differing from each er), when carried out in practice, and com- ed together, that which is superior in power, admits of unlimited extension, may be ned correct, whilst that which is inferior in er, and continually approaching towards a cimum, incorrect. This being premised, e are a few experiments with suspension dels, constructed on the catenary, and on plan.

In Bristol, Jan. 6, 1838, two models of al materials and dimensions were tried. parallel chain model bore 1·565 lbs.; the r chain model bore 3·681 lbs. Again, in stol, Jan. 10, 1838, the parallel chains bore 6 lbs.; the taper chains bore 3·696 lbs. other trial before the same party, the same , was made with models constructed by Cross, of Bristol, unknown to Mr. Dredge, rder to prove that all was fair in the former ls; and the result was, the parallel chains 2·632 lbs., and the taper chains bore 9 lbs. Each model broke on adding more ght, and the chains throughout on the taper iciple was reduced one size by the experi- sts."*

* Lord Western to Lord Melbourne.

These experiments are proved by practice and verified by mathematical investigation, which does not shew a maximum in extent of span. Hence, that principle which demonstrates the tapering chains may with propriety be termed correct; whilst that which compels the catenary, incorrect: and now to apply this reasoning to compression bridges. The only condition involved in our present inquiry depends upon the line of resistance which is traced from the resultants of the pressures applied to the arch of the bridge. Now, since these pressures are similar, and similarly applied both in suspension and compression bridges, their resultants are similar; and because it is the relative magnitude and position of these pressures which constitute the principle, we argue that since they are similar in each, the principle is the same in both. But the investigation turns on this point, that in the former the direction of the bars in the curve is determined by the direction of the resultants of pressures, whilst in the latter these resultants trace out some line within the boundary of the voussoirs, and the stability of the structure depends upon this line not intersecting the extrados or intrados of the arch. Now, if the fundamental principle is the same in both, and has been proved in one to be wrong, it follows it must be wrong in the other also.

By this time "B. B." will see that the failure of the suspension bridges which he brings forward are proofs in my favour, because they tend to shew that the principle upon which they are built is erroneous,—the very position I take. I have merely to remark in reference to the extract from Professor Hosking's work, that it is the opinion of an eminent man, to which I offer no objection, when the span is small, the command of capital large, provided the head room beneath the arch, or a hill over it be of no consequence; for in such cases any error of principle may be counteracted by immense masses of material, which the public have been used to see, and therefore think substantial, but because the error increases in a greater ratio than the span, when we come to extensive bridges there is this objection, viz. that the use of stone is impossible, in large spans it is very difficult of application, and in very extensive ones impracticable.

"B. B.," Still dwelling upon suspension bridges, after alluding to many circumstances which are supposed to alter the internal structure of iron, goes on to say: "in proof of which see the accounts of the numerous accidents that have occurred on the various lines of railway from the fracture of the axles of railway carriages," &c. This is no proof at all, Sir, for in the axle of a railway carriage the forces are applied at right-angles to the direction of the fibres, but in the bars of a suspension bridge in the direction of them, the mechanical action of the fibres of the two is very different, the mathematical principles distinct, and therefore the comparison is erroneous.

With regard to the Yarmouth bridge, the immediate cause of failure is easily accounted for by the fact that the section of iron in the chains was not sufficient to resist the effects of a loaded platform, for at the time of the accident there were several tons of tension in the chains more than the engineer should have allowed, and this, coupled with the inferior quality of the iron, accounts for the failure. It may be very true that twice the number had been upon the bridge, but then the weight was equally sustained by both chains; and besides, perhaps this weight might have permanently injured the iron by straining it beyond its limits of elasticity, so that when the lesser weight came on one chain it broke down. A question may be asked of me, would not your plan if similarly situated be attended with a similar result? Certainly not; for in the first place, if any part of the chain had an under strain upon it, the rest would be immediately active to resist it; and secondly, even supposing the chains to fracture similar to the Yarmouth, only one-eighth of the bridge would have sunk, and this not sufficient to have endangered life, because the remaining seven-eighths would have stood as firm as ever, and would have supported it.

I have again to remark that all the objections urged against suspension bridges generally are arguments in my favour. And in reference to the oscillation which "B. B." here speaks of, I beg to refer him to my letter published in your 128th number.

I am, Sir, &c.,

Bath, August 18th. James Dredge.

P.S. "M. Navier speaks of a chain stretched across between two rocks that command the town of Mourtiers, in the department de Basses Alpes. It is 656 feet long, and made of rods about 2 feet 1½ inch long, and ¾ inch diameter, hooked one to the other without any intermediate links. The date of its erection is not certain, but it is supposed to belong to the thirteenth century. It does not, however, appear to have been ever intended for a bridge, but is thought by some to have been an offering to the Virgin to obtain protection against being overwhelmed by the rocks that overhang it. By others it is attributed to a knight of Rhodes, who is supposed to have erected it in consequence of a vow made during his captivity in the holy land. The iron is said not to be injured by rust."—*Drewry, page* 9.

*** We learn from the newspapers that a suspension bridge near Calcutta has just now fallen in. It was known as the Ballee Khall bridge, and was the largest of the kind ever constructed in India. It gave way in the middle just as it was completed, and fell into the creek over which it was erected. The accident is attributed to an error in judgment of the contractor, while making some necessary alterations, and does not in any degree effect the principle on which the bridge was built.

POWER OF CORONERS TO INQUIRE INTO THE CAUSE OF FIRES.

Quebec, New York, London, have been recently the scenes of fresh conflagrations,—lives have been lost and property destroyed to an enormous extent. The attention of Europe is awakened to the importance of an inquiry into the means of averting this dreadful catastrophe, and it is to be hoped that some steps with that end in view may speedily be taken.

Last week a jury of the inhabitants of the ward of Cripplegate-within were empanelled before Mr. W. Payne, the city coroner, at the School-house, Philip-lane, Aldermanbury, to inquire into the cause of the late fire on the premises of Messrs. Bradbury and Co. Manchester-warehousmen, of Aldermanbury.

The investigation, from its novelty, excited considerable interest, several of the common council of the ward, together with the civic authorities, being present.

The coroner, on taking his seat, said he would take the liberty of stating, as the present was rather a novel proceeding, why he had called them together. Latterly the number of fires in London had considerably increased, and when they took into consideration that nothing was so fearful as fire, they would be of opinion with him that when they had the power to inquire into the causes of such fires, nothing could be more important to the public at large than that the cause should be closely investigated. The ancient authorites shewed that in olden times it was the practice of the coroner to inquire into all burnings within his district, and that power still belonging to the coroner, although fallen into desuetude, he thought that they would be of opinion with him that it was most important that it should again be brought into force. In "Horne's Mirror of Justice" the duties of the coroner were clearly laid down, and among those duties the coroner was to inquire of all burnings, whether they were caused by felony or mischance. If they were of opinion that they had been set on fire with a felonious intent, then it was their duty to inquire and ascertain who the party was who was guilty of that felony. It was clear, therefore, in the olden time, that part of the coroner's duty was to inquire into all burnings; and he need not say how necessary it was to revive it at the present time. No one had the power to inquire into the causes of a fire—not even a magistrate, unless a party was in custody charged with causing it. The persons living in the neighbourhood of a fire were always most anxious to know how it occurred, and he thought the public would think that he had done no more than his duty in causing a jury to be summoned to inquire into the circumstances of the late fire, who also might, by any suggestion thrown out, prevent, in a great

measure, fires being so numerous. He had directed a number of persons to be summoned to give evidence as to the cause of the recent fire in Aldermanbury, so that they might come to a proper verdict, whether it was caused by accident or otherwise.

As every thing connected with this novel and most important proceeding must be of interest, the following is the form of oath administered to the jury:—"You shall well and truly inquire, on behalf of our Sovereign Lady the Queen, why a certain house and premises, in Aldermanbury, were lately burned, and a true verdict give according to the evidence; so help you God."

After a patient investigation the jury returned a verdict, "That the fire was caused by accident."

NOTES IN THE PROVINCES.

The inhabitants of Taunton are displaying no little spirit and judgment in carrying out their determination to improve their town, and thereby render it more attractive to strangers as well as more pleasant and healthy to themselves. A public meeting is about to be convened for the purpose of electing a committee of taste, and of devising means to carry into execution those improvements which may be considered desirable. Many excellent suggestions have already been made, among them we may mention the removal of the alms-houses in Magdalene-lane, and building in their stead a number of elegant and uniform cottages; the purchasing ground for public walks; the erection of a suitable building for public concerts, lectures, &c. A prospectus for the erection of public baths has also just been issued. It is proposed to raise a capital of 800*l.* in shares of 10*l.* each. 500*l.* to be appropriated to the building, and the remainder to furniture and incidentals. These and other improvements will not only raise Taunton in the scale of places of resort, especially during the winter months, but will confer a permanent benefit upon her denizens.——The new Corn Exchange at Colchester was opened on Saturday last. The event was celebrated by a public dinner, at which upwards of eighty gentlemen sat down, and George Round, Esq., the high-sheriff of Essex, presided. The building is situate close to the old Exchange, at the entrance of High-street. The façade is composed of a receding centre and wings, the entrances being under an Ionic colonnade, and the wings are connected by pilasters of the same order. The wings are ornamented in niches or panels with two bas-relief figures the size of life, emblematic of ancient and modern agriculture. A figure of Ceres, to cap the centre colonnade, is now in course of preparation. A flight of steps leads to the interior, which is an apartment 78 feet by 47, a row of light pillars on each side supports the centre part of the roof, the northern end is semi-circular, there is a row of sky-lights running all round, and a large lantern-light in the middle. The cost of the building, independent of the purchase of the ground, is about 2,400*l.*——The committee for the restoration of the Norman Tower, Bury St. Edmunds, have once more issued an appeal to the public for means to enable them to rescue this fine specimen of Norman architecture from the destruction that threatens it. The total sum required is 2,794*l.* The subscriptions amount to 2,294*l.*, leaving still a deficiency of 500*l.*——A cemetery is about to be formed at Dudley, in Wolverhampton-street. The ground, comprising part of the fields and gardens between there and the castle bounds, in extent about ten acres, with a frontage of a hundred yards to the main street, is given by Lord Ward.——A new church is about to be erected in the Wicker, Sheffield, at the sole cost of the Misses Harrison, of Weston.——Great improvement is in progress at the Market-street entrance to Trinity Church, Cambridge. A local paper states that very handsome iron gates have recently been put up there by Messrs. Shallow and Coleman.——Government has appropriated 25,000*l.* of the grant for the improvement of harbours to that of Harwich, and the works will be commenced almost immediately.——Part of Cabourn Wold Pillar, situate one mile from Caistor, in Yorkshire, may now be seen above the trees. The stone-work is of such firm and neat execution, that great time is required even in gaining a few feet in height. Persons sailing on the Humber may now see part of the building, which, when finished, will be an ornament, and a use to most extensive views, both by sea and land, from the highest ground in Lincolnshire.——The Cliff Bridge Company, Scarborough, have accepted the tender of Mr. John Barry, to erect a sea wall from the span to the bridge.——The trustees appointed under an act of Parliament for rebuilding Staines Church have advertised for the loan of 4,500*l.* upon security of the rates.——At the last monthly meeting of the Literary and Philosophical Society of Newcastle, Dr. Glover, as secretary of a committee appointed to take steps for the immediate formation of a collegiate institution in this town, stated that the committee had memorialized Sir James Graham on the subject, and that although the answer of Sir James Graham was not favourable to the prayer of the memorial, yet it was not such as to preclude all hope of receiving assistance from Government.——The Wesleyan Chapel, at Bramley, Yorkshire, has recently been considerably enlarged and improved, and an infant school erected at a cost of upwards of 1,000*l.* Mr. Simpson, of Leeds, was the architect.——Holy Trinity Church, Hull, is undergoing a complete restoration, under the superintendence of Messrs. Binks. All the contractors are bound to complete their works before the 9th of October.——A prospectus has been issued during the past week for the erection of a harbour of refuge in the Downs, between Deal and Sandwich, and close to the branch of the South-Eastern Railway. The proposed capital is 200,000*l.*——At Huntingdon, workmen have recently been employed in pulling down the Theatre, preparatory to a chapel being erected on the spot.

New Books.

Compositions from Shakspeare's Tempest. By J. Noel Paton. Chapman and Hall. 1845.

Mr. Paton has already made himself favourably known by a volume of outlines illustrative of Shelley's Prometheus (rewarded by the Art-Union of London with an honorary premium),* and a cartoon now exhibiting in Westminster Hall, for which he has been rewarded by the Commissioners of Fine Arts. The compositions before us will not fail to increase his reputation, some of them indeed display extraordinary genius, and lead us to anticipate that their author who is quite a young man, will take a high place in his profession. We would instance more particularly No. 5, "The foul witch, Sycorax," and No. 11, "Caliban musing," which are full of power. With much cordiality, we bid him go on, and prosper.

A Manual of Writing and Printing Characters, both ancient and modern. By B. P. Wilme, Civil Engineer. Weale, Holborn.

This is a very valuable work, and should be purchased by all young engineers, architects, and surveyors. The author asserts no more than the truth when he says, "The groundwork is laid for a system of analysis never before attempted, and which will be found to afford the greatest assistance as well to the teacher as to the learner, from its placing in their hands the correct principles for the practice of the art to be acquired.

"The analysis here referred to is that of the Roman alphabet—upper and lower case, and numerals. A careful examination of the system will enable the most inexperienced to extend the investigation of the subject to all the other alphabets."

This Manual commences with an investigation of the most generally useful letters, viz., those of the round hand, the first hand taught in schools, on account of its great utility in after life. Next in order follow the Roman upper and lower case letters and numerals, in full detail, exhibiting at one view both their analytical or integral parts, and their mechanical construction. Also, the Old English and German text alphabets as adapted to English use. The architect is furnished with nine plates of curious ancient alphabets, with the authorities for each.

Mulhauser says, in his analysis of his method of teaching writing:—"Writing is a species of drawing; and, as such, an imitative art. To imitate is natural and delightful to children; the power of imitation is therefore an important agent in education, and ought to be developed and directed. In writing, the child is required to produce an imitation of letters and words, *i. e.* of complex and combined forms, which are subject to a definite order and proportion. To enable the child to do this with ease, the instructor must render the process natural and therefore intelligible. He must dissolve the combination of letters which are called words; and he must resolve complex forms called letters into their simple elementary parts; in other words, the *instructor must* analyze *the objects which the child is to imitate.* The next step is also to be taken by the master—he must arrange the elementary forms in the order of their simplicity, *i. e. the instructor must* classify *the elementary forms, so that the first efforts of the child may be directed to the imitation of the simplest forms.* By this natural process, the child soon becomes familiar with, and enabled to imitate the separate parts of letters; he gains a rational conception of their elementary forms; easily combines them, and writes letters and then words. The child, therefore, proceeds by synthesis, *and constructs the object from the elements furnished by the analysis of the instructor.*"

The author gives ample directions for constructing titles for maps, railway plans, &c. with numerous examples. In writing a title he observes:—

"1st. We should decide on the *size* of the title we would have.

2nd. The *number* of *lines* we would have.

3rd. The *style* of *characters* to be used.

4th. The model or trial title should be formed, which if it suit not our taste when done, can be altered or amended in writing the title itself.

5th. The spacing or distance between the lines should be determined on.

6th. Form the lines of writing (in pencil) by putting the centre letter of each line on the centre (perpendicular) line of the title, and working the other letters in the line from the centre to either extremity. Thus we find, by referring to the *model title*, that the first line contains seven letters, of which the fourth from the commencement will of course be the centre one, and will be placed on the centre line; N is placed in position, and we next (at the proper space which has been previously determined on) put down A, and at another similar space therefrom we put down L. I now only remains (for that side of the line) to put down P, which is placed at an equal space from L as A was from N. Proceed in similar manner to work from the centre letter N to the right hand, and when the letters are all properly shaped out with black-lead pencil at equal distances, ink them over; when this is done, the construction lines may be rubbed out, and the title will be complete."

Mr. Wilme's book should be in every office.

Liquid Air a Motive Power.—In our last number we referred to the rival systems at present dividing public attention, for applying as a motive power, to railway propulsion and other purposes, air in a highly condensed, or in a highly rarified state. We have this week to record another step made in the same direction:—by means of enormous compression a person of the name of Evans, residing in Phidelphia, is said to have succeeded in liquifying atmospheric air, which resumes its original volume with its elastic force quite prodigious, on applying a few drops of some chemical composition. It is asserted that a train of twenty loaded waggons was transmitted a distance of six miles in less than an hour and a quarter, the whole motive power being the liquid air enclosed in a vessel of two gallons and a half measure, into which fell drop by drop and from minute to minute the chemical composition in question. We should mention that the source of this information is a private letter from Philadelphia published in the *Memorial de Rouen*, and seems to need the authentic confirmation of the American journals.

* Published by Holloway, Bedford-street.

Correspondence.

HOLLOWAY CONGREGATIONAL CHAPEL.

SIR,—I may perhaps be allowed, in confirmation of the remarks of "Vigilans," to mention on good authority, that two of the designs sent in were considered preferable to that of Mr. Emmett, but that both were thrown aside ostensibly *in justice to the other parties*, because the estimates did not precisely tally with the sum stated in the advertisement. You will then perhaps be surprised to hear that this notorious committee have actually had the effrontery to accept an estimate (artfully omitted in the first instance), which proves to exceed that amount by *only* 700*l.*; viz. 3,200, instead of 2,500*l.*

This is indeed insulting, but as I suppose they are fully prepared to carry their *protegé* through thick and thin, it is hopeless to expect any redress, and nothing is left to the victimized but the dismal satisfaction of publicly making known such nefarious treatment, and defying the parties implicated to a clear explanation.

I am sorry to learn that at the head of the committee is the minister of the place, who from his station it might have been hoped would have been among the first to see justice dispensed to all, and check rather than (to say the least), connive at the unfair attempts of party influence.

I am, Sir, &c., E. B. L.

THE GLASS TRADE.

SIR,—The article upon the glass trade, noted from the *Gardener's Chronicle* in your journal of the 16th instant, is a misrepresentation of facts, and we shall feel obliged by your giving the following observations publicity.

The quotation of second quality at gross prices from our list in comparison with foreign glass nett, is unfair, British glass of fourth quality being fully equal to the best sheet yet imported; and, if from our price be deducted the large discount we allow, the difference does not exceed one farthing per foot.

Again, when British glass for horticultural purposes or skylights is made above forty inches in length, our nett charge is only three farthings per foot extra, and not from one penny to three shillings, as erroneously set forth.

The price of foreign glass is for squares not exceeding forty united inches, thus, 20 by 20, or 24 by 10, and not forty inches long, as stated, as we sell British glass 40 by 30, in sheets from 4½d. to 5½d. per foot, according to the distance required.

We are, Sir, &c.,
CHANCE AND HAYWARD.

SEWER IN HENRIETTA-STREET, BRUNSWICK-SQUARE.

SIR,—Having had occasion to pass frequently the end of Henrietta-street, Brunswick-square, in which a new sewer is being built of the egg shape, the smaller end downwards, of about 2 feet 6 inches by 4 feet, inside measure, I have watched the men at their work, and was much surprised at the mode in which it is being done. It is thus—a number of bricks are put together with cement (I believe in a mould), forming a block of about 18 inches long by 9 inches wide, and 4 inches thick; the blocks when carried down into the excavation, and placed in it not only to form the bottom, but the sides also; the blocks are bedded solid on each other at the level joints, but at the cross joints they are put together dry, and then pointed up. The crown is made of two rings of brickwork, 9 inches thick in mortar.

Now, I think there are many great objections to this mode of proceeding. If 4-inch brick-work be enough for the bottom, that part being of a quick curve, it certainly is not enough for the sides, they being nearly flat, or very little curved, and must give way if any height of water get between the brickwork and the sewer, for then we shall have an hydraulic pressure which will force in any brickwork only 9 inches thick, and of a flat curve; or if there be any pressure from any other cause, the sides will give way, and fall into the sewer. Moreover, the 4-inch brickwork is built in the worst manner; every brick should be laid by itself, and bed solid on the brick beneath it, and also against the next brick, breaking the joint at every course, and also laid solid against the sewer; but by the mode here adopted, we only have a level course solid, and, instead of the joint being broken at every course, there is a straight upright joint to four successive courses, and that not made solid, but merely pointed up. It is all but impossible to lay a block of brickwork 12 inches by 18 inches solid against the earth; at any rate, in this case a stick may be passed between them almost everywhere. The outside 4-inch ring of the crown has no abutment but the earth, so that the pressure from without is likely to make it run behind the 4-inch springing walls, and throw them into the sewer. Again, why not make the crown of the sewer of 9-inch brickwork, well bonded by bricks or headers, instead of two 4-inch rings, connected by a course of mortar. I believe it is allowed by mechanics, that a 9-inch arch will bear four or five times the pressure that a 4-inch arch will.

It is only right to state that I, being a builder, frequently notice how the sewers are built, I never before (as I can remember) saw less than 9-inch brickwork, even to the bottom or invert, and that in cement and well-bonded together except to some sewers in Camden Town, where the bottoms are but 4-inch in cement.

I hope this is the first and last time of building a sewer in this manner, for I think it is very much like wasting the money it will cost, towards which, as a ratepayer, I shall be called upon to contribute.—I am, Sir, &c.,

6, Judd-street, THOS. ELDRIDGE,
August 26, 1845.

Miscellanea.

BELFAST.—Since the commencement of the present year upwards of 400 houses have been built in Belfast and its suburbs. At the present moment there is not in the town a machine-maker, iron-founder, boiler-maker, stone-cutter, stonemason, bricklayer, brick-maker, or carpenter, unemployed who is willing or able to work; and yet we are told that the union has annihilated our trade. In 1822 the Belfast carrying trade was disposed of by a single steamer of 50-horse power, plying once a week, and there was no steam communication with any port but Glasgow. Belfast now sends out 26 steamers.—*Northern Whig.*

THE LEICESTER MONUMENT.—The first stone of the monument to be erected at Holkham to the memory of the late Earl of Leicester, better known as Coke of Norfolk, was laid about a fortnight ago, by Lord Colborne, in the presence of a large number of persons, the architect, Mr. W. J. Donthorne, of London, assisting. The monument, as most of our readers know, the design having been both exhibited and engraved, will be a well-proportioned column with agricultural emblems.

THE ASSOCIATION OF ARCHITECTURAL DRAUGHTSMEN.—The works of members of this association will be exhibited to the public at their rooms in Southampton-street, Strand, during the whole of next week. We are anxious to draw attention to this society as offering facility of communication between principals desiring assistance and those competent and willing to afford it, which must prove valuable.

GOVERNMENT COMPETITION IN OIL PAINTING.—A notice has been issued by command of the Fine Arts Commission, to the effect, that the competition in oil painting, which was to have taken place in June, 1846, is postponed till June, 1847.

SMOKY CHIMNEYS.—Mr. Hope's chimney-doctor's bill, for his new hotel in the Rue St. Dominique, exceeds 5,000*l.*, as we learn from an action just brought by the said chimney-doctor, M. Ducel.—*Paris Paper.*

Tenders.

For contracts at Southall, at Mr. George Robins's Estate, August 18th, 1845; Mr. Wm. Reynolds, Notting Hill, Surveyor.

	New Buildings.	Repairs.
J. Lockwood	£1,260 0	£242 0
Thos. Hiscock	1,256 0	
W. Mumford	1,250 0	250 0
Thos. Nias	1,240 0	191 0
Cooper and Davis..	1,225 0	275 0
W. Hunt	1,047 0	115 0
Richd. Brewer	1,000 0	135 0
John Shoppee	987 0	207 0
Francis Sandon	975 10	165 5
E. Brighton	849 0	109 0

Tenders opened in the presence of all parties.

For the Superintendent's Residence and Reform Establishment for the Incorporation of the Philanthropic Society, St. George's-road, Southwark: Messrs. Graland and Christopher, architects.

Mr. D. Nicholson	£1,455
Mr. Hayson	1,396

Mr. Nicholson's tender was accepted, ruled by his schedule of prices.

For building seven Small Houses in Bethnal Green Road; Messrs. Brandon, Architects.

Mr. Spekins	£1,665
Mr. Paluck	1,600
Mr. Geary	1,597
Mr. Ward	1,558
Haines and Co.	1,485

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the execution of Works on the Leeds and Thirsk Railway.

For the execution of several lengths of Earthwork on the Aberdeen Railway. There are 5 separate Contracts, varying in lengths from 3½ miles to 4¾ miles.

For the supply of 70,000 Larch, Oak, or Fir Sleepers, and Fencing for 50½ miles, or any part thereof, for the Ipswich and Bury St. Edmund's Railway Company.

For the erection of a Wesleyan Proprietary College at Taunton.

For the execution of the works on the Nottingham and Lincoln Railway, in two parts; 1 from Nottingham to Newark, being a distance of 17½ miles. 2 from Newark to Lincoln, being a distance of 15¾ miles.

For Lighting a portion of St. John's district, Notting-hill, with Gas.

For Paving and Relaying the Footways and Paving or Macadamizing and Relaying the Carriageway in Somers-town, St. Pancras, for the term of three years.

For supplying the Aberdeen Railway Company with Scotch Fir Sleepers.

For supplying the Dundee and Perth Railway Company with 50,000 Scotch Fir Sleepers.

For supplying the York and North Midland Railway Company with 2,000 Tons of Chairs.

For executing that portion of the Dundee and Perth Railway, commencing at Dundee and ending at Kingoodie, being about five miles 360 yards in length.

For supplying her Majesty's several Dockyards with Cast-iron Articles for twelve months certain.

For supplying 300 Sets of Wheels, Axles, and Guard Irons to the Great Southern and Western Railway (Ireland).

For making a Cylindrical Sewer in the town of Cambridge. The length will be about 48 yards, and the average depth about 12 feet.

For the execution of the whole works of the first ten miles of the Howick branch of the Edinburgh and Hawick Railway.

For Raising Mud in the Ship-basin of the Regent's Canal Company, for a term of three years.

For the execution of that portion of the Cumnock Branch of the Glasgow, Paisley, Kilmarnock, and Ayr Railway, situate between Loch Brown and Auchinleck, being about 7 miles in length.

For 500 Tons of Cast-Iron Socket Pipes with bends, branches, syphons, &c., for the Commercial Gas Light and Coke Company, Stepney.

For the construction of the Gas Works at Wells, Norfolk, and all necessary apparatus.

For the construction of Three Reservoirs for the Blackburn Waterworks Company: also, of Stone Culverts for conveying the water a distance of about 2½ miles. The earthwork will amount to about 180,000 cubic yards.

For paving and repairing certain Carriage and Footways in the parishes of St. Margaret and St. John the Evangelist, Westminster.

For supplying the East-India Company with British Iron, &c.

For the erection of an Infirmary at the Lambeth Workhouse.

For the execution of works on the Manchester South Junction and Altringham Railway, in two parts: 1, being a distance of 1½ mile; 2, being a distance of 7¾ miles.

For the execution of Works on the Manchester and Birmingham Railway in 2 parts. 1. The Ashton Branch, being a distance of about 4¾ miles. 2. The Macclesfield branch, being a distance of about 30 chains, including a tunnel of 330 yards in length.

For the execution of that portion of the Edinburgh and Northern Railway, extending from Burntisland Pier to Kinghorn.

For supplying the Trent Valley Railway Company with about 200,000 sleepers of good sound Baltic timber.

For erecting sundry Workshops for Engine and Carriage Repairs at the Brighton Station of the London and Brighton Railway.

For supplying the Clydesdale Junction Railway Company with about 2,500 Tons of Rails, and about 600 Tons of Chairs.

For supplying the Leeds and Thirsk Railway Company with 100,000 Railway Sleepers.

For the execution of works on the East Lancashire Railway, viz., the Accrington Contract, being a distance of about 8 miles.

For the execution of that portion of the Newcastle and Berwick Railway, extending from Netherton to Tweedmouth, being a distance of about 53 miles. To be let in four contracts.

For the execution of works on the Leeds, Dewsbury, and Manchester Railway, viz., the Churwell Contract, being a distance of about 2½ miles.

For supplying the Wakefield, Pontefract, and Goole Railway Company with about 7,000 tons of Malleable Iron Rails, and 2,000 tons of chairs.

COMPETITIONS.

The Committee for the establishment of Public Parks, Walks, &c., at Manchester, offer two prizes, one of 50 guineas and the other of 25 guineas, for the best and second best set of Plans (with estimates), for the laying out, &c., of the sites already purchased by them.

The Board of Guardians of the Bridlington Union offer a premium of 10*l.* for a Plan and Specification of a Workhouse, the expense of which is not to exceed 2,000*l.*, and to accommodate 150 inmates.

APPROACHING SALES OF WOOD, &c.

BY TENDER.

In the Plantations of the Duke of Montrose, situate in the Parishes of Drymen and Buchanan, Stirlingshire: many Thousands of Larch Trees of some size, adapted for Railway Sleepers, Roofing and Joisting, and other purposes.

A Quantity of Old Wrought and Cast Iron, in store, at the Royal Arsenal at Woolwich.

TO CORRESPONDENTS

"G. W. B."—*The patent process referred to is Payne's.*

"B. B."—*The drawing is in the engraver's hands.*

"Window at St. James's."—*We have not room for all the letters sent us on this subject; they shall receive further consideration.*

"W. A."—*We will inquire.*

"A Learner" (Portsmouth).—*The term sesquialteral in geometry is a ratio, where one quantity or number contains half as much more than another: as 2 and 3, 6 and 9. If the width of a room be two-thirds its length, or the height of each division of a tower be half as much more than the width, it may be said that they are designed on sesquialteral proportions. It is thus Mr. Gwilt uses the term in the passage referred to.*

"F. H."—"*Specifications*" *by the late Alfred Bartholomew.*

"J. A. W."—*Can our correspondent refer us to a specimen of the stone in London, and give us the price.*

"B. J."—*The architect would be justified in charging 5 per cent. on the amount of the works as executed, and the value of the time occupied in preparing the drawings, &c., in accordance with the first instructions.*

"R. B. W."—*We were unable to avail ourselves of the sketch, which is left at the office with thanks. The account of the church shall appear.*

"G. B. C." (Drury-lane); "W. Mason;" "Thomas Smith;" "Dr. L.;" "G. R."—*Next week.*

"W. A."—*We understand the work on Linear Projection has not been published.*

Received,—"*Unhealthiness of Towns, causes and remedies,*" *by R. D. Grainger.*

ADVERTISEMENTS.

NOTICE TO INVENTORS.

OFFICE FOR PATENTS OF INVENTIONS and REGISTRATIONS of DESIGNS, 14, Lincoln's-inn-fields.—The printed INSTRUCTIONS gratis, and every information upon the subject of PROTECTION for INVENTIONS, either by Letters Patent or the Design Acts, may be had by applying personally, or by letter, prepaid, to Mr. ALEXANDER PRINCE, at the office, 14, Lincoln's-inn-fields.

PATENT OFFICE, 5, CHANCERY-LANE, NEAR FLEET-STREET.

INVENTORS requiring protection by LETTERS PATENT should apply direct to the PATENT OFFICE, as above, where Patents can be speedily procured for the United Kingdom, &c., and by which a great saving of expense will be effected. CAVEATS are entered at this office, fee 1*l.* 1*s.* DESIGNS of all kinds are REGISTERED. Apply at the PATENT OFFICE, 5, Chancery-lane, near Fleet-street.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

ROYAL ADELAIDE GALLERY, Lowther Arcade, Strand.—ATMOSPHERIC RAILWAY daily, with a Lecture, at Two and at Half-past Eight. A series of Lectures, with Illustrations, on the manners and customs of the Ancient Egyptians, by Mr. E. Clarkson, every Monday Evening. Mr. Russell's Lectures on Character, with Musical Illustrations, every Tuesday, Thursday, and Saturday Evenings. Les Reunions Magiques, on Wednesday and Friday. Lecture on Science, Daily, including Major Beniowski's Artificial Memory; Beale's Rotatory Steam-engine, &c. Every Evening a grand Promenade Concert, supported by first-rate talent, both instrumental and vocal. On Wednesday and Friday Evenings, a series of Lectures on "The Manners and Customs of New Zealand," by PAHE-A-RANGE, the New Zealand Chief.

A MAGNIFICENT, EXTENSIVE, and UNIQUE COLLECTION of TROPICAL FRUITS, modelled by Mons. Grimaud during his long Residence in the Isle of France, is just deposited at the ROYAL POLYTECHNIC INSTITUTION. The ATMOSPHERIC RAILWAY is lectured upon by Professor Bachhoffner, and exhibited Daily, and in the Evenings. A NEW AMERICAN INVENTION, COLEMAN'S PATENT LOCOMOTIVE ENGINE for ascending and descending inclined planes on Railways without the aid of stationary power. SWIMMING and DIVING ILLUSTRATED by the Son of Capt. Stevens, the celebrated teacher of Swimming, on Mondays, Wednesdays, and Fridays, at Two o'Clock, and on the Evenings of Tuesdays and Thursdays, at half-past Eight o'clock. The other Exhibitions, &c., as usual.—Admission, One Shilling; Schools, half-price.

HOLBORN AND FINSBURY SEWERS. MIDDLESEX.

THE COMMISSIONERS of SEWERS for the LIMITS give NOTICE, that their Office, Hatton Garden, is open daily between the hours of Ten and Four, where information can be obtained (gratis) by persons about to Purchase or Rent Houses or Property, or take Land for Building purposes, of the situation and level of the public Sewers, capable of affording sufficient Drainage, and which they recommend all such Persons to apply for at the above Office.

By the Court,
STABLE and LUSH, Clerks.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, or public way, or in any part intended to become a street, or public way, or to carry or drain off water from any lane, or public way, or to carry or drain off water from any house, building, yard, or ground, into any sewer under their management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewer or sewers shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, upon notification being made at this office previously to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, whenever the lower floors or pavements of buildings shall have been laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings must in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners will be cut off, and the parties making the same will subject themselves to a fine.

The provisions of the Metropolitan Buildings Act (7 and 8 Victoria, c. 84) do not supersede the authority of the Commissioners of Sewers in the above respects, but their powers are expressly reserved, and their regulations made subservient to the purposes of that Act. The execution of such works, under the superintendence of the district surveyor alone, cannot therefore warrant the making of any sewers or drains within this commission, nor relieve the parties making them from the penalties above mentioned.

By order of the Court,
LEWIS C. HERTSLET, Clerk.

THE PROJECTED RAILWAYS.

ANALYSIS of the PATENT METALLIC SAND, or English Pozzolano, used in the foundations of the New Houses of Parliament, the great Tunnels on the Birmingham Railway, Sea-wall on the Great Western Railway in Devonshire, and other important works referred to more particularly in the prospectus.

Silica	49	Lime	6
Oxide of Iron	32	Magnesia	2
Alumina	6	Zinc	3

Arsenic and Carbonate of Copper 2

Price in Swansea, free on board, 6*d.* per bushel, or supplied in London at 1*s.* per bushel.

Used as an external Stucco the Metallic Sand Cement is unaffected by frost or wet; in appearance it resembles the best Portland Stone, requires neither colour nor paint, and is entirely free from vegetative cracks and blisters.—Further Particulars on application to Mr. C. K. DYER, 4, New Broad-street, London; and at the Metallic Sand Wharf, King's-road (opposite Pratt-street), Camden Town.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

Agent for Liverpool, Mr. WYLIE, 56, Gloster-street; ditto for Manchester, Mr. J. THOMPSON, Back King-street; ditto for Chester, Mr. J. HARRISON, Linen Hall-street.

ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architecture and Engineering works upwards of thirty years, is reduced to 2*s.* 3*d.* per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

MARTIN'S PATENT CEMENT.

TO ARCHITECTS, BUILDERS, AND PAINTERS IN FRESCO.

STEVENS and SON, PATENTEES and SOLE MANUFACTURERS, beg respectfully to announce that this beautiful Cement has now arrived at a degree of excellence far surpassing their most sanguine expectations. For all internal work it possesses a great superiority over every article hitherto in use; it is now being used extensively by Government in the British Museum and other public buildings. IT DOES NOT THROW OUT ANY SALT, but presents a beautifully plain and perfect surface, which may be painted upon dry work within four days without peeling. It is equally applicable for walls of lath, for mouldings, architraves, skirting, or flooring; and is admitted to form the best ground for fresco painting, having been used for many of the prize frescos lately exhibiting in Westminster Hall. It will bear an intense heat without cracking, and for hardness, durability, and economy, cannot be equalled.

186, DRURY-LANE, LONDON.

Agent for Liverpool and Manchester, Mr. R. Part, Atherton's-buildings, Dale-street, Liverpool.

KEENE'S PATENT MARBLE CEMENT.—The Patentees of this composition beg to refer to the British Museum, the Royal Exchange, the new works at Bethlem Hospital, Greenwich Hospital, and the Colliseum in the Regent's-park, as buildings finished or in progress, in which Keene's Cement has been used as an internal stucco. Its superiority to common plastering consists in its extreme hardness, and the rapidity with which it dries, which qualities fit it to receive paint or other finishing sooner than other water Cement.

When employed for skirtings, architrave, and other mouldings, in place of wood, it checks dry-rot, is impervious to vermin, prevents the spread of fire, and is more economical in its application than the material for which it becomes the substitute.

Confirmation of these statements is to be found in the almost universal adoption of Keene's Cement for Skirting and Hall flooring in the new houses on the Hyde Park Estate, where its application is to be seen to the fullest advantage.

In Liverpool and Manchester, Keene's Cement has in several cases been used for the covering of the fire-proof warehouse floors, where its lightness and hardness give it a preference over tiles and flagging, which are much heavier and necessarily leave the floor intersected with numerous joints, whilst Keene's Cement is laid down in one unbroken surface.

The high polish and marble-like hardness of which this Cement is susceptible render it the most suitable material for the manufacture of Scagliola.

Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

Depôt in Liverpool, 36, Seel-street; James Woods, Agent.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will not vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It requires either to be painted or coloured. It will keep in any Climate for any number of years, and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for ever. It is the only Cement that can be used with confidence by Sea-side. It may be used in the hottest or coldest Climate at any season. It will adhere to any substance, even Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and will be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, and may be papered over or painted directly. Roofs pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application to MANN and CO., AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOURED STUCCO PAINT, expressly intended for Painting the Interior Walls of Houses that have been covered with Stucco or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas, MESSRS. JOHNS and CO.'S PATENT PAINT has a strong affinity for Stucco, binds itself with it, stopping the pores, and thereby rendering the wall proof against weather, and when finish producing a pure stone-like effect, produceable by no other Paint whatever. It is cheap in its application, and may be used by any Painter, in any climate, even in the most exposed Marine situations.

The Builder.

No. CXXXV.

SATURDAY, SEPTEMBER 6, 1845.

IN July last we referred to the extraordinary excitement which prevailed on the subject of railways, the gambling carried on, and its probable consequences: we mentioned some of the newest schemes before the public, and referred to the singular change in opinion which had taken place since the time when the towns were striving to keep the rail as far from them as possible, and spent large sums of money to injure themselves.

At the moment we wrote the mania for speculation in railway shares seemed almost universal, and might have been thought at its highest. Since then, however, it has increased in a fearful manner, and, at the present moment, possesses the whole mind of thousands. It is madness, and nothing short of it. Shares in projects to which an Act was refused for reasons which will exist when the application is again made, find purchasers at a premium; scrip, which could be bought yesterday for one pound, commands to-day three, although the circumstances remain precisely the same, and men talk of having made twenty, thirty, and forty thousand pounds by what seems a very safe and simple operation, namely, subscribing for shares at par, waiting a few days, until an adventitious value was given them by the prevailing desire to buy shares, selling them, and pocketting the difference.*

It is, perhaps, hardly our province to comment on these proceedings; our more legitimate business is the construction of railways, the design and arrangement of stations; but observing the extent of the prevailing mania and well assured of its injurious tendency, we cannot avoid earnestly conjuring our readers to resist the desire to gamble infused by example, and to seek to raise their condition by continuous industry, and the exercise of their abilities, rather than a lucky stroke of fortune.

It is hardly necessary to say, our remarks apply simply to buying shares to sell again, (speculating on a rise), and not to the legitimate investment of capital in railways. The extension of the railway system is in no way to be deprecated, but, on the contrary, to be assisted to the utmost consistent with the national resources, as by means of this, the general prosperity will unquestionably be advanced. At present the advantages of the system are but partially developed; every line which is brought into work will make them more palpable.

The *Westminster Review* for the current month contains an able article on the all-engrossing topic, and brings forward some original and striking notions. After commencing the unwise system of high charges, the reviewer remarks:—

"The true value and uses of railways has not yet dawned on men's minds. They are the future streets of the coming time, when horse and foot transit shall be nearly extinct; when the conquest of time and space, by steam or other power, shall have made intercommunication perfect between every farm, village, town, and manufactory throughout the island; when the industrious races, no longer driven away by high or uncertain rates of transit, shall people the whole borders of the lines; when farms and manufactories shall work in unison, and contribute to increased results; when the most improved labour among processes shall be applied to the production of food as well as other articles.

This principle is obvious, and may be thus illustrated:—The value of Regent-street does not consist in its being the line of transit between Waterloo-place and the City-road, but in being the medium of communication with numerous wealthy buildings on either side. Take away the buildings, and the street would become a comparatively insignificant road. And these houses have been built because there exists facilities for the supply of water, fuel, and provisions. Take up the water-pipes, and break up the road, the result would at no distant period be analogous to one of 'Sultan Mahmoud's ruined villages.'

Crowded cities have been a result of slow and expensive transit, and therefore highways, on the old system, have not become lines of farms, factories, and dwellings. But for this, water-pipes would have been laid throughout. With the advent of railways the difficulty ceases, and towns may expand, for ten miles of railway are but as three miles of omnibus. Our railways will become streets of detached buildings, factories, dwellings, and farms, so soon as their uses shall be rightly appreciated; that the petty profits of distant transit shall merge and be overwhelmed in the huge gain to be wrought out from the land which bounds them; that the suicidal process of high fares shall be abandoned, which, like heavy turnpike tolls, deter the public from their territories."

Stationary engines, when not required for the line, should be used, it is urged, to carry on improved farming operations, independent of times and seasons, and with the minimum of human drudgery. "In all farm cultivation, as in factories, transit is one of the most costly items. No farms laid out on the ordinary plans, with mere highway transit, could compete with farms laid out along a line of railway, any more than a factory with distant cartage could compete with one situated on a canal or railway, and ultimately, when the uses of railways are thoroughly apprehended, all new farms and factories will be located thereon; and in self-defence, the existing farm and factory owners must construct railways along their roads and streets. Where the mountain cannot come to Mahomet, Mahomet must go to the mountain! Upon this principle we feel assured that ere long the system will commence of laying down lines of rails along all the borders of highways, communicating with the various farms.

A stationary engine should be as much the central moving power—the nucleus of a farm—as of a factory. No factory of any magnitude is now constructed without an engine, and the factory is the centre of a neighbourhood of greater or less extent. Supposing a railway to be constructed through a line of factories, the engine power of those factories might be used for the purpose of atmospheric traction during meal times, exhausting a receiver for that purpose. And thus in farm districts the power need only be applied to road purposes when required, using it for farm purposes at all other times."

Viewing the Epsom line as the first of the atmospherics, the reviewer selects that as the scene of operations, and shews how he would proceed:—

"We would procure a well or underground tank to be made to receive the liquid contents of the sewers, either of Croydon or of the Deptford marsh. By stationary engine power we could force this sewer water through a line of pipes along the course of the railway to the next stationary engine, used for working the line, in the neighbourhood of which land fit for agricultural purposes could be found. We would then, by means of the engine power, force the sewer water up a stand pipe precisely similar to the mode used by the water companies for high service. Having secured, on lease or otherwise, a sufficient extent of ground proportioned to the supply of sewer water, we would apply it to the land in the mode thus described in Martin's 'Thames Embankment and Metropolis Improvement Plans,' p. 17.

'The consideration which I have so long given to this most important subject, leads me here to propose a system of distributing the manure, which appears to me to be greatly superior in economy and efficiency to the foregoing, or to any at present in use:—it is to apply the well-known principle of *fluids finding their level*—thus to convey the sewage in its most fluid state, by means of pipes, from the principal receptacle or great sewers, and to then pump it up into a small receptacle or hydraulic tower of sufficient elevation, from which a pipe should descend, and be laid down into the centre of the tract to be manured. A cock and strong caoutchouc cloth hose, with one or more small branches, should be attached to the extremity of the pipe, and a swivel cock placed at the junction of the branches to allow of their being easily moved round; by these means, each hose being guided by a man, the manure could be turned on, and projected in every direction in the same way as the firemen discharge water upon a fire; and, without moving the main hose, a space of three miles in circumference could be manured with only one half-mile of iron pipe, the same hose serving to manure the whole tract, and be then readily transported to another locality.'

The value of this system may be understood from the fact that land in the neighbourhood of Edinburgh has risen in value from 2*l.* to 20*l.*, 30*l.*, and 40*l.* per acre, as meadow land, by the simple application of sewer water, by which means four and five annual crops of grass are obtained.* One cause of the value of this Edinburgh land is its proximity to the city. But land bordering a railway is, if the railway be rightfully applied, equally available at ten miles distance as ordinary land at one.

To this same station we would lay down a main of water-pipes from the most eligible supply along the whole course of the line; and we would also lay down a main of gas-pipes.

At the station, we would inclose on the cheapest plan of an ordinary railway terminus, from two to four acres of land in a square form, with brick walls, say 20 feet high. The roof to be in spans of 50 to 60 feet, formed of iron, and supported on iron columns. The whole of this we would cover in with hail-proof glass, a process that will be ultimately cheaper than slating, and far more durable. In Belgium, we believe, at this time glass for

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*In France the mania is as strong as in England, and occupies the thoughts of all. In Austria, it appears, no new railway will be authorized till 1850, when all lines already commenced are to be completed.

* We quote the following from the prospectus of a company about to carry out Mr. Martin's plans.

"The great value of liquid manure, when applied to fertilize the land, has long been known and acknowledged, and of late the importance of the subject has been rendered more obvious by means of treatises on agricultural chemistry, and the experience of numerous enlightened persons who have used it on their farms and estates; more especially at Edinburgh, where lands that were previously worth but from 5*s.* to 1*l.* per acre have, by means of it, been brought to yield a net rent of 30*l.* to 50*l.* per acre per annum. In regard to the drainage of populous towns, it assumes a still more important aspect; for, besides the value of the sewage as manure, there is the great advantage of preventing the nuisance inseparable from the ordinary discharge of drainage, viz.—by polluting the waters, and contaminating the air, to the great injury of the public health. In the *metropolis* these considerations become of incalculable moment. To prevent evils, and to realize benefits, both of immeasurable extent, are results so important to the welfare of the community, that any plan which is calculated for their attainment may justly claim the support and co-operation of the public: and it must be gratifying to know that such a plan can be effected, with advantage also to those who may undertake its execution. The subject has been carefully investigated and considered, both scientifically and practically, and the result is, that a company is now in the course of being formed, to effect the important object of conveying the liquid manure from the sewers of London, to fertilize the surrounding country.

"Without entering into details, it may suffice to state that a plan has been matured, with the co-operation of several eminent agriculturists, engineers, and others conversant with the various bearings of the subject, upon which specific calculations have been made; and it appears that the liquid manure from the sewers may be supplied by pipes and engines to the extent of about thirty miles round London, at the rate of 100 tons per acre per annum, at 3*d.* per ton (or 1*l.* 5*s.* per acre), and that at this price it will yield a very liberal profit.

"The scheme will eventually embrace the whole of the sewage on both sides of the Thames; but it is proposed at first to limit the operations to those comprised in King's Scholars' Pond and Ranelagh Districts, which will suffice for distribution over upwards of 100 square miles, comprising a large extent of poor lands, particularly susceptible of improvement."

green-house purposes is sold at the rate of ten shillings per hundred superficial feet, weighing fourteen ounces to the foot. We are much mistaken if the two railway magnates who have just established a glass-work in Sunderland will not produce it cheaper than this.

Around the outer wall we would erect dwellings of two floors, leaving four gateways into the inner square. The exuviæ from these dwellings would be carried by pipes to a common receptacle to be applied to the purposes of manure, so chemically prepared on the plans of Liebig as to neutralize all odour. The number of dwellings surrounding an inclosure of four acres would be about eighty. Assuming four grown persons for each, the exuviæ would be equivalent to manure the heavy corn crops of one hundred and sixty acres of ground, and be worth 300*l.* per annum or more.

The internal building or green-house would thus be very cheaply attained. The external walls would be gratuitous, as being part of the houses, and the central columns would serve as rain conduits; the ground would require no paving or laying, and the only real cost would be the roof.

The application of this large green-house would be for the production of vegetables in the winter time. Four acres thus inclosed and sheltered would be multiplied in value many fold. Produced on the very verge of the railway, the crops could be gathered and delivered direct into the markets of the city within an hour of cutting. At other periods the external land could be applied to the same purposes.

For all these arrangements the steam-engine would be a most valuable adjunct. The waste steam would warm the green-house and the dwellings, and would serve the purposes of cookery, either in a general kitchen or separately. The condensation water would supply baths, and thus be rendered available for irrigation purposes. It would serve also for washing clothes, and the steam would serve for drying them."

This is with a view to towns-people with small incomes; for the rich he goes further:—

"On a healthy spot, say Epsom Downs, we would erect a similar glazed inclosure as a winter garden and walk for the inhabitants of surrounding villas. If the neighbourhood increased, a school and a lecture-room, a library, and perhaps a theatre, should be added to the establishment; but in all cases a steam-engine or steam-engines should be the sources for warming, ventilation, and baths. We can imagine that all the luxuries procurable at the country houses of the wealthiest landholders might thus be achieved at a moderate cost. With large neighbourhoods even Chatsworth might be eclipsed. With double glass roofs a very small quantity of fuel would suffice to warm a conservatory of very large size.

It must be obvious that on such a plan the whole road would rapidly become a system of detached buildings; for the facility of obtaining water and fuel at every point would remove all obstacles. It would be worth the while of the inhabitants to pay an annual rate to the road makers, and throw it open to all dwellers on the line.

If our views be correct, the time will come when railways will be made for the purpose of bringing land into cultivation, when every two miles of land will be intersected with a railway throughout the whole country. If this be so, where is the wisdom of the men who are expending money in millions merely to oppose fancied rivals? Where is the use of crushing an opponent at ten miles' distance, when two or three other lines are sure to intervene subsequently? If we cast our eyes over the map, we cannot resist the conviction that every mile of highway will ultimately be replaced by two miles of railway. We cannot but laugh at the opposition to the London and York by the London and Birmingham, while perhaps at the very time a new line is in contemplation between both. As the conviction grows that the railway is not the mine—that the land is the true mine—and the railway is but the access to the mine, this sort of absurd opposition will diminish and disappear."

The article ends with a proposition which will be ridiculed by many and deemed chimerical by most, but nevertheless is worthy of consideration.

"Unless a succession of bad harvests intervene to check prosperity, the year 1850 will behold the extinction of horses as a moving power in England, for the purposes of pecuniary gain in the public transport of passengers and goods. Every new street, every village, every farm will have its railway, and stationary power will have become so common in its numerous applications, that it will be turned on and off for the purposes of haulage as easily as gas jets for the purpose of lighting. And the modes of its application will be manifold. Beyond the mere purposes of traction, there are other important problems to work out. There is an important process to be achieved in English agriculture, which seems not yet to have entered into the imagination of any of our improvers. The reason seems to be that our chemists are not mechanicians, nor are our mechanicians chemists; but be it as it may, we have never yet seen the matter proposed, and possibly may run the risk of being deemed mere visionary enthusiasts for propounding it. Yet in sober earnestness we propose—

To convey artificial heat beneath the earth, on open land, so as to maintain the temperature suited to the growth and development of the vegetable tribes, by means of pipes of metal or earthenware; circulating steam, or hot water, or air, from a close boiler or stove. These pipes to be laid at depths of from 4 to 5 feet, in the manner of deep draining. Also, by a similar process, to inject the ground with gaseous manure, as ammonia and carbon, so that the heat and gases may be constantly ascending towards the surface, and thus be absorbed by the roots of the plants."

We may look for great things in the next twenty years.

JOTTINGS ABOUT RAILWAYS.

Any iron wheel may be made to travel almost noiselessly along a railway, it is said, by inclosing its two sides with boarding or thin metallic sheeting, so as to confine a quantity of sawdust in immediate contact with its spokes; sawdust being anti-vibratory will effectually prevent the wheel vibrating, thus enabling it to roll without noise. All who are interested in lessening the noise of railway wheels, should make this easy method as public as possible, so that railway directors may be urged to adopt a plan so inexpensive, efficacious, and desirable.——An ingenious plan for rendering the electric telegraph valuable as a means for indicating the precise position of a railway train upon different parts of the line, was lately submitted to the Academy of Sciences in Paris, by M. Dujardin, the inventor. He proposes, that as a locomotive passes by certain places, it shall touch a spring in connection with the wire, and then communicate with the index of the station by certain signs previously agreed on.——A project has just been made public having for its object the effecting a telegraphic communication, by means of electricity, between London and all the principal towns in England, and also between the principal large commercial towns. To carry out the project, it is proposed to establish a company, and to raise a capital of 500,000*l.*——In a recent number we gave an account of a method of obtaining vacuum for atmospheric railways by the direct action of steam, and gave credit to Mr. Nasmyth for the invention. It appears, however, that he was anticipated by Mr. Robert Mallet, Mem. Inst. C. E., who minutely described the process in a recent number of "Weale's Quarterly Papers on Engineering," and who claims the credit of being "the first inventor."——A series of private experiments has lately been made on the London and Croydon Railway, for the purpose of testing the powers of atmospheric propulsion. The question as to the power of ascending inclines has been completely set at rest. A train was brought to the foot of an incline of one in fifty, and stopped so as to deprive it of any power it might have acquired from the impetus of its previous progression. It was then propelled by the atmosphere up the incline, and that which many of our most eminent engineers have declared impossible was accomplished with the greatest ease imaginable. Among other results that have been obtained, we may mention that five miles length of tube has been exhausted in its whole extent, and that the piston has traversed the entire length of the tube.—The death of Lord Canterbury, by apoplexy in a railway carriage, has given occasion to surmise that railway travelling conduces to that disease. Dr. Badeley, of Brighton, having fully investigated the subject, asserts that this surmise is wholly groundless. He says:—"If a calculation were made of the number of persons who have travelled by railway during the year, and the number of deaths from apoplexy that have occurred during the journey, I think that the question of cause and effect would at once be settled. Let the guard and the engineers be included in the calculation—men who are every day and all day engaged in their locomotive duty; has any single instance of apoplexy occurred in this whole corps? I have inquired of them whether their occupation has ever induced any affection simulating or threatening the disease in question, but I have, without exception been answered in the negative."——A novelty, in the form of a railway without steam or fire, presents itself in the proposed line from Callao to Lima in Peru. The ground has a gradual and uniform rise the whole way. Above Lima flows the river Rimac, which passes through a part of the city in its way to the sea near Callao. This river, though not navigable, affords at all seasons of the year a hundred times the water power necessary to work any traffic that can possibly come upon the rail. The saving of the usual expense of fuel is thus effected; and the cost of the steam-engines, and, what is no small item in railway expenditure, the charges for their after management are entirely avoided.——The Duke of Cleveland has issued the strictest orders to all his tenants and servants, on no account to allow any railway engineer to make a survey through any part of his property, by giving all who attempt to do so notice to desist; and if this is disregarded, commencing immediately an action for trespass against them. Two parties of surveyors in the neighbourhood of Barnard Castle have lately been repulsed. Watchers are posted night and day on the look out. Sapient duke!

STEREOCHROMY.

A NEW METHOD OF ARCHITECTURAL PAINTING BY DR. FUCHS AND PROFESSOR SCHLOTTHAUER IN MUNICH.

Experiments which have been carried on in this respect for the last two years, in the Bavarian capital, have reached that point where it may safely be said, "The thing is done." The first subject, however, to be broached is, that the new method of painting bears no analogy to the Pompeian, either in principle, far less in its technical part; and that it is something quite original and new. On account of its thorough novelty and originality, it would be wrong to consider it merely as a *substitute*, and we are sure that the more known, the more it will be applied to those purposes for which painting *al fresco* has been hitherto used. The distinctive characteristics of this new method, from all other sorts of painting hitherto practised, are its great durability and indestructibility—resulting from the particular chemical composition and preparation of colours, and the method of using them. Under these circumstances it is very probable, that it will outdo all other methods of architectural painting, and become a common property of civilized nations.

This new technicism has appeared under a new name—as Dr. Fuchs (*Ober-Bergrath* the king of Bavaria) has thought, that the appellation of *stereochromy* would be the best adapted to is peculiar features. Still, it is a truly national, *German* discovery, resulting from that all-sided development of art which has been concomitant in Bavaria with an improvement in all branches of artistic mechanism, nay even the handicraft operations of the artisan. What has been done in that country for the casting of metals, fresco painting, and encaustic, nay even for the mechanism of the different sorts of lithography and galvanoplastic, is the best proof of the activity, which, in the present instance, has yielded a great result.

The want of pliable and constant means

pictorial representation (colours), has been felt in all ages, especially by those, who, like the practical artist, were most suffering by this deficiency. It is known to every such, how much this has been the case in monumental or architectural painting, which did not only afford no adequate means for expressing the ideas of the artist, but subjected his creations to the everyday's influence and destruction of the elements. The usual *fresco* could not suffice the great masters; the inadequacy of colours, and the limited scope of technical execution, did not allow of the execution of masterpieces, where a rich display of groups and vast perspective were to be achieved—in fact, the colorit could never be worked out to a natural and harmonic *ensemble*, still less where the more worldly display of glaring colours was contemplated. Thus, several erroneous and noxious expedients were resorted to. In the *stanzas* of Raphael, we find corrections and after-work made obviously with *other* materials than those of *fresco* painting; and it is known, moreover, that this great man had made preparations to paint the Hall of Constantine in oil—in imitation of *Sebastian del Piombo*, who had resorted to the same in his mural paintings. Leonardo da Vinci had used a sort of varnish-painting in his celebrated "Last Supper," and thus surrendered an incomparable masterpiece to precocious destruction; and finally the frescos of the *Caraccis* and their pupils wouldn't have so much suffered, if they had not combined the simple method of fresco with the use of glue and *la tempera* colours, for accomplishing a better colorit. It could not but happen, that in Munich, where similar pursuits were carried on of late, similar views and trials were resorted to. Mural paintings of the most diversified kind—the most stern and the most serene and lively—were to be executed; and it was natural, that the *fresco*, whose mild and quiet hue corresponded so well with the still and reserved character of the new historical, or rather religious school of painting, was found inadequate to these various exigencies. Many trials were, therefore, made to discover some new *technicism*, especially for mural painting, which should possess the undeniable advantages of *fresco*, without partaking of its defects. To those manifold endeavours, which grew out from the increase of artistic tendencies, and the higher claims of the constantly varying character of art—we are indebted for the introduction of the new encaustic method of Mr. Montabert, detailed in his *Traité complet de la peinture*, as well as that of the deserving method of encaustic painting of Mr. Fernbach.* To these experiments for discovering a new procedure of fresco painting, exhibiting a more natural and effectful colorit — *Stereochromy* owes its origin, at least in its incipient stages. A chemical discovery made by Dr. Fuchs (councillor of mines to the king), served to put in practice a series of thoughts, and ideas, and experiments, which Professor Schlotthauer had followed up for years, and it was proved again, how important it was that "science and art, theory and practice, should go hand-in-hand," and also how much it required to accomplish new things in art and its technics! While, in this instance, both talents, scientific, technical, practical, and artistic, were put into requisition—results were, indeed, achieved greater than they were, at first, contemplated; and there is every reason to believe that this new method will be also adapted for painting on canvas.

The painting is done by colours chemically prepared for this purpose, and, moreover, on a coat materially analogous with them; which combines, in paintings on canvas, into a thin pregument, with which it becomes saturated; in mural paintings on stone or mortar, it is laid as a coat of only a few lines thickness, which, however, unites even with the hardest substratum into a mechanically inseparable mass. The picture executed *stereochromatically* on this coat, is fixed (after its completion) in a very particular way—so much so that, after the operation has taken place, colours, coat and stone (or other substratum) present an intimately connected whole. It is, therefore, here *not* the case, as it is in *al fresco* painting, or even encaustic, that a defined, easily to be separated stratum of colour is formed; on the contrary, the very colours are converted, by the all-combining substance, into a rigid, nay petrified mass. In this intense combination with the stone or mortar, the colours become capable of even resisting pretty strong mechanical contact or force. We may pass with pretty sharp or pointed tools over the picture, —nay strike them with a hammer, without injuring or exfoliating the colour; and as to any endeavours of rubbing them off, there is no possibility of so doing. In a similar vigorous way, they resist chemical influence.

For testing these qualities, stereochromic paintings have been subjected to the most severe trials, which they have stood with astonishing success. It was resolved, to bring those elementary agencies which destroy pictures, as air and light, wet, heat and cold, and even acids, to bear upon them in forms more strong than they occur in the usual course of time. Stereochromic tablets, were, therefore, exposed to the various effects of sun and rain; but they remained unchanged. A comparative experiment of these tablets, one *al fresco* and the other stereochromised—painted on the same kind of sandstone, and the usual coating of mortar, were exposed to the severest test of the last rigid winter, and placed during the months of February and March, nearly for eight weeks in the frost, snow, and fog, and moreover water was thrown upon them, which converted them into a mass of ice. In this state, they were suddenly brought into heated rooms. After these experiments, the tablets exhibited a most different aspect. The fresco painting, although done in the most approved method, had experienced, especially in the parts representing carnation, the most complete destruction; whole parts became exfoliated, and the coat of mortar so softened, as to separate from the stone. The stereochromic painting, on the other hand, remained such as it had issued from the atelier of the artist, and the coat of mortar, formed (as well after as before the experiment) the same compact mass, combined with the stone. His majesty the king, who had seen the tablets as exhibited to the roughest weather, was much gratified at the results of this new discovery, which, according to royal command, has to be first employed on a large scale in the decoration of the outer walls of the Pompeian House, near Aschaffenburg. The durability of stereochromy has also stood the test of acids, which may be of importance, inasmuch as rain, especially that fallen during thunderstorms, contains nitric acid—it is true in small quantities; still large enough to produce some effect during the lapse of time. Acids, half diluted with water, will not affect perceptibly stereochromic pictures, while they produce on fresco paintings effervescence and immediate destruction.

With these rare qualities, perfectly resisting the ordinary effects of the elements, it is easy to be conceived what important advantages will be obtained for the ornamenting of outer walls with colour—advantages still greater, if we come to consider, that the layers of mortar required for the reception of stereochromic colour assumes, when dry, the hardness of marble; and we may not appear too sanguine in expecting, that this discovery will be pregnant with important advantages for the whole range of architectural pursuits, and, sooner or later, obtain general approbation.

We have to say, in conclusion, a few words on the artistic and technical character of the new discovery. The external appearance of these paintings is similar to that of fresco. Stereochromy possesses the same advantages as the latter, especially valuable for mural painting, viz. its great clearness, and the same lucid tones of the scale of colours; but, besides this, a greater force and depth, in which fresco is deficient. Stereochromy ranges over a greater extent of colours, and as those are capable of further mixture, it possesses more tints and shades than fresco, which is altogether to be compared to an instrument of a very limited range of tones. These were advantages appreciated by Mr. Cornelius, when, at his last stay at Munich, he saw the pattern tablets. To this is yet to be added, that the stereochromically prepared colours will dry uniformly and without any extraneous lustre whereby the ultimate effect of a picture can be calculated during its process, with a great degree of certainty, which is not the case with fresco. The process of painting itself is very easy and handy—much more so than in any other branch of pictorial art; it proceeds nimbly and slake, and the colour flows full and liquid from out the brush. As the ground is laid on over all, at once, and not piecemeal, and does not require but to be wetted at each time of operation, it will not be the case here (as it *is* with fresco painting), that if one be unable to finish a certain piece in the course of one day, he be obliged to have it obliterated, and to begin the whole afresh. The painting may be interrupted and resumed at pleasure, at any place desired; and it is also possible to go over the whole again after it has been once completed, for bringing all into due unison—imparting the most delicate melting and smoothing together to the whole.

And thus stereochromy may expect to be received confidently within the pale of existing methods of painting, the more so, as it does not attempt to out-elbow any thing existing, but to supply the artist with a new, beauteous, and handy method of mind's-manifestation—making its products almost indestructible, handing the *worthy* down to remotest posterity. —(From German Sources.) J. L——y.

* This procedure has been used with the best success in execution of the large historical pictures in the Imperial s (*Kaiser-Säle*) of the royal residence of Munich, by de Schnorr; and the description of the hitherto secret shortly appear in a detailed description in the literary-ic publishing Bureau of that city, as Mr. Fernbach has ved the king's permission for so doing. His secret had roceu hitherto known, but to the Committee of the Royal demy of Arts.

EARLY DOMESTIC BUILDINGS.

At the literary institution of Frome, in Somerset, a number of lectures have been recently delivered by the gentlemen of the neighbourhood. In one on the "Feudal System," by Mr. Charles Bayly, of that place, the lecturer made the following remarks.

"The science of architecture in France and England before the thirteenth century was almost exclusively confined to ecclesiastical and castellated buildings. Indeed, the style of domestic architecture was so mean, that we feel surprised at the slight attention previously paid to it, and that no attempt was made to imitate the comfortable and luxurious domiciles of the Romans. The English houses were built chiefly of clay, held together by wooden frames. But amidst this neglect, there was introduced an invention which has produced great comfort, and which has contributed much to the refinement of modern domestic society. I allude to the invention of chimneys, which the architectural skill of the Greeks and Romans did not, I believe, accomplish; the ancients having allowed the smoke of their fires to escape through an aperture in the roof. This ingenious and useful discovery did not come into general use in England until the fifteenth or sixteenth century; and even now is seldom seen in the cottages of the poor in Ireland, or in those of the Highlanders in Scotland. The art of making glass, which was known to the Romans, and most probably practised by them in England, was lost soon after their departure. It seems strange to us, that the English, the Saxons, the Danes, and the Normans, should have submitted to the inconvenience of open windows in their houses for seven or eight centuries. Indeed, we are too apt to be misled in our estimate of the comforts of those times. The romances and ballads of the twelfth and thirteenth centuries would lead us to suppose that the spacious halls, the banquetting rooms, and chambers, they tell of, were more magnificent than those now in use; but if we could lift up the veil of departed years, we should see bare walls, without wainscot or even plaster, with the exception of some great houses which were furnished with hangings; and the greater part of these buildings had open windows, so small in size as to admit little light, but sufficiently large to allow the wind to sweep through them. But if domestic architecture was neglected, it is with the more astonishment we look back on the splendid ecclesiastical and castellated buildings which at the same time, arose throughout Europe, and which I have before alluded to."

To elucidate this subject at greater length, we have put together a number of extracts from Mr. Bernan's interesting and valuable work on the history of warming and ventilating buildings, already referred to in our pages.*

* Published by Bell, Fleet-street.

"In the Anglo-Norman period small regard was paid to the habitations of the commonalty, which in London, the mother city of the kingdom, were, Stowe says, not more than sixteen feet high, poorly built of wood, and ill covered in with reeds and straw, with a hearth in the middle of the floor, and a smoke hole in the roof over it. Carpets were unknown, except as bedclothes or table-covers; and spreading straw and leaves on the floors formed part of the rough magnificence of the times. The practice was general. Pegge thinks it was adopted for coolness; and Nichols, with reason, adds for warmth also.* In the winter season the feet could be covered with the straw, and they required protection at all times from the cold damp floors of bare earth and stone in the hall and kitchen. The beds of the meaner sort were spread on the litter, and in great houses it served the purpose of a chair. Thomas à Becket, when chancellor to Henry II., according to Fitzstephen, was 'manful in his household, and had his hall strewed every day in the winter with fresh straw or hay, and in the summer with rushes and green leaves fresh gathered; for which the whimsical reason is given, that such knights as the benches could not contain, might not dirty their fine clothes when they sat on the floor.'†

From the contiguity and construction of the houses, accidental fires had been such cruel scourges of the Londoners, that, under Richard I., a law was passed, that in future all houses in the city should be built to a certain height of stone, and covered with slate and burned tiles;‡ and after the fire that destroyed the greater part of Oxford in 1190, the burghers, following the example of the Londoners, also began to construct their houses of stone; and in those quarters where the poor people were unable to be at the expense of this improvement, a high stone wall was raised between every four or more houses.§

It has been observed, that the practice of strewing the floors was universal; and it seems to have extended into the apartments of the kings themselves. William, son of William of Aylesbury, held lands from Edward I. on condition of providing straw for strewing the king's chamber in winter, and herbs in summer. Glass windows, that in the time of William the Red were a mark of great luxury and magnificence, when placed in a church or palace, begin now to be seen in the houses of persons who affected indulgences, and knew how to enjoy them. Chaucer, who from his tastes and propensities may be considered one of the 'perfect gentlemen' of his time, says in his Dreme, that in his bed-room,

'with glas
Were all the windowes well yglazed;'

and kept in such good order as to be

'Full clere, with nat an hole ycrased;'

and moreover so beautifully painted,

'That to behold it was great joy;
For holly all the story of Troy
Was in the glaising ywrought.'

It may also be noticed that the windows were moveable; for he further tells us that when he was reposing, the

'Windowes weren shut echone,
And through the glas the sunne shone'‖

upon his bed. The manner of hanging and fastening these windows is described by a contemporary romancer. When the Squyr of Lowe Degre poured out the sorrows of his disconsolate love for the king of Bohemia's daughter, from which it is clear that the window she opened was framed and fastened like the casement in a modern cottage. Returning to the poet's bed-room for a few illustrations, it is found that as well as the windows,

'All the wals with colours fine
Were paint both text and glose;'

which shews that the wall must have been plastered with some care before it could receive a painting, rough as it might be, and, therefore, without the chinks that let the wind into the Saxon palaces. Arras or tapestry was also hung on walls, of which that ornamenting the hall in Warwick Castle in 1344 was a superb specimen. It should, however, be borne in mind, that it was most likely seen only in regal palaces, or in houses rivalling palaces in their furniture and in the presumption of the owner.

Amidst all this laudable attention to warmth in nocturnal climate, no mention whatever has been made of any means of heating the dormitory; and there does not seem to have been any except a pan of charcoal. A notion may now be had of the comfort enjoyed in the houses of persons of rank. The spacious lofty hall, left open to the roof, had its windows placed high from the floor, and filled with oiled linen or louver boards, or occasionally with painted glass. Its clumsy unframed doors were opened by latches; and when the walls were not coarsely painted in the fashion of the time, they were left rough, and covered with arras suspended by hooks at a distance of three or four inches from the wall. The floor of stone or earth had a part at one end raised a little above the general level, and laid with planks. On this platform or dais stood a massive table and ponderous benches or forms, and a high-backed seat for the master under a canopy. On the hearth, in the middle of the hall, were placed the andirons for supporting the ends of the brands, that were arranged by means of a heavy two-pronged fork, the type and predecessor of the modern poker. On the roof over the hearth was a turret or louver, filled with boards arranged so as to exclude rain and wind, and permit the escape of smoke; and this was sometimes an object of considerable architectural beauty in the external aspect of the building.

The chamber, like the hall, was lofty, and lighted with tall narrow windows filled with oiled linen or glass, with a part made to open like a casement, and screened with a curtain; it had neither a hearth nor a flue.

The country houses of inferior landholders and farmers were generally one story high. If they were built with two stories, the roof was so deep as to reach to the ceiling of the lower room. The hall and kitchen forming one apartment, and roughly plastered, was open to the timbers of the roof, and sometimes had a louver, and a window that could be closed with a shutter.

'Barre we the gates,
Cheke we and cheyne we and eche chinc stoppe
That no light leopen yn at lover ne at loupe.'

When these houses had a room to sleep in, old and young reposed in the same apartment, and several in one bed; servants made their beds on the floor in the kitchen. Cottages had neither louver nor loupe, and their inmates lay round the fire.

The chimneyed chamber was spacious and lofty, and usually formed with a large bay window, looking into the court of the castle. It adjoined the hall, and was used on ceremonious occasions as a reception-room for the guests before they were ushered into the hall of entertainment, and to which they retired on leaving it. At other times this privy, or presence-chamber served, according to the poet, as a dining-room. Another apartment, distinguished as our lady's bower or parlour, and appropriated to the exclusive use of the dames, was that in which they received their visitors, passed their time, and often took their family meals in. The windows of this also opened into the dismal quadrangle, for all were obliged to sacrifice their feelings and enjoyment to security.

The stronghold of Conway is remarkable for exhibiting another domestic refinement, not found, except at Kenilworth, in any cotemporary building. A hearth is recessed into the wall, and has a flue rising from it for the passage of the smoke into the air. It is true, that after this period, flued fireplaces were sometimes made in rooms that had been erected without them, but the chimney in Conway Castle, and a similar one at Kenilworth, appear as if they had formed part of the original edifices.

Castles and mansions were now built of stone, but wood and plaster continuing to be the materials of ordinary houses, in towns destructive fires were common, and the custom of strewing the floors with straw must have greatly increased the danger. Chaucer says—

'Whan a chambre a fire is, or a hall,
More nede is sodainly to rescowe,
Than to disputen, and ask among us all,
Howe the candel in the strawe is fal.'

This frequency of accident, more particularly in London, had led to the enactment of some judicious municipal regulations. The magistrates, says the Chronicle of London, quoted by Strutt, 'are empowered to enqyre if there be any house in the ward that is tiled without other thing than tile or lead, and there be any chemeni that hath a reerdos made uncomli, otherwise than it ought to be.' And also if any baker or brewer heat their ovens or other '(furnace) with strawe or reyde or other things that might cause peril of fire.' Every ward was also to have 'a racke with two long cheynes of yrne and two ladders,' and every house was to have a 'tub of water ready for peril of fire.' The scavengers' oath of office was, that they should examine that all 'chemys, reedossys, and furnessys be made of stone for defent of fire.'* But notwithstanding these precautions, the history of London and of other towns shews a lamentable disregard to the lessons of dire experience in every thing connected with the protection of buildings from fire.

The chimney has been considered an Italian invention. But if Winwall House be an Anglo-Norman edifice, its chimneys must have been built in the twelfth century; and those in the castles at Kenilworth and Conway will also long precede, in point of antiquity, the *camini* and *fumajuoli* of Padua and Venice. The fourth example of a chimney in an English building is that described by Leland, in his 'Itinerary,' where he gives an account of his visit to Bolton Castle. This building, he says, 'standethe on a roke syde; and all the substaunce of the lodgynge in it be included in 4 principall toures. It was finiched or Kynge Richard the 2 dyed. One thynge I muche notyd in the hawle of Bolton, how chimeneys were conveyed by tunnels made on the syds of the walls betwyx the lights in the hawle, and by this means, and by no covers is the smoke of the harthe in the hawle wonder strangely conveyed.'† It has been seen that, previous to the erection of this stronghold, the word chimeney is of frequent occurrence. Chaucer in several places speaks of chambers with chimeneys; Longlande, we have seen, also employs it: and Wiclif, in his translation of the New Testament, in 1380, has the expression, 'thei schulen send him into the chymeney of fier.' In the poetical vocabulary 'chimeney' appears to be synonymous with 'fire-place,' or 'hearth recess;' and the verbs equivalent to the word in the reformer's Testament is 'furnace.' Leland, who wrote a century after, in using the word almost defines it 'The chimeneys were conveyed by tunnels; or, in other words, the fire-place was continued by a tunnel to the top of the building; a description that will accurately fix the meaning of the word when found in writers previous to the Tudor period; for it is quite obvious that chimneys in common use, and with which Leland was acquainted, had no tunnels to convey the smoke from the hearth—otherwise his admiration of those in Bolton Castle would have been unexplainable. His observation, that the smoke from the hearth was not conveyed by 'covers,' also shews that at the time he was writing, covers were common appendages to fire-places for conveying smoke.

It was, perhaps, from a desire to diminish the risk of accidents by fire that the custom prevailed of laying the floors with a coating of cement made of lime, and pounded rubbish, or pebbles. The floors in the upper rooms in the old part of the Abbey House, at Waltham, built by Sir Edward Denny, were overcast, or paved in this manner, with a coarse plaster of sand and pebbles, forming a crust about six inch thick, coloured deep red like a bright brick floor, and similar to the rude rough-cast or stucco floors seen in some parts of Lincoln and Yorkshire.‡ Glass was rare in the windows of gentlemen's houses before the time of Henry VIII.§ Copyholders and poor people had none. The windows belonging to Cot

* Illustrations of Manners and Expenses of Ancient Times, p. 12.

† Brand. Popular Antiq. vol. i. p. 241.

‡ Stow. Survey of London, p. 73, ed. Thoms. The dwellings of the Scots were either very mean or extremely inconvenient. The bishop, noble, and king lived in small stone castles, perched on some precipitous rock, with massive walls enclosing narrow stifled apartments, that had no chimneys, and loopholes for windows. The cottages were slight erections of wood, without hearth, chimney, or window, and their towns were a collection of such hovels. The use of wood in building had been so general, that castles were built with it. Several of these combustible strongholds, belonging to the Celtic chiefs in Moray, were burned in the rebellion of Gillies-cop.—Chalmers's "Caledonia," vol. i. p. 805.

§ A'Wood. Hist. of Oxford, vol. i. p. 172.

‖ Works, fol. 229. Edit. 1602.

* Horda. Ang. vol. ii. p. 40.

† Britton. Arch. Antiq. vol. iv. p. 156.

‡ Illustrations, &c., p. 94. In the churchwardens' account of St. Mary Hill, London, 1485, is an entry—"Paid the dawb for terysing of floris per day viijd.;" under the date 1497 a charge for "a lode of lime to overcast the floore in Lewham's house."

§ Antiquarian Repertory, vol. i. p. 72.

tarini, a rich Italian merchant residing in Botolph, were reckoned valuable moveable furniture. And in the riots at Oxford, in 1502, the glass windows were carried away as rich booty by the rioters.* In London, about 1510, Sir Thomas More, in his 'Utopia,' says, that they keep the wind out of their houses with glass, for it is there much used, and some also with very fine linen dipped in oil or amber; and that for two commodities, for by this means more light cometh in, and the wind is better kept out. In religious houses it was common. At Alnwick Castle, in Northumberland, when the earl removed to another house, the glazed sashes were taken out of the window frames, and laid carefully by, in case they should be broken by the winds or other accidents, until 'my lord' again visited his mansion. How the wind and rain were excluded after their removal does not appear.

At the close of the reign of Henry VIII., domestic convenience and comfort had made a little progress. The rooms in the houses of the upper classes were built capacious and lightsome, and the ceilings were often plastered, or formed of boards. Halls, and parlours, and the chief sleeping chambers, were, as in bygone times, hung with tapestry; or they were lined in a manner recently introduced, with boards of a foreign kind of oak, called wainscot. In houses of the inferior gentry and wealthy tradesmen, parlours and the best bed-rooms were hung with arras, or with a kind of painted or sized cloth, made in imitation of it. Stamped or painted leather imported from Flanders was also latterly introduced as a wall lining. The doors were clumsily made and fitted, but well hinged, for Sir Thomas More says those of London would follow the least drawing of a finger: locks were rare, and internal doors opened with a latch and string. Boarded floors in halls and parlours were becoming common.† Rushes and straw, however, still covered and polluted their surface.

PARTY WALLS.

RECENT AWARD UNDER METROPOLITAN BUILDINGS ACT.

The following award involves a question of considerable importance: the papers came into our hands too late to allow us to offer any observations upon them in the present number, but we may return to the subject on another occasion.

On the 16th of June last Mr. Pownall, district surveyor, gave notice to Messrs. Mansfield and Co., builders, "that the works now in progress at the house situate in Lincoln's-inn-fields, No. 54, are not conformable to the statute in the portions thereof under mentioned," and required them within forty-eight hours from the date thereof to amend the same.

Irregularities referred to:—

The rebuilding a portion of the above-mentioned house, consisting of two fronts of such house. The party wall between Nos. 53 and 54 having timbers running through it; and the party division between Nos. 54 and 55 being a timber partition.

Messrs. Mansfield's reply to the information was as follows:—

"As to the party structure situate between Nos. 54 and 55, we submit that such structure runs from east to west, and that the fronts thereof being at right angles thereto and running north and south have neither been taken down or rebuilt, or in any way touched, and therefore that the 33rd section in no way applies; that the building at present erecting is an attached building to No. 54, Lincoln's-inn-fields, situate in Duke-street, more than 7 feet from the party structure, and at direct right angles, and consequently at opposite angles to the party structure.

Inasmuch as the building owners of the south party wall between Nos. 53 and 54 have not required a survey, and the party structure is not so defective or so far out of repair as to render it necessary to pull down and rebuild the same, we consider that the district surveyor has no power to survey the wall under the 25th section."

After numerous hearings, the following award was made:—

Office of Metropolitan Buildings,
3, Trafalgar-square.

In the matter of the reference by way of information of Mr. George Pownall, District Surveyor, against Messrs. James and George Mansfield, Builders.

With regard to the party-wall dividing and between the houses numbered, and situate and being No. 53 and No. 54, Lincoln's-Inn Fields, and with regard to the party-partition dividing and between the houses numbered, situate and being No. 54 and No. 55, Lincoln's-Inn Fields, the said premises respectively being within the district of St. Giles's-in-the-Fields and St. George's, Bloomsbury, and within the limits of the Metropolitan Buildings Act, 7 & 8 Vict., cap. 84.

We, the Official Referees of Metropolitan Buildings, duly appointed in pursuance of the said Act, having received information from Mr. George Pownall, the surveyor of the said district by virtue of the said Act, that Messrs. James and George Mansfield, of Little James-street, Gray's-Inn Lane, builders, had not amended certain alleged irregularities, mentioned in the Notice of Irregularity hereto annexed, and having on the 19th day of July, 1845, and again by adjournment on the 31st day of July, 1845, duly heard the said George Pownall and the said James and George Mansfield, and their agents in that behalf, at one of which hearings the said George Pownall proved the due service of the said notice on the said Messrs. James and George Mansfield, and the inspection of the work after the expiration of the said notice, and the failure of the parties to amend the same;—

Do hereby determine and award, with respect to the party-wall first above mentioned, that if the said wall be made as nearly as may be practicable in conformity with the provisions of the said Act, relating to the construction and materials of party-walls, by stopping up all openings therein, and by removing therefrom such timber and wood-work now lying in or running through the said wall, as is not by the said Act allowed to be laid or placed in the substance of party-walls, and by making good the said wall, such party-wall may remain, and need not be pulled down or rebuilt, nor need an external wall be built against such party-wall.

And with respect to the said party-partition, inasmuch as the portions of the back-front of the said house No. 54, which have been taken down and rebuilt, do not adjoin the said party-partition, we make no direction thereon.

And with regard to the costs and expenses attending this proceeding, we, the said Official Referees, do hereby further award:—

First; As to the fees and expenses of the office of metropolitan buildings, that on or before the 23rd day of August, instant, the sum of 14*l.* 3*s.* 11*d.* be paid to the Registrar of Metropolitan Buildings at the said office, No. 3, Trafalgar-square, London, and that such sum be so paid in the first instance by the said James and George Mansfield and the said George Pownall, or by either of them; and that if such sum be paid by the said George Pownall, he shall be entitled to claim and be repaid the same by the said James and George Mansfield.

Secondly; As to the costs and expenses of the said George Pownall as such surveyor as aforesaid, that on or before the said 23rd day of August, instant, the said James and George Mansfield do pay to the said George Pownall the sum of 5*l.* 5*s.*, at his office, at No. 14, Upper King-street, Holborn, in the said district.

In witness whereof we, the said Official Referees, have to this our award, on three pages of foolscap paper, set our hands this 15th day of August, 1845. James W. Higgins,
William Hosking.

Artificial Stone.—We learn from the *Athenæum*, that an architect at Augsburgh, Herr Aloïs Steiermann, has invented an artificial stone which for solidity is said to surpass the best free-stone, is one-third its cost, and to which any form can be given in the manufacture. It is composed of river-sand, clay, and a cement whose composition is the inventor's secret. It has been submitted to the proof of air, pressure, and fire, and resists them all. The king of Bavaria has given his gold medal of civil merit to Herr Steiermann, for this useful invention.

STAINED GLASS WINDOW IN ST. JAMES'S CHURCH.

Mr. Editor, with regret as an amateur of the fine arts, I have read the unhappy conclusion to which the committee of taste have come, as touching the stained-glass window in St. James's church, Piccadilly.

Are we ever in this country to get out of trammels as regard architecture and the fine arts?

Thus, some writers designate *Gothic* architecture as *Christian* architecture, and decry all churches built in the Grecian, Roman, or Italian style as Paganism. As if devotion was not congenial with the splendid churches of Germany, St. Paul's in London, or St. Peter's, at Rome. Whilst others declare that because Greece and Rome had no *stained glass* in ancient time, so putting stained glass in a Grecian or Italian built church must be anathematized as bad taste; ideas, in my humble opinion, nothing better than vapouring puerilities, to which no man who has a relish for art ought for a single moment to lend an ear.

The love of antiquarianism at the present day approaches *monomania*. Not only are church windows glazed without subjects to interest the mind or heart, but to *tabernacle work* and *grim figures in niches* are also sometimes added affected *corrosions* of the stains of time !!! a true smack of what was formerly called "*The Smell-fungus School.*"

What may a true love of art in matters pictorial be termed, but a zest for the delineation of nature in its highest, truest, and most perfect state, whether it be in animated subjects or still-life? The rest is mere conventionality. Window glass, of all colours, when it comes from the furnace is diaphanous, and if objects in nature are described upon it, *architecture*, *animal*, or *vegetable* life, its real beauty consists in the *truth* of what it intends to describe, not in a *dirty obscurity*.

But the windows of the smell-fungus school must often excite a smile of pity. Cherubim like monkeys, bishops like mummies, and saints like chimney-sweepers with their faces and robes as dirty as if they had been up the chimney. How different the taste and execution of stained-glass in the churches of *Munich !!!* But we are in trammels. *Westminster Hall* is forbidden ground to the splendid artists of the schools of *Hesse* and of *Cornelius*.

The *protective* system, as regards *art*, is still maintained by Sir Robert Peel in all its intensity. Our youthful aspirants of the pencil are not allowed to profit by a view of what a foreign school can do; and *foreign* talent and *foreign* genius are by Sir Robert put into the same category with the threads and tapes of *foreign* manufacture—what an Augustan age!

The poor artist, fettered by the *res angustæ domi*, can know nothing of foreign power and execution, and is thus left to *fancy* that art can be perfectionized intuitively. The authorities of Hamburg want to build a splendid church; they do not call confining art to their own people "patriotism," but, like true lovers of genius, invite competition from *all* nations, and England gains the wreath.

The Prince de Joinville offers to sailors of *all* nations 1,500 francs as a prize for rowing a six-oar sea boat—the sailors from Portsmouth row, and gain the wreath.

Is England alone to consider talent and genius as necessarily circumscribed to the place of its birth? Whatever the *Government* may do, the *people*, I feel assured, repudiate such narrow-minded ideas, and I trust the day is fast arriving when our "powers that be" will no longer tell Talent and Genius that their portals are hermetically sealed against them. Genius is the common property of the world, and ought in all branches to find in England an affectionate welcome.

I am, Sir, &c.,
Neiton. W. Mason.

P.S. Though not of "the *smell-fungus school*" I beg no one will impute to me a distaste to the *Gothic*. I passionately admire art and architecture in "*all*" its varieties.

Consuming of Smoke.—The Government has appointed Mr. Faraday and Professor Playfair to ascertain how far it is possible to consume the smoke from steam-engine chimneys.

* A'Wood. Hist. of Oxford, vol. i. p. 659.

† In Samlisbury Hall it is curious to observe that the upper floors are massive planks, which, instead of crossing, lie parallel to the joists, as if disdaining to be indebted to them for support.—Whitaker. Whalley.

ORIGINAL DESIGN FOR A VASE.



ORIGINAL DESIGN FOR A VASE.

The vase represented by our engraving was designed and modelled at the School of Design by Mr. W. J. Wills, modeller, of 16, Cumming-street, North, Pentonville, and obtained a premium at the last distribution of prizes. On the body of the vase the Thames is allegorized, Commerce and Mercury, the god of merchandize, appear in the foreground; surmounting the whole is the figure of Britannia.

The engraving is one-seventh of the real size of the vase: the whole height is 3 feet 6 inches.

DECORATIONS OF THE NEW HOUSE OF LORDS.

Sir,—As it appears by an article in the last number of "The Builder," as well as in notices contained of late in other periodicals, that a misconception prevails as to the nature of my employment in the works of the new palace at Westminster, I think it incumbent on me, in justice to Mr. Barry, to state that I am engaged by him, and by him alone, with the approval of the Government, to assist in preparing working drawings and models from his designs of all the wood carvings and other details of the internal decorations; and to procure models and drawings of the best examples of ancient decorative art of the proper kind, wherever they are to be found, as specimens for the guidance of the workmen in respect of the taste and feeling to be imitated; to engage with artists, and the most skilful workmen that can be procured in every branch of decorative art, and to superintend personally the practical execution of the works upon the most economical terms compatible with the nature of it, and its most perfect performance. In fulfilling the duties of my office, I do not do any thing whatever on my own responsibility; all models and working drawings being prepared from Mr. Barry's designs, and submitted to him for his approval or alteration previous to their being carried into effect; in fine, my occupation is simply to assist in carrying out practically Mr. Barry's own designs and views in all respects.

Trusting to your fairness in giving insertion to this letter in your next number,

I am, Sir, &c., ✠ A. Welby Pugin.

London, Sept. 3rd, 1845.

Sir,—Replying to the observations contained in your last number "On English Decorators and the New House of Lords," I can state distinctly, that not one single foreigner is, or has been engaged upon the decorations of the New House of Lords; that after receiving the sketches from Mr. Barry, I have drawn them out full size with my own hands, and have entirely directed the execution of them under Mr. Barry's immediate instructions and control. I hope you will give insertion to this plain statement of facts in your next number.

I am, Sir, &c, John G. Crace.

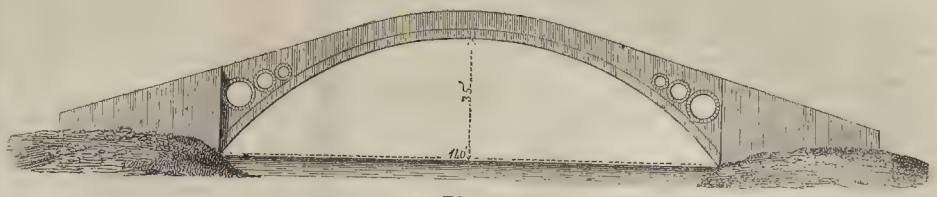
Wigmore-street, Sept. 2nd.

STONE BRIDGE OVER THE RIVER TAFF, GLAMORGANSHIRE.

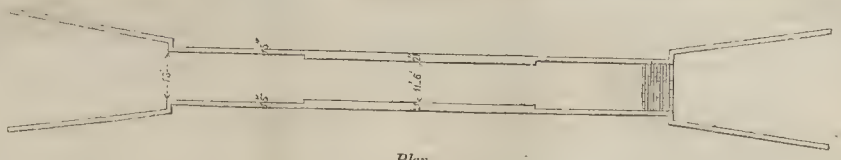
Pont-y-Pridd (the bridge of the Easthouse), or the Newbridge, is an extraordinary piece of masonry, consisting of a single arch thrown across the river Taff. It is situated about halfway between Merthyr Tydfil and Cardiff, on the turnpike-road leading from the Merthyr and Cardiff turnpike-road to the Taff Vale Railway Station and Llantrissant and forms a conspicuous object in the beauti ful vale of the Taff, which, being a favoure county, possesses unusual facilities of transi namely, a good turnpike-road, a canal, an locomotive railway, running immediatel parallel to each other.

The scenery contiguous is of a rich and roman tic character, the confluence of the Taff an Rhonodn Vawr, the amphitheatre of hills, th bold and stupendous bridge, the luxuriance of th hanging woods, the projecting masses of rock with the foaming and tortuous course of th river Taff, alongside which the railway wind its course, all may be seen at once, presentin a gorgeous and magnificent spectacle, mor particularly if viewed from the eminence t the south-west of the village on the road t Llantrissant. The architect and builder o the bridge was William Edwards, son of farmer of the parish of Eglwysilan, in th County of Glamorgan, where he was born i the year 1719. Having a natural genius fo masonry, he was observed to excel in that ar and has left many interesting specimens of h works, exclusive of the one above alluded t in various parts of South Wales. In the ye 1746 he undertook to build a bridge over th river Taff, consisting of three arches, bu owing to the uncommon rapidity of the curre of this river when swollen by long and heav rain (to which it is frequently liable from i contiguity to the Brecknock Beacons, whenc it takes its rise), the bridge was soon after i erection swept away. He had given amp security for its stability for seven years stipulation which it is customary to make i all contracts for public works in South Wales and he proceeded on his duty in erecting an ther with all possible speed. The secon

STONE BRIDGE OVER THE RIVER TAFF.



Elevation.



Plan.

idge was proposed to be of one arch, the an or chord 140 feet, its versed sine 35 feet. ie arch was finished, but the parapets not ected, when the pressure of the ponderous ight over the haunches caused the arch to ing up in the middle, and the keystones were ced out. This second failure was a severe w, but the spirit of Edwards was not to be concerted, and he engaged in the work a rd time, when, by means of three cylindrical enings through the work over the haunches, reduced the weight upon the arch. He o added to the thickness of the parapet wall the crown of the arch, and reduced it to its allest possible limit over the haunches, as wn on the plan, in order to throw additional ght on the former, and to lessen the weight the latter.

he bridge was completed in the year 1750; vious to Edwards entering upon his task a rd time, he, I believe, consulted the cele- ted Smeaton, and, acting I have no doubt ler his advice, adopted the expedients ve stated. In the year 1798, the bridge lterwent some extensive repairs at the hands Edward David and Thomas Evans, as ap- rs from a tablet inserted inside the parapet l of the bridge at the crown of the arch. e arch, which is of 140 feet span, is a ment of a circle, its radius being 90 feet, the proportions the various parts of this lge bear to each other are as follows:— rise or versed sine to span one-fourth, th of the keystone to the span of the one forty-seventh. The latter is re- kable as being less in proportion than t bridges of modern construction. The onry is of that description usually de- inated rubble, and the stone of which it omposed is the level bedded and shelly l and limestone of the country.

t the time this bridge was erected, it was idered a great triumph of genius and skill, is even now thought to be an extraordinary e of masonry to be accomplished by an ducated and self-taught architect and ons; still I think if the works had to be ormed in the present day, a much more enient structure might be erected, viz. of less altitude. The ascent to, and de- t from the crown of the arch of this ge is exceedingly steep and inconvenient, uch so, that if carriages with heavy hts pass over it, the descent cannot be mplished with safety without the use of drag (a square frame of timber with a chain attached to it) which is kept there at purpose: this is weighted and the chain ned to the carriage at the summit, and as arriage descends the one side, the drag, h acts as a counterbalance weight, as- to the summit on the other. This ope- n has to be repeated for every carriage passes over this bridge. The danger of ng this bridge is considerably augmented, sequence of the roadway being pitched, renders it difficult for horses to obtain d foothold.

B. B.

econ and Merthyr Tydfil.

DESIGN FOR SMALL FARM BUILDINGS.

Having been requested on more than one occasion, to supply a plan for small and inexpensive farm-buildings, we avail ourselves of the following communication:—

Sir,—From solicitations of friends to the allotment system, I have been induced to forward you a design for a cottage with small farm buildings (containing in the area 500 square yards of land, including the fold yard) of simple construction, in brick-work, without any expenditure in external decoration. If you should approve of it, you will confer a favour by giving it a place in your valuable journal.

The cost for the erection of the building will be about 200*l*. I am, Sir, &c.

Leamington An Architect.

REFERENCE TO THE PLAN.

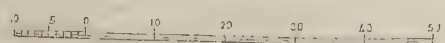
A Porch	G Bakehouse	M Barn, &c.
B Living room	H Hog Cistern	N Cow-house
C Closet	I Privy	O Stable
D Dairy	J Ash-place	P Court with Pump
E Pantry	K Pig-sty	Q Fold-yard
F Stair-case	L Open shed.	

Three chambers and hay tablet, over the cow-house and stable.

DESIGN FOR SMALL FARM BUILDINGS.



Plan.





Elevation of Cottage.



Elevation of Barn.

COURSE OF STUDY IN THE SCHOOL OF DESIGN.

Sir,—Were I not fully confident that incalculable good will result from the matter which has hitherto appeared, and I hope will still appear, in the columns of your truly valuable journal, I should be very sparing of my remarks upon the all-important subject of *design*. Your correspondent's letter of the 25th ult., inserted in your journal of the 30th, contains most painful matter on the deplorable and most inefficient state of the "drawing school," called by the council "the School of Design;" and though I have no knowledge of the author (Mr. R. Burchett), yet from his letter, which has every appearance of truth, and the fair spirit therein evinced, I cannot help giving credence to it until I see it disproved. If then Mr. Burchett's statement is true, what is the council about? or what sort of informed minds on artistic matters must the majority of the members of this council have to allow such a destructive state of artistical education to take place? Surely they cannot be aware of the amount of evil that must accrue to the students' faculties for the arts, and which will be sure to take place if they are to be subjected to such an unartistical school as this so-called "*School of Design*" is stated to be. Those members of the council who have shewn by their works that they possess a thorough knowledge of design, should immediately investigate this painful subject, and put their shoulders to the wheel to extricate their weighty burden from its clogging difficulty, that the students may have justice done to their faculties for the arts. This should be the first step taken by those members who are strongly gifted with the varied talents of design, in order to the establishing of a sound system of artistic instruction which shall be the most effectual for training the youthful mind up to every variety of true design.

If this "School of Design" is not a school of design, the pupils have been most unjustly treated, for by their own shewing they have had a loss of three years inflicted upon them in the very prime of their life, and to young men who depend upon employment for their existence, and to obtain which without the necessary qualifications would be next to an impossibility, this is most serious; such a severity as that with which they have been visited must be painful to the greatest degree to those who depend upon their labours for their support. If, as I have said before, the pupils' statements are true, then let the members of the council look into this matter, and devise a remedy for a reparation of the injury inflicted on those pupils who have been made to suffer, and see for the future that sound instruction be imparted throughout the whole range of design, that those of our youth who intend to enter the profession of designers be made as perfect as possible. In fact, the council should no longer believe that its own "*branches of instruction*," as stated in its prospectus, will accomplish any thing of the kind they suppose they will do. Such half or quarter measures will do more mischief than good, therefore the sooner the council applies its wisdom to a remodelling of their "branches," and adds a much greater extension of knowledge, the better; that those who wish to learn may have real knowledge imparted to them. It is most extraordinary that the council could not see when they drew up their prospectus that the meagre "*branches of instruction*" therein stated were quite inadequate for the purpose intended; and the smallness of the amount of instruction appears to have been imitated by the head master of the establishment, as he is made to say by Mr. Burchett, "I have prepared myself and delivered a *little* lecture upon them."

This surely must be a mistake upon the part of Mr. Burchett, for no head master of an artistic institution could have delivered any thing so small as a *little* lecture upon so important a subject, or would have caused the students to waste their time upon a *little* lecture, when his duty would have been to have entered deeply into the merits and demerits of the examples which were purchased for the benefit of the students. Now, as this is what a director would be sure to do for the enlightenment of his pupils, there must have been, I think, some mistake in this part of the affair. And, indeed, the black-board part is so very dark, that I cannot comprehend how any mind should be so unenlightened as not to thank Mr. Herbert for so wise and salutary a suggestion as the black-board, it being the readiest article of communication upon all forms which the instructor is bound to convey to his pupils. I can safely say from my own experience, that it would be utterly impossible to convey information upon design or individual forms without a black-board. In teaching drawings to please papas and mamas, the black-board is very little used; but in this matter the papas and mamas are to blame; they care very little about their children's faculties for the arts being duly cultivated. Their children bring home some pretty pencil copies of lithographic prints, and the parents are satisfied. But if the black-board was used at the commencement of all artistic instruction, in all schools as well as colleges, we should have a much more enlightened set of scholars in this country than we have. But it is not yet the order of these days, though sooner or later to the black-board we must come. As much as we may painfully feel the dismissal of a highly talented artist, Mr. Herbert, for suggesting the use of a black-board, nevertheless the council will ere long see the necessity of adopting Mr. Herbert's suggestion, though it appears they dismissed him for proposing it. This is, indeed, a state of things much to be deplored, as the students' designing talents are held in abeyance, to their serious loss and the nation's injury. This is certainly not very wise legislation.

As the faculties for the arts make up a most important part of the human mind, and as legislators make laws for the benefit of mankind, I would most humbly beg to advise all who intend to enter the legislatorial field, to have their faculties for the arts legitimately exercised, in order to obtain a thorough understanding of all the bearings which appertain to a sound system of artistic instruction; they would then see that those faculties ought to have their due exercise as well as all the others, and they would then legislate accordingly. Had this been previously done, we should not have such a prospectus of a "Government School of Design" as we have now before us. The heading or arrangement of the classes is quite sufficient to shew that design could never spring from such puerility—"*elementary* and *outline* drawing," to begin with, then "*shading* from the *flat*," "*shading* from casts," "drawing from the *round*," and "painting from the *round*," and such like. Any one would suppose that this collection of *flat* and *round* elementaries were for the pretty *little* dears of the suburban boarding schools. How the council could have sanctioned such unmeaning expressions to explain so grand a purpose, is inconceivable. However, we will look forward to a thorough reform, and which we trust will be set about in right earnest, when we shall have a real school of design, such a one as will be worthy of this nation, and to which its youth are justly entitled.—I am, Sir, &c.,

Geo. R. Lewis.

Upper Norton-street, Aug. 30th, 1845.

Baths and Washhouses.—There will be in the St. Pancras establishment about thirty single baths, fitted up in separate rooms, with all necessary conveniences, six vapour baths, and two plunging baths of large dimensions. The washing department will be quite distinct from the baths, and suitable accommodation is to be provided. The prices will be 1d. for a private cold bath, containing sixty gallons of water; and 2d. for a warm bath containing the same quantity. The establishment in Glasshouse-street, East Smithfield, for enabling the poor in that vicinity to use gratuitously an apparatus for bathing, and for washing and drying of clothes, is in full operation. The eagerness with which its benefits were availed of, far surpassed anticipation; 987 persons having used it in the short space of nineteen evenings.

Parish Churches.—Messrs. Brandon, authors of "The Analysis of Gothic Architecture," have announced a work consisting of perspective views and plans of parish churches, with descriptive letter-press. They propose to select such churches as from their beauty of design and peculiar fitness, seem worthy of being adopted as models by those who are engaged in church building.

ON EXTERNAL APPLICATION OF FORMS TO THE DISCHARGING OUTLETS OF BUILDINGS AS THE MEANS OF EFFECTING VENTILATION.

In remarking upon the subject of ventilatio by the application of any outward formation much has to be taken into consideration, which, in the majority of propositions, little no regard has been paid. It is apparent, th where one particular form or combination forms is proposed to attain this object, and put forward as the only means, the assumptio is, that there exists at all times ready for u the *power* to make such surfaces or form available. That this can be any man's beli who reflects on it is impossible, for commo observation alone contradicts it; but whe hardly a week elapses without some new nostrum appearing as the *sine qua non*—as th remedy for this *now* acknowledged necessit it does but betray that the idea has taken po session of the mind, that this power is at han and that we have lacked hitherto only th right application of the same. The fact however, that during the most calm, warm, a settled months of the year, we are the mo deficient of this first requisite, without whic all, and the most perfect applied forms, a mere useless material. Again, unless both t area of the exit from a building and the pow used there to ventilate be carefully manag and properly proportioned, so as to produce its progress through that building such curren as shall not be felt, ventilation will not submitted to. The precise amount of air mu be drawn in as is expelled or drawn out; a the currents which are produced by a pow always varied and uncontrolled, are the seve amounts of ventilation, sometimes induci dangerous drafts, but ofttimes when wind wanting, no ventilation at all; so it is evide we cannot expect either constancy in action, regularity in quantity, by depending on a outwardly applied form simply and alone its attainment. In the summer months all ready to acknowledge the necessity for perf ventilation, and as common sense directs, resort to the free opening of windows, doo &c.; and for our usual dwellings there can be a more rational course. The more fre this is done, the less the danger of inconve ence by drafts; for as drafts are only caus by the difference of weight in the atmosph within and without the house, depending up the rarefaction produced in the chimneys fires and other similar causes, so the more f and constant such openings are, the less be the tendency to drafts, and the more pleas and unobserved the ventilation. But dur the winter part of the year, as these facili cannot exist, this object must be effected other means; and in looking to the wind this power, as being that only by which ward formations can be acted upon, we perience it at one time tempestuous, and another powerless, but at all times va ing and uncertain, while we retain the sa unchanging form to receive its action,—e admitting that form to be the most prope induce the upward current. Now, allow this action by wind to be at times effectiv create this desideratum, we require at season the addition of warmth in conjunct with ventilation; and this it is which make a complex question, certainly not to be so by any outward application, because for e quantity of vitiated air withdrawn by any knowledged power, we require a preci similar amount at an agreeable temperat As an illustration how little ventilation a could be submitted to by some classes of ciety, we have but to turn our attention, reflect upon the thousands now inhabiting east parts of this vast metropolis, who are fed, ill-clad, and worse housed (daily practic illustrating Hood's Shirt dirge), and cons that this ventilation would be death hurried;—relieving from a more insidi to expose them to a more acute, but a less certain destruction.

But widely different is the question whe affects large or public buildings. " temples of religion, palaces, or theatres exceptions to this ban: the joint process them attainable and comparatively simple, air can be introduced at such temperature we choose and combined too with moist not the arid breath of the torid zone, fo in them can imitate the climate of Mad To accomplish this three things are requi

st. An air-warming chamber. 2nd. Minutely vided emitted currents from it into the uilding; and, 3rd. A controlled external dis-arge for the vitiated air, ready, and capable being made sufficiently active at all seasons. he practicable method of carrying out this ombined operation is beyond consideration for rdinary dwellings, excepting in cases where ey might be constructed as a block of build-g for a number of families, as has been fre-ently proposed."

The ventilation for common dwelling-houses n be carried no further, and need not be, in y opinion, than by admitting a regulated antity of air by the upper sash, or by apply-g in one of the upper panes some of the rious guards to shield such apertures, as irs' Moveable Glass Louvres, Dr. Guy's rforated Guarded Plates, or Bailey's Fixed uvre, with a covering slide. Either of these ill fulfil the purpose for the admission of air, d for the withdrawal of the same we have no eans at hand so simple, so ready, and so stless as our usual chimney draught. Pre-ming the fire at the lower level to be capable performing its part, viz. that of changing e lower stratum of air, there remains only to ert an outlet valve in the upper part of the imney-breast communicating with the same imney, to effect a ready and constant re-wal of the higher level of air sufficient to et the wishes of the most particular upon s point.

Again, reverting to outward applications y, there is the following condition, to which common dwellings are constantly exposed, ich would totally defeat such ventilation. e part of a building, or one room is of ater altitude than another, and from the sence of an excess of heat in that portion r the other, or from its altitude, or from er causes productive of a like result, the rent is *from* the lower or less rarefied por-n to the higher or more rarefied; here, not-hstanding the outlets from each were fur-hed with similar perfect forms, yet it would seen the ventilation would proceed *from* t of the two in the right direction upward, ile the other would be the inlet for a re-se current, only excepting such times as en the power of the wind would be in excess r the rarefying power within the building. e one outlet fulfilling its intent *independent* the original proposed outward form, but sted by it in such times as supposed, and other, although similar in every way out-dly, yet for any effect by it not only power-s but the actual passage of a reverse action. think this will suffice to exemplify the esseness of depending for ventilation wholly n any outward formation, as alike contrary experience and entirely opposed to the al conditions in which every occupied ding exists. I have only one remark to e upon this point, viz. that whatever form be applied at the external discharge of ilators to keep out the rain, or guide the harged current (for this is their legitimate in the direction of the prevailing wind, plan of that form should be the circle, as g the only one equi-distant from the centre ding equal action in all winds.

rury-lane. G. B. Cooper.

Exhibition of Architectural Draw-s.—The Association of Architectural ughtsmen exhibited during the past week, eir rooms in Southampton-street, Strand, nteresting collection of their drawings, ring that they have amongst them some able men. We have not space to par-arize, but we will mention with commen-n the works of Mr. L. W. Collman (whose ns for decorations have been honourably tioned on several public occasions), Mr. hard, Mr. J. R. Colling, Mr. J. D. tt, Mr. W. B. Colling, Mr. Rodriguez, E. C. Sayer, the hon. secretary, &c. itects requiring assistance will do well ply to the association.

The Emperor of Russia and Mr. Snow ris.—Through the medium of the Russian assador, Baron Brunow, his imperial sty has recently sent to Mr. W. Snow ris, of Plymouth, a handsome porcelain in token of the great estimation his sty entertains of Mr. Harris's ability as yed in his mode of constructing light-conductors for shipping.

MR. GRAINGER ON FORM OF SEWERS, DRAINS, AND SUPPLY OF WATER.

The Health of Towns' Association have published a lecture delivered by Mr. R. D. Grainger, of St. Thomas's Hospital, containing a general exposure of the causes of the unhealthiness of towns and its remedies. Foremost amongst the sources of disease in towns is defective drainage and sewerage. "It is impossible to exaggerate," says our author, "the defective state of the drainage generally found in towns: large districts, and those the most densely populated, entirely unprovided with these necessary outlets; sewers and drains placed on the surface, and constantly emitting pestilential exhalations; sewers, even in many of the principal districts in towns, so shallow as to be merely adapted to *surface* drainage, leaving the basement stories of houses and cellars where these are used for habitations, as in Liverpool and Manchester, altogether undrained, though in a special degree requiring it; sewers and drains constructed upon wrong principles as to form, dimensions, and materials; a want of proper traps to prevent the escape of noisome stenches and effluvia; and, more than all these defects put together, a totally insufficient supply of water, without which, as Dr. Southwood Smith justly observes, 'not only is no good done by a drain, but the very evil intended to be avoided is positively increased and extended.' The necessity of an ample supply of water, which ought to be as freely given as the air we breathe, meets the inquirer in every branch of the question; it matters not what you speak of —of house drains, court drains, street sewerage—of water-closets, privies—of wash-houses, baths, and personal cleanliness—or of decent habits and the comforts of home—to say nothing of the question of whole ranges of warehouses and the revenue of a principality annually destroyed by fire in some of our great cities; in all directions and upon all questions you are met with the *want of water*. As a complete and effective system of drainage, like so many other sanatory improvements, demands an ample supply of water, the two subjects may be advantageously considered in connection.

The existing system would appear to indicate an expectation that the sewers and drains are to effect many things which it is quite certain they never have and never can accomplish; and, amongst the rest, that by impressing a kind of volition upon the more solid parts of their contents, these latter should obligingly carry themselves off, and in the case of Liverpool, for example, walk into the Mersey, or in that of Manchester, into the Irwell. But this is a kind of feat which matter, with its accustomed stubbornness, will not perform, however much desired. On the contrary, all liquids holding solids in solution or mechanical suspension, are so desirous of getting [rid of their burden, that they deposit it whenever and wherever they can.

Wherever there is any delay in the course of the filthy water of towns, there a deposit of offensive and poisonous mud takes place; in every angle and turn—on any the least inequality of surface, an accumulation of solid matter does and must be formed; and as much of this matter is in a state of minute division and moisture, and all of it, periodically, on the falling of rain, it presents precisely those physical conditions which facilitate its escape into the air in the form of a poisonous vapour.

The great law, then, which regulates deposits of matter held in solution, is, that whenever the current is retarded, the solid particles have an increased tendency to subside; or, to speak more exactly, the ordinary law of gravitation operates under more favourable circumstances. It becomes a point of consequence to know, whether there exist in our public and private drains and sewers, and in the surface of streets, courts, and alleys, any causes which will promote deposits according to the above principle. The answer has already been given in the invaluable reports and evidence of the Health of Towns' Commission. By their unnecessary size and defective form, most of the older sewers being flat at the bottom, they cause a retardation in the flow of their muddy contents, and thus, of necessity, produce a lodgment of putrefying animal and vegetable matter. Another source of deposit is the improper direction of these conduits, the sharp angles and curves of which, especially where the smaller sewers enter the main trunks, lead to obstruction, and to these must be added the various irregularities of surface connected with all masonry, especially when it is originally bad or gets out of order. The construction of house drains is liable to the same remarks, all of them being built of porous materials, much too large for their contents, and ordinarily square, the worst of all forms for such a purpose.

The best form of sewers and drains is a question of much moment. "If they are constructed with a flat bottom, an accumulation of animal and vegetable matter must take place; for in this form of drain the force of the water is weakest precisely where it ought to be the strongest, namely, at the bottom; and in addition to this, the upright side-walls are liable to be forced in and destroyed. The best form of a common sewer is the egg-shape, which conduces to hydraulic pressure, and with this form and a plentiful supply of water, deposits would, to a great extent, be prevented, and whenever these did occur, by increasing the pressure of the water, which can readily be effected, they would be removed and the sewer scoured out. The egg-shaped sewer not only possesses the advantage of superior efficiency, but is likewise much more economical. It has been calculated by Butler Williams, Esq., one of the professors at the college for Civil Engineers, that by substituting this form for the sewer with upright sides and flat at the bottom, there would be a saving in the construction alone of 1,600*l.* per mile.

There is, however, a mode of drainage which to me seems infinitely preferable to any other—I mean the improved *drain tubes* recommended by Mr. Dyce Guthrie.* They are circular in form, and are made either of terra-cotta or of common brick clay; and as it is most desirable that all drains should be *impermeable*, to prevent their poisonous air escaping, Mr. Guthrie proposes that the drain-tubes should be glazed on the inside. "What!" some persons will exclaim, "would you glaze the inside of a drain as you would the inside of a basin to hold food?" Exactly so; and in the end this tubular system of sewerage would be cheaper, for it is not only much less expensive as to material, but in construction and subsequent maintenance. The form being circular, combines these advantages: the drain is strong, and it would thus be enabled to resist the superincumbent pressure; it could be made of much smaller size than the ordinary drain; and it could be readily washed out by a flush of water; indeed, it is probable that the sewer would be kept cleansed by its own action. For house drains and smaller sewers, tubes of from four to six inches in diameter would be sufficient, whilst for larger sewers the size should be from twelve to eighteen inches or more. If this tubular system of impermeable drains could be introduced, with a sufficient supply of water for washing them out, so as to guard against accumulations, the sanatory condition of a town would be immensely improved."

A copious supply of water is important in another respect. "By an improved supply of water in the city of New York, and a high pressure always being kept up in the mains, so that the hose can be directly supplied from them, the cost of insurance against fires has been reduced 25 per cent. Many who are present can form some estimate of the vast sum which such an improvement would effect in Liverpool, not only by a reduction of the yearly premium upon insurance, which, from the losses by fire, has been raised from 8s. to 35s. per cent.—the rate in London, for the same risks, varying from 2s. 6d. to 5s.,—but in the enormous amount of valuable property, which would thus be rescued from destruction. In Philadelphia, and in this country, in Nottingham and other places, corresponding benefits have resulted from similar improvements.

Economy would not only be consulted in this particular, by an ample supply of water, but in every other where it is concerned. It is found in the Holborn and Finsbury district, that by far the cheapest mode of cleansing the sewers is by washing them out, or *flushing* them, as it is called; in fact, the cost is about one-third of what it used to be: in one cleansing alone there was a saving of expense to the commission of 1,293*l.* Again, the ordinary expense

* See "The Builder," Vol. II, p. 633.

of cleansing those ever-acting foci of pestilence, cesspools, is, in London, 1*l.* to 1*l.* 10s. per annum, or from 5d. to 7½d. weekly; whilst it is stated that water companies could construct and maintain in repair an apparatus in the nature of a water-closet and house drains for the removal of all refuse and waste water, two points of incalculable advantage in sanatory respects, for a weekly charge of 2½d. to 3d. per house. Mr. Chadwick, in his admirable sanatory report, has shewn the great loss in other respects from a want of water, and he has rendered a great service to the community by demonstrating that all the manifold benefits which would spring from an ample supply of this prime necessary of life would each, and every one of them, be accompanied by a pecuniary gain."

Mr. Grainger urges, very properly, the necessity of extending scientific instruction to surveyors, builders, and others, with whom much of the details must rest. "When it is recollected that all persons charged with great public interests are expected to undergo a long and extended course of study; that the clergyman, the medical practitioner, and, now, even the lawyer, must submit to a rigid examination before they are permitted to undertake duties involving the well-being, the health, and the property of the community, I confess I do not see why another class of officers, to whose intelligence and zeal are committed interests not less momentous, should not also pass through a preparatory course of study, and have their knowledge tested by a proper examination. There is no art, scarcely even any business, in which an acquaintance with science is not necessary, or at all events advantageous; and we may remark, that it is quite possible for a person to be familiar with all the technicalities of bricks and mortar, and to know the contents of a cube of stone or wood, and yet to be ignorant of those important principles which are essential to an enlightened system of sanatory measures. There are scientific questions concerned in all the business of drainage, ventilation, and the supply of water; and thus a knowledge of hydraulics and other branches of physics, as well as of chemistry, becomes indispensable to an efficient surveyor."

QUESTION OF PATENTS,

AND PROPOSITION TO ASSOCIATE THEORY AND EXPERIENCE.

Sir,—I do not consider your columns should be used as a medium of compliments between those who may indulge in scribbling for them, but I am disposed for once to depart from this proposition by thanking Dr. Sutro for his kind notice of my article touching the occupation of newly-erected houses, and more especially for his sensible remark as to the tone "in which I should rejoice to see all scientific discussions carried on though interest or fame may be affected," that is, without asperity or overweening vanity. I avail myself of this quotation as opening the discussion of the question of patents, upon which I have perhaps peculiar views; and Dr. Sutro's frank admission that science and practice should walk as sisters, hand-in-hand, appears to afford a fair opportunity of discussing the point. With respect to improvements emanating from individuals tending to benefit and improve the condition of society, I hold our talents are entrusted to be diffused to the greatest extent upon the principles of reciprocity, as it is not given to the human mind each to grapple with every subject. This involves the right of patent, and I am not prepared to contend that an individual having bestowed vast labour, and, probably at great cost, produced that which materially adds to the comforts or elegancies of life should not, by such protection, be enabled to reap the fruits of his labour by fair protected remuneration: but by a parity of reasoning, the public offering this protection have a right to demand the greatest and most useful results by enforcing conditions not interfering with the admitted rights of this party. I would therefore suggest that a party having (as at present) registered a patent, before it be granted, a proposition should be submitted to a board constituted of accredited and scientific men, with power to suggest and insist upon such alterations and additions as should apparently make it more perfect and applicable to its proposed use. And that the party should then have it patented with these improvements, of course, greatly to his gain, as being thus accredited, and with saving of anxiety and further cost to the individual whose invention was not thus accredited as of benefit to the public. Dr. Sutro's remark—"that experience deserves greater appreciation in such cases than theory, and that nothing would be more dangerous than to sacrifice facts to speculation," implies that his mind is not imbued with the pedantry (and I use not the term offensively), that too frequently is an adjunct to science. We shall cheerfully accord to science the evidence of cause and effect, but then it has to be practically applied; let us therefore by free discussion, ascertain the probable result of any theory, the desirableness of which I will endeavour to illustrate thus:—In my youthful days when under mathematical discipline, it was accredited as proveable to demonstration, that the progression of a body could be correctly ascertained as to its velocity, taking into account certain data, viz.: impetus, resistance by friction, atmosphere, &c.; the formula adopted was proposed to prove the positive results upon the data, and thus universally *scientifically* accredited, until a practical question arose in regard to the form of carriages, &c., upon the Great Western Railway, having reference to these points. The course adopted was to call in Dr. Lardner and other *scientific* men to meet Mr. Brunel (whom we all recognize in the one as the other character), and *practical* men; the result of the inquiry being, as I am informed, that too much value had been attached to friction, and too little to the resistance of the caprices of the atmosphere. I hail your journal as the neutral ground between science and practice, for free communication, whereby much good might result if practical men would publicly give their theory and proposed mode of operative detail. The scientific man might be induced to reason upon certain ascertained facts controlling the proposed results, or as rendering them efficient. Par exemple: limiting the desperate long period of Dr. Sutro for the occupation of houses, might be appended to his proposal (upon ascertained principles) the all-important desideratum, proper and uncontrolled ventilation of rooms. Having devoted some attention to, and to some considerable extent using a mode for curing smoky chimnies, which has been adopted by several of my professional brethren (or I should rather say a mode of avoiding them in construction, thinking their existence has been a sad opprobrium to us), it has long been my intention to intrude my views upon your readers, waiting only for leisure to make a few diagrams. If my principle of creating currents be admitted, I then have a crotchet of connecting the ventilation of a room with the positive adjunct of a fire-place, never, I hold, to be omitted in even the garret of a fourth-rate house. Here then I want the aid of science: not professing to understand the principles of currents, the caprice with which they take their course, and the mode of displacing or associating with fouler atmosphere, a proposition made in ignorance of these facts may positively tend to counteract well recognized principles of nature, which it happens to be aside my habits or pursuits to understand. G. R.

NEW CHURCH, HUNTINGDON.

This church was commenced last week, on the site lately occupied by the theatre. It is to be built in the Norman style of architecture. The contract is taken by Mr. Howard, builder, of Newington Causeway, London. The amount of contract is about 3,000*l.* The size of nave, in clear of walls, is 55 by 27 feet: it is calculated to seat 800 persons, including gallery; the greater part of the seats are to be open benches, and free. The walls will be of brick, and dressings of doors and windows Caen stone. There are at present only two churches in the town, which will together seat about 1200 persons. The population of Huntingdon, according to the census in 1841, was 3,507,—thus shewing the great want of more church accommodation. This church is to be built at the sole expense of the Lady Olivia B. Sparrow. The architect is Mr. W. G. Habershon, of St. Neots.

RECEPTACLE FOR SEPULCHRAL MONUMENTS.

The notion of erecting a sort of "Camp Santo" at one of the entrances to Pari which formed the subject of considerable in terest some time since, has become now, a cording to the *Illustrated London News*, matter of almost certainty. The glories "Pere la Chaise," says a writer in th journal, will be thus considerably eclipse The cemetery is to be covered, after the mode of those of Pisa, Verona, Bologna, &c., whic are now imitated in several cities of German The cemetery will become in a few years species of temple consecrated to the dead, a ornamented with all that art can imagine honour and perpetuate the memory of ma In the long vaulted galleries will be range sculptured tombs, as in the ancient charnels the cemetery of the "Innocens;" in th superior stages, sepulchral chambers, destine for families, will be decorated with mur paintings. The grounds of this immen edifice will be planted with trees, shrubs, a flowers; the "Campo Santo," being covere will thus afford shelter to statues, bassi relie inscriptions, cenotaphs, from the degradatio that the band of time, and above all those man, have visited on monuments which ha been exposed to all the violences of atm sphere, the insults of the profane, and t severest "ills that stone is heir to." It principally in an art point of view that t foundation of such a covered cemetery is to considered. It will afford to architects, sculptors, to painters, an added opportunity f the exercise of their gifts; and there is doubt, if fully carried out, it will ultimate become the most vast, the most curious, a the most magnificent museum in Europe. similar scheme for London has been propos by more than one person, and will doubtless carried out here before long.

ABBOT'S LANGLEY CHURCH, HERT

This church, which is dedicated to Lawrence, consists of a nave, two side aisl a chancel with a chapel on the south side, a a square embattled tower having a short spi of lead. The tower, nave, and chancel, built chiefly of flint covered with plaster, w the exception of the chapel on the south s of the chancel, which is a very good specim of stone and flint, disposed alternately in squ compartments,

The clerestory wall of the nave is support by Norman piers and arches of good executi and in a fine state of preservation; each of capitals are of different design and handsom sculptured. Upright pieces of timber wh support the ends of the tie-beams rest up grotesque heads serving as corbels, and decidedly of Norman workmanship. The f is of good design, its age between the th teenth and fourteenth centuries. The pul which is situated at the extremity of the n on the north side, has unfortunately b erected with less taste than bounty, and t certain extent mars the *tout ensemble* of interior.

The chancel is in the perpendicular sty end was wholly appropriated to the recept of monuments until latterly, when the pres incumbent with a liberal hand restored t and other parts of the church to their origi purpose—removing a handsome marble mo ment of Lord Chief Justice Raymond, f then completely filled up the space now oc pied by the perpendicular window over communion table, which window has been placed and filled with richly-painted glass presenting St. James, St. Peter, and St. Jo in canopied niches. The floor of the ch cel has been laid with encaustic tiles of g device; the numerous alterations and rep have all been done at the expense of vicar, the Rev. Mr. Gee. The church is perfectly restored to its pristine form, parishioners therefore owe for this repara of their church a debt of gratitude to t minister, and may congratulate themse that their church this time, at least, has esca that destroyer of architectural remains, wh wash.

Amongst other circumstances worthy record, this parish is famous in history having given birth to Nicholas de Cam commonly called Nicholas de Breakspear,

ly Englishman who ever had the honour of ting the papal chair.. "There is a farm in is parish in the possession of R. Solly, Esq., hich still preserves the name of Breakspear, d probably was the place of his nativity. e was the son of Robert de Camera, and hen a youth endeavoured to gain admission to the monastery of St. Albans, where he ished to assume the monastic habit, but was fused admittance upon the ground of in-fficiency in learning. The manner of his ath is differently related by different authors. atthew Paris says, he was poisoned because had refused to make the son of a Roman izen a bishop, from his being unworthy of at situation.

The parish is in the liberty of St. Alban's, e mile and three-quarters S. by E. from ngs Langley. The Grand Junction Canal l the Birmingham railroad both pass ough the parish. The ground for the ntemplated Booksellers' Provident Retreat, ich was presented to the charity by Mr. T. ckinson, is situated in the parish at an easy tance from the church. R. B. W.

Correspondence.

BUILDING STONE.

SIR,—As your columns are open to what-r may be useful or interesting to your ders, I trust you will not object to find a he for the present very brief note. My ect is to draw attention to a stone produced 'n a quarry near Leeds, and called the Otley evin stone, but which, though excellently ulated for architectural purposes, is less own to surveyors, builders, &c., than its its deserve. I have seen various testimo-ls in its favour from some of the best ges, but the following extract from a certi-te by Dr. Ure is so explicit as to its quali-as to render any further recommendation ost superfluous. The doctor states, "I e subjected a sample of it (the Otley Chevin ne) to the appropriate test invented by the brated French engineers of bridges and ways, viz., MM. Vicat, Billandel, and rard, and find it to be capable of resisting decomposing force of the elements for an efinite length of time. It is, in fact, a sili-is grit, so closely aggregated, and so devoid issures, as to bid defiance to the corroding h of time, and to be, therefore, admirably pted to every architectural purpose where ngth and durability are the great requi-'s." To the above may be added, that it is capable of resisting great heats, and con-ently is adapted for many chemical pur-es. These few remarks are offered in the e and belief that they will be found as con-ive to the public advantage as to the private rest of any individual, and I conceive that giving this publicity you will confer an gation on many of your readers.

I am, Sir, &c., AMICUS.

DISTRICT SURVEYOR ON THE THAMES.

R,—A case has recently occurred at enwich which is of very great importance ne trade, and seriously affects all persons ing water-side premises on the banks of Thames from Wandsworth to Plumstead. he following are the brief outlines:—A t time since I was employed to repair and state a jetty or platform, and small erec-thereon, consisting of privy and small house, the whole entirely upon the same and dimension as before, not connected the house which is upon the banks, but ed upon piles driven into the bed of the Thames, around which the tide constantly

r. Brown, district surveyor for that locality, laid an information on the ground of ecting to give due notice, and demands e fees. My reply before the magistrate, Friday week, was, that not giving due e did not arise from any neglect, but from n conviction that Mr. Brown, as district yor, had no authority to interfere upon iver Thames. The case stands over for ner hearing on the 10th instant.

e 3rd section of the Building Act. p. 7, ifically refers to boundaries and to locali-the words of the Act are, "to all such parts places lying on the south side, or right of the said river, as are within the exterior boundaries of the parishes of Woolwich, &c. &c." "and to all places lying within two hundred yards from the exterior boundary of the district hereby defined."

The question I wish to be solved is, looking at the express words of the Act, has Mr. Brown, or has he not, any supervision in this case?

My firm opinion is, that the words in the Act, banks and sides of the Thames, mean and intend to denote the fixed or starting point, and the 200 yards only apply to the boundary south of those fixed points, as the river Thames cannot be called place or places, and more especially as I believe the river is within the liberties of the city of London, consequently cognizant to the city authorities, for which I think the Act provides. I shall feel obliged if you or any of your correspondents will in your next publication give me their candid opinion upon this very important matter.

I am, Sir, &c.,
THOS. SMITH, Builder, &c.,
Dock Head, Bermondsey.

Miscellanea.

THE EXCHANGE AT FRANKFORT.—A correspondent of the *Athenæum* remarks that there are in Germany a vast number of buildings, of which no boast is made, which give evidence of what is so extremely rare elsewhere—originality. Walking along the streets of Frankfort, we were suddenly arrested by the sight of a building of great beauty and simplicity. Neither Grecian, Italian, nor Gothic; obviously neither a palace, a theatre, nor an hospital; handsome, substantial, and harmonious, in proportion, ornament, and colours—it was the Exchange. To be sure; who would doubt it? It is just what the Exchange should be; and exactly the Exchange of Frankfort; not of vast magnificent London, the queen of commerce, or of showy brilliant Paris—centres of powerful monarchies, but of the wealthy free city, the seat of a substantial *bourgeoisie*. The material is brick of two colours—the architectural resources of which Lord Lovelace has shewn in the pretty schoolhouses he has built at Ockham. At Frankfort it is of course employed on a grander and more elevated scale, and therefore without those pretty fancies in the way of borders and ornaments, which are so appropriate and so cheerful in those cottage-like buildings of which the design is, in a double sense, so honourable to the noble architect. You must not ask me for details which I cannot give, partly for want of technical knowledge, partly of accurate recollection. But as to the general impression I can never forget how harmonious, how original and appropriate (*zweckmässig* is the very word), this unpretending and uncopied building appeared to us. The London Exchange I have not seen; that of Paris is one of those ludicrous misapplications so common in England and France, and what is more, a very ugly one. One asks till one is tired, why is every thing to be feudal, or Greek, or Palladian? We want none of these things. The whole actual idea and purpose of a building should not 'jurer' with its traditional idea and purpose, like the beautiful Madeleine, where, after it was finished, it was discovered that this Catholic church had no place either for confession or belfry (!), or the frightful Bourse, the frequenters of which have nothing in common with Greece or Grecks, but a peculiar sort of ingenuity and acuteness. I never heard the Frankfort Exchange mentioned, nor can I tell you the name of the architect. All I know is, that he is one of the few people who can do any thing but imitate.

RANELAGH SUSPENSION BRIDGE.—A company is being formed, having for its object the erection of a suspension bridge across the Thames for carriages and passengers, from a point a little to the east of Chelsea Hospital to a point on the west of the Red House, Battersea. The estimated expense, inclusive of a steam-boat pier, approaches, &c, is 90,000*l*. Mr. H. H. Bird is the engineer.

BUCKINGHAM PALACE, during the absence of the Court from town, is to undergo various embellishments and alterations. The grand hall is to be decorated somewhat in the style of the Royal Pavilion in Buckingham Gardens; and in the north wing alterations are to be forthwith made.

WORKS AT ST. MARY REDCLIFFE CHURCH BRISTOL.—We direct the attention of builders and contractors to an advertisement which appears in our columns, for tenders to execute certain works at Redcliffe Church. Only a part of the restoration is to be now contracted for, but it may reasonably be expected that the parties employed in the first instance will continue on the work till all is completed. We trust, now that operations have commenced in earnest, that fresh subscriptions for this noble undertaking will be poured in. Too much praise cannot be given to the committee appointed to effect the restoration, for the zeal and ability with which they are proceeding.

NEW PRISON AT CLERKENWELL.—The Middlesex magistrates have determined to pull down the present building, and to erect on its site one of larger dimensions, on the plan of the Model Prison at Pentonville; the work of demolition commenced during the present week. It is expected that the new building will be completed in about eighteen months.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For certain Masons', Carpenters', and Plumbers' and Glaziers' Work about to be performed in various repairs and restorations to St. Mary Redcliffe church, Bristol.

For Paviors, and Masons' Works to be done to the foot and carriage ways of St. James, Westminster, for a term of three years.

For Paving and repairing certain carriage and footways in the parishes of St. Margaret, and St. John the Evangelist, Westminster, for one year, and so on from year to year until three months' notice shall be given by either party to determine the same.

For certain Works to be done adjoining the present workhouse premises at Lower Homerton, for the guardians of the Hackney Union.

For building railway goods' waggons, ballast waggons and horse boxes, and supplying carriage couplings according to plan, for the Great Southern and Western railway (Ireland).

For the execution of Works on the Dundalk and Enniskillen railway, being a distance of ten miles.

For Lighting the public Lamps on the Lucas estate, St. Pancras, with gas, and keeping the same in repair.

For supplying the North British Railway Company with 2,500 tons of Cast-iron Chairs, and 140,000 Larch or Baltic Timber Sleepers.

For supplying the Middleborough and Ridcar Railway Company with 36,000 Oak Keys.

For the execution of Works on the Leeds and Thirsk Railway.

For the execution of several lengths of Earthwork on the Aberdeen Railway. There are 5 separate Contracts, varying in lengths from 3½ miles to 4¾ miles.

For the execution of the works on the Nottingham and Lincoln Railway, in two parts; 1 from Nottingham to Newark, being a distance of 17¼ miles. 2 from Newark to Lincoln, being a distance of 15¾ miles.

For supplying her Majesty's several Dockyards with Cast-iron Articles for twelve months certain.

For supplying 300 Sets of Wheels, Axles, and Guard Irons to the Great Southern and Western Railway (Ireland).

For the execution of the whole works of the first ten miles of the Hawick branch of the Edinburgh and Hawick Railway.

For 500 Tons of Cast-Iron Socket Pipes with bends, branches, syphons, &c., for the Commercial Gas Light and Coke Company, Stepney.

For the construction of the Gas Works at Wells, Norfolk, and all necessary apparatus.

For the construction of Three Reservoirs for the Blackburn Waterworks Company: also, of Stone Culverts for conveying the water a distance of about 2¾ miles. The earthwork will amount to about 180,000 cubic yards.

For the erection of an Infirmary at the Lambeth Workhouse.

For the execution of works on the Manchester South Junction and Altringham Railway, in two parts: 1, being a distance of 1¼ mile; 2, being a distance of 7¾ miles.

For the execution of Works on the Manchester and Birmingham Railway in 2 parts. 1. The Ashton Branch, being a distance of about 4¾ miles. 2. The Macclesfield branch, being a distance of about 30 chains, including a tunnel of 330 yards in length.

For the repair of all the roads within the Bridgwater trust for a term of three years from the 6th of October next.

For the execution of that portion of the Edinburgh and Northern Railway, extending from Burntisland Pier to Kinghorn.

For supplying the Trent Valley Railway Company with about 200,000 sleepers of good sound Baltic timber.

For supplying the Clydesdale Junction Railway Company with about 2,500 Tons of Rails, and about 600 Tons of Chairs.

For supplying the Leeds and Thirsk Railway Company with 100,000 Railway Sleepers.

For the execution of works on the East Lancashire Railway, viz., the Accrington Contract, being a distance of about 8 miles.

For the execution of that portion of the Newcastle and Berwick Railway, extending from Netherton to Tweedmouth, being a distance of about 53 miles. To be let in four contracts.

For the execution of works on the Leeds, Dewsbury, and Manchester Railway, viz., the Churwell Contract, being a distance of about 2½ miles.

For supplying the Wakefield, Pontefract, and Goole Railway Company with about 7,000 tons of Malleable Iron Rails, and 2,000 tons of chairs.

COMPETITIONS.

The Committee for the establishment of Public Parks, Walks, &c., at Manchester, offer two prizes, one of 50 guineas and the other of 25 guineas, for the best and second best set of Plans (with estimates), for the laying out, &c., of the sites already purchased by them.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

Adjoining the entrance to the East Country Dock, Rotherhithe, about 85 loads of new East-India Teak, and 60 loads of sound African Oak Timber.

BY TENDER.

In the Plantations of the Duke of Montrose, situate in the Parishes of Drymen and Buchanan, Stirlingshire: many Thousands of Larch Trees of some size, adapted for Railway Sleepers, Roofing and Joisting, and other purposes.

TO CORRESPONDENTS.

"Constant Reader."—*Notwithstanding our correspondent's objection, we know no better depositary for his £15 than a Savings' Bank. It is difficult to employ advantageously a small sum.*

"A Subscriber."—*Mr. Cockerell's Lectures are not published. Accurate reports of the last course will be found in the* BUILDER, *pp.* 31, 38, 63, 73, 85, *ante. The "Athenæum" contains very excellent and full reports of previous courses.*

"A. B."—*The letter on Purity of Water is simply an advertisement.*

"One of your constant Readers."—*Replies to the whole of the questions put to students in Architecture at University College would form an elaborate treatise on the subject. We will see what can be done.*

"J. Morgan." (School of Design); "T. A.," and "Amicus" *are declined with thanks: we cannot afford space.*

"Ed. H."—*Laxton's "Price Book" will give the information required.*

"J. C."—*We shall be glad to learn the decision of the commissioners.*

"A Youngster."—*The Institute of Architects have published a valuable pamphlet on "Dilapidations," which may be had of Weale, Holborn. There are several larger works on the same subject. The most recent is by Gibbon.*

"H. A."—*The block unfortunately arrived too late for the present No. We shall be glad to avail ourselves of it next week.*

"Messrs. Testa's Glass Warehouse."—*A correspondent wishes to know where it is situated.*

"A. B."—*We shall be glad to see the drawing.*

"W. J. S."—*We cannot tell without seeing the drawing.*

"A Young Builder."—*If the circumstances were correctly stated to us, our reply may be safely acted on.*

"Stained Glass Window in St. James's Church."—*Correspondents must excuse us for not replying to the numerous letters we have received on this subject. It is hoped that a change will yet be made.*

"J. C.;" "W. H.;" "E. H.;" "J. L.;" "J. P.," *and various tenders, next week.*

Received: "*Second Report of the Commissioners for Inquiring into the State of large Towns,*"—"*The Philathenic,*" *No. I. (a Monthly Magazine connected with the Metropolitan Literary Institutions),*—"*Dolman's Magazine,*" *No. VII.,*—"*Old England,*" *part* 21 *(Knight),*—"*Pictorial Gallery of Arts,*" *part VIII.*—"*Illuminated Magazine,*" *No. III.*

ADVERTISEMENTS.

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A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

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MESSRS. JOHNS and CO.'S PATENT PAINT havin affinity for Stucco, binds itself with it, stopping the auc thereby rendering the wall proof against weather, and i finish producing a pure stone-like effect, producecable b other Paint whatever. It is cheap in its application,— may be used by any Painter, in any climate, even in the exposed Marine situations.

The Builder.

No. CXXXVI.

SATURDAY, SEPTEMBER 13, 1845.

FOR some time past, the whole weight of the business at the office of Metropolitan Buildings has rested on Mr. Hosking and the registrar (Mr. Symonds), in consequence of the retirement of Mr. Higgins. It was considered desirable, in making a fresh appointment, to stipulate that the new referee should undertake no other business; and this, it seems, has caused some delay. One architect of high standing, who was a candidate for the appointment, refused it when offered to him with the condition named, and the vacancy has only just now been filled up. Without any disrespect to the gentleman who succeeds him, we must express our regret that Mr. Higgins should have felt it necessary, so soon after the establishment of the office, to withdraw himself from it. Doubtless he found the post not an easy one; and we can well understand that, possessing a sufficient fortune which all who know Mr. Higgins will say he has worthily obtained and richly deserves), he might feel disinclined to continue to perform its duties. For the sake of the public, however, we would have had him remain until the Act had been amended by the legislature, which will probably be done next session. As it is, we must simply offer him our best wishes for health to enjoy his ease, and express a hope that Mr. Hosking may find in his successor as excellent a colleague.

The mode of proceeding in the office has now taken a settled shape; and although there are points wherein alteration is desirable, must, on the whole, be considered as satisfactory as could be anticipated. The referees have shewn on several occasions that their chief office is to protect the public, and the two or three district surveyors who don't know how to behave themselves,—fortunately a very small minority,—have been properly punished in several cases, and so checked. The expense of application, too great at any time, is often lessened by the want of precision and care on the part of the applicants themselves. We recommend such of our readers as have occasion to appeal to the referees to state their case clearly, and without verbiage, and to avoid unnecessary meetings and postponements, by which means the costs will be much lessened; and we nevertheless urge upon the referees the importance of an early revision of their scale of fees.

We have before us a number of awards and certificates recently issued by the referees, and we need to lay the heads of some of them before our readers.

Number in external Wall of House completed before January last.—Mr. Martyr, district surveyor of Deptford, gave notice of irregularity to the owner of a house in St. Nicholas-street, Deptford, on the ground that when he had layed it in January 1845, the front external wall was supported on a breastsummer and iron posts, and that since then the owner had determined to make it into a private dwelling-house, and had filled in between the timber with brickwork, intending to compo the whole of the same. The owner had, further, given no notice; considering that the district surveyor had no jurisdiction in the matter; but joined him in the application to the referees, in order that the question might be decided. The award was,—"That inasmuch as the house in question was commenced before the 1st day of January, 1845, and inasmuch as the works in question do not constitute an enlargement or alteration of the said building so commenced, and remaining unfinished at the time such works were executed, the said works are not liable to the provisions, rules, and directions of the said Act." The expenses to be paid by the district surveyor.

Approach to Stone Staircase in old House.—The builder of a stone staircase in a second-rate house in South-street, Park-lane (while in progress), contended that, as the house was an old one, he was not required to make the joists to carry the landings, and the other internal connections, fire-proof. The district surveyor, Mr. Foxhall, thought otherwise, and, mutually, they sent the case to the referees. The award was,—"That the stairs in question being of stone, the passage from the entrance-door to the side of the staircase furthest from the door must have its floor fire-proof, and wholly upborne and supported by fire-proof constructions, and also that the landings on the third or one-pair, and on the fourth or two-pair floors, connecting the flights of stairs between the several stories, must be also made fire-proof, and be wholly upborne and supported by fire-proof constructions." The expenses of the office, and one guinea to the district surveyor, to be paid by the builder.

Underpinning Walls adjoining a new Erection.—Mr. Winsland, the builder of a church to be erected in Upper Charlotte-street, Bloomsbury, having excavated the ground immediately contiguous to certain dwelling-houses and workshops, to a greater depth than the flank walls of the said houses and premises, underpinned the said walls along their entire length, but not to the full thickness of the said walls, nor to the full depth of the excavations adjoining them. On the information of Mr. Baker, the district surveyor, the referees went into the case, and determined that the underpinning was to be amended and altered in a substantial and workmanlike manner, throughout the full thickness of the walls in question, and to the full depth of the excavations referred to (or to such less depth as in the opinion of the district surveyor will meet the circumstances of the case), and conformably in every other respect to the rules relative to underpinning in sec. 28 of the Buildings Act. The expenses of the office, and a fee to district surveyor, to be paid by the builder.

Recesses in Party-walls.—Mr. Harding, of Deptford, being about to build a fourth-rate house in Rotherhithe, of which two side or external walls would probably be used at a future day as party-walls, asked the special sanction of the referees, to form four recesses in the basement story of these walls about two-thirds their extent, leaving nine inches at the back of the same.

The referees certified, that as the said recesses were proposed to be made in a party-wall, and in the first or basement story, and so that the back thereof would be nearer than seven inches from the centre of the wall, the same were contrary to the rules of the Act in schedule D, part 3, under the head "Recesses and Chases," and that they, the said referees, had no power to consent to or authorize the same.

Overhanging Roofs.—The builder of a detached house in Gloucester Road, Paddington (not sufficiently detached to render it "insulated" within the meaning of the Act), sought the permission of the referees to construct the eaves and cornice of timber, as was commonly done before the passing of the Act. The application was grounded on schedule E, describing projections from face-walls to be of such (proper and sufficient) materials as the official referees may approve and permit.

After considering the application, the referees certified, that inasmuch as the proposed eaves and cornice were not formed of, or efficiently protected by, proper and sufficient fire-proof materials, they could not permit them to be so constructed.

It may be well to remark, that the awards are necessarily influenced, at times, by circumstances which would not appear in short abstracts of the cases; we would suggest, therefore, that parties who find in any case reported in our pages a resemblance to their own, and would be guided by the award, should consult the whole of the documents connected with it; which may be done at the Metropolitan Buildings Office on payment of six-pence.

ARCHITECTURE—THE EXPONENT OF NATIONAL CHARACTER.

To few individuals does the term "architecture" convey any impression of its comprehensiveness, of the multitude, and apparently opposite nature, of its details. In its full extent, it includes the matter of every art, which ministers to the comfort, or to the delight of man, and in its service may be enlisted every variety of imaginative effort, and every form of mechanical skill. Dating its history from the age of the creation, it was the originator of all the arts, and throughout its after progress, the state of all has never been so felicitous, as when the connection, each with the rest, was intimate and mutually influential. All the forms in which the arts of design are expressed, with the operative skill ministering to, or associated with them, were once *one* art, and generally the pursuit of *one* individual. Every variety of building, every object of decorative art, every machine; works of construction, whether built upon the surface, excavated in the earth, or projected into the ocean; in fine, every work, almost, in which the caprices of fancy, or the demonstrations of science can be wrought into form, was once the offspring of one mind, and that mind the possession of the architect. If, in its more circumscribed aspect, architecture is the index to the modes of life, the condition and political state, and the scientific skill of different peoples, in its more comprehensive meaning, it is the embodiment of their thoughts and opinions, of their exact intellectual condition. It is the figure, in which the history of imperial sway is mirrored, for the perception of those, who are not blind to its instructive teachings. It is the voice of centuries past, speaking from the mist of unrecorded time, and the lamp, which illuminates the learning of one age to the contemplation of another.

Though the world has witnessed the prevalence of many modes in architecture, they are each highly expressive of the thoughts, and habits of their originators, and in some styles, the expression of those characteristics is so complete and evident, that we have considered, that some illustration of them would not be uninteresting. Merely referring to Egyptian architecture, as illustrative of the mysterious rule of a dominant hierarchy,* who succeeded in enslaving the thoughts of men, through the influence on the senses of a mystic ceremonial, in which the art played an important part; we pass to the style of the Roman empire. The architecture of Greece had borne the stamp of that refinement, which was the peculiar property of the Grecian nation; it was characterized by a noble simplicity of form, to which ornament was always held as secondary. Mouldings, whether ornamented or plain, were few in number, but arranged and proportioned with elaborate skill. Optical illusions were overcome by minute alterations, in the form and proportion, intentionally de-

* At p. 181, *ante*, are some remarks on this subject by the writer.

ceptive to the eye, and which long eluded the test of close examination, and measurement. Sculpture was called into exercise in an extent, and with a success, since unknown; and the subjects, which it illustrated were such, as brought the recollection of the beholder to the early history of his nation, and to the exploits of the deities of his country. The victory in the theatre, or the games, was commemorated in the monument, rather than the victory in the field of war. The Romans, subjugating Greece —struck with the beauty of its architecture, sought to transplant it to their own city. But with them, it was no longer the result of an accurate analysis, and balance of varying forms, and of their effect in juxtaposition, each upon the other. Not content with adopting the forms of Grecian architecture, and enlisting the services of its producers, they transported the buildings themselves to the capital of a subject world. Their earliest structures were in the main Grecian, and sometimes, as in the portico of the Pantheon, were very strongly expressive of that influence. But this comparative brilliant state of the art was of short duration, and soon the Grecian architects appeared to follow the blind dictates of a master, rather than the inward promptings of reason, and good taste. The national characteristics of the Romans—the love of empire, the pomp and vainglory of the triumphal spectacle; the pride of dominion, the opulence, the luxury, and the crime, changed the whole scope and expression of art; the orders of architecture became the mere framework for extravagant enrichments, annihilating the graces of form, and the happy arrangement of contrast, and exchanging the magic of art for the meretricious, and the grandiose. In the supplementary volume of "Stuart's Athens," Mr. Kinnard, speaking of the comparative merits of Grecian and Roman architecture, remarks that "the latter style corresponds with the ponderous bearing of a people, who had subdued the world by their arms; the former with the captivating influence of a nation, that had enlightened the universe by her literature." In Roman architecture, beauty disappeared under a load of riches. Mr. Gandy, in the "Pompeiana," says, "With the Greeks, architectural ornament may be compared with those parasitical plants, which, continually intertwining, climb to the tops of the loftiest trees, and pass from branch to branch without injuring the individual grandeur of character in the various species they embellish;"—"whereas, with the Romans, all distinction of surface was frittered away in an endless maze of fretwork." The love of splendour, identified with the Roman character, exerted its sway and the chaste principles of beauty, exemplified in the Pantheon, were no longer beheld during the pomp of the empire. "Another enemy to the beautiful, and even to the sublime," says Mr. Forsyth,* "was that colossal taste, which arose in the empire, and gave an unnatural expansion to all the works of art. In architecture, it produced Nero's golden house, and Adrian's villa; in hydraulics, it projected the Claudian emissary, and Caligula's Baian bridge; in sculpture, it has left at the capitol such heads and feet, as betray the emperor's contempt for the dimensions of man; in poetry, it swelled out into the hyperboles of Lucan and Statius. This exaggerating spirit spread even to the games. Nero drove ten horses yoked abreast to his car, and double that number appear on an ancient stone."

The distinctive peculiarities of national character are evident in every feature of Roman architecture: they are seen in the almost constant use of the Corinthian order, in the cornices, in which no moulding was without ornament, in the sculptured representations of triumphal processions, and in the construction of immense works for the amusement of the citizens. The cornice of the temple of Jupiter Tonans has a fillet, as the only unornamented moulding; in the arch of Titus the enrichment is of like extent; and in the temple of Jupiter Stator, and in other examples, hardly inferior. The triumphal arches, in every detail of ornament, record the purpose of their erection; they sustained the triumphal chariot of the victor, and shewed portions of the procession. At Baalbec and Palmyra, the resources of decoration were exhausted, whilst the works were of vast extent.—The amphitheatres are mementoes of Roman ostentation and cruelty; they are of great size, the Colosseum being large enough to contain seventy or eighty thousand people, and that of Verona, twenty thousand. They were of an elliptical form, and consisted of the arena, where the combats took place, and ranges of seats surrounding it, easy access to every part of which was gained by numerous passages, and staircases. The outside exhibited several ranges of arches placed one above another. The arena was surrounded by a wall, upon which was the podium, a kind of projecting box, generally highly ornamented; there sat the *editor*, the senators, the vestals, and the magistrates, attended by lictors, and seated in their curule chairs. There was also the suggestum, the seat of the emperor. The podium was never less than twelve feet high, but, as an additional security from the beasts, lattices and gratings were raised, and large rollers contrived, so as to turn, whenever an animal attempted to leap on to them. Afterwards trenches, or canals were dug round the arena. But beasts were not the only victims in the shows of the amphitheatre; slaves were matched against each other, and the Roman ladies were amongst the spectators of the sanguinary exhibition. The calling of gladiator at length became an honourable one, in which senators, and even women, were proud to enlist themselves. The Emperor Commodus was so often victorious in the arena, that he signed himself conqueror of a thousand gladiators. To how low an abyss of degradation must the empire have fallen, when these brutal spectacles became the favourite amusement of the nation. The Romans introduced them into whatever country they subjected to their dominion, thus we find amphitheatres at Rome, Verona, Pompeii, Pola, Nismes, Corinth, and other towns in Italy, Gaul, Germany, and Spain. But the most considerable of all was the Flavian amphitheatre at Rome, and its vast size merits the name Colosseum. It occupies an area of six acres, and was in height nearly 160 feet. At its dedication, in the reign of the Emperor Titus,* the number of beasts destroyed was, according to one author, nine thousand, and after the combats, water was introduced and a sea-fight commenced. The form of the edifice is that of an oval, of which the longer axis is 620 feet, and the shorter 513 feet. The seats are raised over the staircases leading to the several divisions; and it is to be remarked, that the utmost care has been taken to secure the facile egress of a large audience. The building was four orders in height, and there were eighty arches in each of the three lower ranges, the arches in the second and third range being once ornamented with statues. In the upper order of the exterior are blocks for supporting the poles, which sustained the cords of the velarium or awning, the supporting of which over so vast a space, was often a work of extreme difficulty. This awning was sometimes of the richest materials, as of purple spangled with stars. Stupendous as was the fabric, it was constructed from a part only of the materials of Nero's golden house, which was demolished by Vespasian, as too sumptuous for the residence, even of a Roman emperor. Six hundred years had tried its stability, when it suggested the well-known saying "Quamdiu stabit Colisæus, stabit et Roma; quando cadet Colisæus, cadet Roma; quando cadet Roma, cadet et mundus."

"Here (says Mr. Forsyth) sat the conquerors of the world, coolly to enjoy the tortures and death of men, who had never offended them. Two aqueducts were scarcely sufficient to wash off the human blood, which a few hours' sport shed in this imperial shambles. Twice in one day came the senators and matrons of Rome to the butchery; a virgin always gave the signal for slaughter, and when glutted with bloodshed, those ladies sat down in the wet and streaming *arenæ* to a luxurious supper. As it now stands, the Coliseum is a striking image of Rome itself; decayed, vacant, serious, yet grand; half grey and half green, erect on one side and fallen on the other, with consecrated ground in its bosom, inhabited by a bedesman, visited by every caste; for moralists, antiquaries, painters, architects, devotees, all meet here to meditate, to examine, draw, to measure, and to pray."

Scarcely inferior to the amphitheatres we the magnificent thermæ, which were so num rous, and of such extent, as would de credibility, did not the remains of those wor at present exist. They included apartmen for the purposes of the bath, halls for friend intercourse, academies, theatres, and librari They often stood amongst extensive garde and walks, and were adorned with all t richness, which art could lavish. They we lined and paved with mosaic, or with mar stained in various hues, and were embellish with the choicest productions of painting a statuary. The life of the Roman citizen m be said to have passed within their walls, a they became a main cause of that enervati influence on the Roman character, which volved the empire in its decline and fa But it is not meant, that pride of domini and wealth were the only qualities which t Romans possessed; their skill in the arts construction was shewn in the sewers, t aqueducts, and other great works, which cured the comfort of the inhabitants of ea city, and which are entitled to our admirati They, also, carried the influence of the a to the very confines of the empire, and by Emperor Hadrian, Athens was enriched w many important buildings.

Much of the effect of Roman ornament lost by the confusion, and jarring of mouldi in immediate contact, profusely decorat The art of sculpture has the same charact as that of architecture. Unlike the sculpt of Greece, where the simple beauty of "human form divine" was held superior any adornment, they arrayed the figure in the trappings and insignia of office. Th national characteristics alike influenced b arts, and are proved by evidence more c vincing than written history, the evidence thought, of language speaking through tongue of art. E. H.

MODERN CHURCH ARCHITECTURE GERMANY.

The following review of a recent w derived from German sources, will serve a exponent of opinion in Germany on the sub of style in church architecture. It will be s that it is widely different from opinion England on the same point.

Professor Semper, on the building of Pr tant (Evangelic) churches—Ueber den evangelischer Kirchen. Dresden, 1845,

Under this title the Dresden professor published a spirited and instructive little w which is chiefly intended for developing defending the principles, upon which his ject for the rebuilding of the St. Nic church, in Hamburg, is based. It turns the dispute between the adherents to pointed arches and round arches style, and author proves by a few concise (yet, as it se to us, conclusive) reasons, that the forme not adapted by its extent to the wants of testant churches, destined chiefly for preac — that it is incompatible with the erectio galleried churches (*emporkirchen*); that fine, this style has been wrongly called the clusively *national-German*. The poi arches style, he says—and this is the main ture of Professor Semper's work—has nei been invented, nor exclusively develope Germany; Italy, England, and France also adapted this style, each according to t own mind and genius, as the Germans ha theirs. This sort of architecture, there is no more exclusively German than the zantine-Roman, to which German genius as much impressed the stamp of national racter as to the Gothic. Just the same a Nibelungen is nearer to the German mind the Titurel and the songs of the thirteenth tury — the character of the style of r arches is more congenial to our times that of pointed ones, which is nigh beco antiquated. The former is more analogo our scale of civilization, on account of the varied elements it has received withi sphere, and its principles having attain more perfect harmony, more analogous t social condition, containing as it does s nificative symbolism of the Christen which has come to us from the East, s structed on notions of antiquity. Our chu

* "Remarks on Antiquities, Arts, and Letters, during an excursion in Italy, in the years 1802 and 1803."

* How a good and humane prince could preside at the opening of an amphitheatre, and derive pleasure from the slaughter of men and animals, we leave others to explain; for ourselves, we are doubtful as to the truth of the received opinion. Possibly a Spaniard might not question it.

—says the author—have to be churches of the nineteenth, not of the thirteenth century; as in every branch of art, the artist has not to adhere to the works of a completely developed epoch, but rather to go back to the type, to the source, whence these artists also have received their impulse. The origin of all is the same, but the end and aim diversified according to the different epochs of history and art. The assertion raised on several sides, that churches and the church are not to be considered as a work for the present time, is based on a misconception, and implies either a condemnation of those patterns, which have been, after all, a product of their times; or an accusation of the present age, as one unholy and unsusceptible of true Christian devotion. This imputation, says our author, is not true, our century is not worse than the thirteenth(?). This proves, that our author has taken up the subject from varied points of view—and we shall find, that those discussions, which predominate within the whole of the present epoch, intrude as well on the neutral and peaceable department of art. Hence, therefore it seems, that the discussion on the pointed or round arches style will not be decided merely on artistic grounds, but other disparate predilections and tendencies will be called into aid for one or the other of the contending parties. The technical arguments of the author turn mostly on the necessity of galleries (*Emporen*); but this is not supported but by the topical advantages of the hearers during the sermon. The prejudice, however, against galleries is not an unfounded one, because the objection of their imparting to the churches a theatrical appearance, is not so easy got over. It may be further said, that the aim of a congregation is to exhibit by their very contiguity the image of internal unity and oneness; but churches constructed with galleries, impart to the attendance a character of separation and disunion. To construct a church affording an ample display for the oratorical power of the minister, build in the round arches style, without emporæ—this seems to us a scope worthy of a thinking architect. But if this be impossible on account of some artistic or acoustic inconvenience—still, the emporæ style of churchbuilding is not to be neglected; they may be constructed as flat as possible, and the architect may endeavour by some clever combination of the area of the style of pointed arches, to accomplish some pleasing combination, for avoiding the above inconvenience of separating the congregation. J. L.

DECORATION OF THE NEW HOUSE OF LORDS.

As a constant subscriber to your valuable journal, the article headed "English Decorators of the New Houses of Lords," of course done under my notice, and has induced me to send you some information on the subject, knowing the able manner in which you at all times expose injustice and advocate the cause of the artist. I hope the press generally will come forward and expose the injustice the exhibitors at King-street bazaar have been treated with. I feel confident that the public are quite aware of the system carried on, and the exposure may prevent others from experiencing the deprivation and difficulties many have already had. In the first place, it was understood from the notice issued by the commissioners, that none but practical workmen were expected to compete, as no premiums were offered, but the parties selected by the commissioners, if proved that they executed the works themselves, would be employed; and further, that other exhibitors who responded to their call were to be selected to assist those who were first appointed, giving the whole of the practical men a chance. Now, if the commissioners had been open to shopkeepers or any one else, a tailor might have had specimens sent in by foreign artists, and competed, and there would have been a far greater number of exhibitors; few of the respectable masters attended to send in specimens, although equally capable of contributing English or foreign works as Messrs. Crace, but they were more honourable, not attempting to oppose the leading artist. But have they not as good a chance as Messrs. Crace to a share, who have had the honour and profit the industrious and favoured exhibitors ought to have had? is it because they can give credit and send in fifty or one hundred men without drawing cash? No one will venture to say these gentlemen can *execute* the works they exhibited and are now employed to perform.

Mr. Pugin says there is no native talent, and he is obliged to seek assistance from foreigners. Has he sought for it? if so, he would have found it. There are the Parrises, Trebleses, Goodison, Lamberet, Glover, Cutbush, Coulton, Elliott, Jones, Saddler, Lloyd and Rice, of the School of Design, who executed the arabesques for the Prince at the Pavilion, Buckingham gardens, and many others. Surely, some of these could be found capable of working out the designs of Mr. Pugin. Messrs. Crace are now doing the painting, gilding, pricking in colours, and arabesque decoration of the House of Peers, having artists at work at his shop upon the decorations, and yet Mr. Goodison was told there was no scope in the House of Lords for his talent, it was mere journeymen's work; then why should not the exhibitors have the benefit of this so-called journeymen's work rather than Mr. Crace. I well know that Mr. Goodison, and Coulton, and Elliott are practical men in all the branches, and if employed, could send in journeymen as well as Mr. Crace, yet none of the appointed can meet with any redress. Surely such things ought not to be allowed to continue, and I hope the public and press will raise their voice against it. Only put Mr. Parris's cartoon in the first exhibition, and his fresco in the second, in comparison with Mr. Crace's fresco of Henry VII., done by his foreigners, and I think you will say, and the public too, that Mr. Parris is as far superior to Mr. Crace as Raphael is to Parris. The fact is that most of the exhibitors have worked for Mr. Crace; Mr. Goodison, the best English decorator we have, worked for him for years, and of course is used to his style of work, but when he sent in specimens in opposition to Mr. Crace, his services were no more wanted. I do not mean to charge Mr. Crace with having injured any one, but two things are certain. He must either have great interest, or have spoken ill of the exhibitors. Mr. Goodison, Collman, and others already named, are as capable of carrying out Mr. Pugin's designs as any one that Mr. Crace has working for him, and they were specially appointed by the commissioners, therefore thought they had as good a right to a share as Mr. Crace. They consequently called on Mr. Barry for employment, but were politely bowed out with the remark that Mr. Crace was employed by Mr. Pugin, and he was not accountable for Mr. Pugin's acts. Goodison then wrote to some of the commissioners, but without effect, clearly shewing that they are a nonentity, as you will further see. If the work at the new houses had been given to the parties selected, all the exhibitors might have been employed, which would in some measure have repaid them.

Will not the public, if not the exhibitors, be astonished, when I tell them that the whole of the windows that are to be filled with painted and stained glass are given to Messrs. Ballantine and Allan, Edinburgh, *glass-cutters*, entirely through interest. The public are not aware of the trouble, difficulty, and the great expense of getting up stained glass: taking the exhibitors upon an average, the cost was not less than 50*l.* each. Six were officially appointed, of whom B. and A. were one, and who have now got the whole with no practical knowledge of glass painting. We shall now have foreign glass to decorate the new Houses instead of English; and I defy the commissioners to know but what it is done on the premises,—the tedious process and the quantity required could not be executed in the time: the commissioners are hardly aware that there are not many more than fifty journeymen *glass-painters* to be found.

I have been informed that the method pursued by the commissioners with respect to the carvers is not exactly as stated, but is as follows:—The commissioners were determined to employ none but good practical workmen, and to have the work done on the premises. Mr. Rogers is a dealer in carvings of good judgment, but himself a very poor hand; many of his works after Gibbons, being executed by Brown, stained, pickled, &c. &c., to give the required appearances. Those *practical* carvers who live in town, and were exhibitors, have met with employment. Mr. Nash, an exhibitor, although not appointed, is selected to superintend the works. Mr. Brown, one of Mr. Rogers' best men, and two or three others, whose names I forget, have appointments as foremen over certain departments, at a salary of 2*l.* per week. This is the only instance where the commissioners have given the exhibitors a chance: the same course ought to have been pursued with respect to the other works.

In conclusion, I hope the decorative artists and glass-painters will call a meeting, and, throwing aside the jealousies which now exist among them, unite together in a friendly and good feeling, to protect their rights and awaken the commissioners to their promise.

I am, Sir, &c., JUSTICE.

TIMBER TREES AND THE VEGETABLE WORLD GENERALLY.

THE study of the vegetable world is full of interest, and tends not simply to make better architects and builders, but better men. The phenomena which it presents, the adaptation of means to obtain certain ends, and the manner in which it affects and is affected by the animal world, fill the mind with astonishment, while by the contemplation of them our views are enlarged and corrected, and our capacity for the enjoyment of nature is increased.

The effect of animal respiration, as our readers know, is to vitiate the atmosphere by the absorption of the oxygen it contains, and the production of carbonic acid gas, which is fatal to life. How beautiful it is to find that the vegetable world is always acting to restore the atmospheric air to its original composition of twenty-one parts per cent. of oxygen, by the absorption of the carbonic acid gas and the liberation of oxygen. The leaves of the common lilac placed in a jar filled with atmospheric air will raise the proportion of oxygen to 29 or 30 per cent., and by introducing several plants into the same jar in quick succession, the proportion may be raised from 21 (the ordinary amount) to 39 per cent., thus almost doubling it. The presence even of a small moss in a vase in which fishes are kept, aids so considerably in maintaining the supply of oxygen necessary for their respiration, that it is not necessary to change the water so frequently as when no plant is present. The power possessed by plants of taking up carbonic acid gas seems analogous to that by which food is collected by animals; it is at first taken up more eagerly than afterwards; a keen appetite, it may be said, is in operation which flags when satisfied. It was formerly considered that this compensating action on the part of plants ceased at night, and that they also then evolved carbonic acid gas. A series of valuable experiments by Mr. W. H. Pepys, F.R.S.* has proved, however, that this is not the case. The proper action is accelerated by the aid of light but continues even during the night, although more slowly, and from healthy plants carbonic acid gas is never given off.

There is, nevertheless, one class of trees, the cypress, yew, cedar, and arbor vitæ, which, if they do not actually diminish the quantity of oxygen in the atmosphere (and this is not quite certain), at all events do not increase it. Dr. Dickson (of St. George's hospital) published an interesting letter last year on the trees and shrubs proper for cemeteries,† wherein he drew attention to the fact that the trees we have mentioned, "Dark trees, funereal, cypress, yew, and shadowy pine, and spicy cedar," which almost by prescriptive right are the occupants of the spots set apart for the dead, and give our burial grounds a gloomy and almost repulsive aspect, are precisely those that for the reason stated should not be placed there.‡

Dr. Young's sketch of the functions and characteristics of the vegetable world is concise, and may be usefully introduced here. He says:—§

"The vegetable kingdom presents to us a spectacle highly interesting by its variety and

* Published in "Philosophical Transactions" for 1843, p. 329.

† "Provincial Medical Journal," March 2, 1844.

‡ All these trees belong to one class, termed non-reproductive, because when cut down, no shoots spring from the roots. This was one reason why the ancients selected the cypress to plant by the grave, which to them was the end of existence. Viewed in this light it has been well observed, "the cypress is no meet emblem of a Christian's grave."

§ Lectures on Natural Philosophy and the Mechanical Arts," new edition, edited by the Rev. P. Kelland, M.A., Taylor and Walton, Upper Gower-street.

by its elegance; but the economy of vegetation appears to be little diversified, although little understood. With respect to the apparent perfection of their functions, and the complication of their structure, we may consider all vegetables as belonging to two principal divisions, in one of which the seed is prepared with the assistance of a flower, having its stamina and its pistils, with petals or a calyx; while in the other, the preparation of the seed is less regular and conspicuous, and hence such plants are called cryptogamous. In some of these there is a slight resemblance to the flowers of other vegetables, but on the whole, the class appears to form one of the connecting links between the three kingdoms of nature; its physiology is probably simple, but it has been little examined. The herbs, palms, shrubs, and trees, which constitute the numerous genera of flowering vegetables, exhibit the greatest diversity in the forms and dispositions of the organs of fructification, while they have all a general resemblance in their internal economy.

Every vegetable may be considered as a congeries of vessels, in which, by some unknown means, the aqueous fluids, imbibed by its roots, are subjected to peculiar chemical and vital actions, and exposed in the leaves to the influence of the light and air; so as to be rendered fit for becoming constituent parts of the plant, or of the peculiar substances contained within it.

The first process in the germination of a seed is its imbibing moisture, and undergoing a chemical fermentation, in which oxygen is absorbed, and a part of the mucilage contained in the seed is converted into sugar; a substance probably more nutritive to the young plant. The radicle shoots downwards, and the seed leaves, or cotyledons, which are generally two, although sometimes more or less numerous, raise themselves above the ground, till in a short time they die and drop off, being succeeded by the regular and more adult leaves.

In every transverse section of a vegetable, we commonly discover at least four different substances. The parts next to the axis of the tree or branch consist of medulla or pith, which is supposed by some to be the residence of the vegetable life of the plant; but a tree may live for many years after being in great measure deprived of its medulla. The pith is of a loose and light spongy texture; it sends a ramification into each branch and each leaf, where it appears to serve also as a reservoir of moisture. The pith is surrounded by the woody part, composed of fibres more or less strongly compacted together, but not actually ramifying into each other in any great degree, although there is reason to suspect some lateral communications between them. They are interrupted, at certain intervals, in many trees, by fibres, in a radiating direction, forming what is called the silver grain. Like the bones in animals, the wood constitutes the strongest part of the vegetable; and, like them too, it is in a certain degree furnished with vessels. It has even been supposed by some, that the fibres themselves are distinct tubes, and by others, that the insterstices between them serve the purpose of vessels, but neither of these opinions is at present generally received. The wood consists of a number of concentric layers or strata, formed in successive years; the external part, which is last formed, is called the alburnum, or white wood, and this part is the most vascular. The bark encompasses the wood; and this also consists, in trees, of several layers, which are produced in as many different years; the external parts usually cracking, and allowing us at their divisions to observe their number, the inner layer only being of immediate use. This layer is called the liber, and since this material was once used instead of paper, the Romans called a book also liber. The bark consists of fibres of the same kind as the wood, but more loosely connected. It is covered by the cuticle, which extends itself in a very great degree, as the growth of the vegetable advances, but at last cracks, and has its office supplied by the outer layers of bark. Between the bark and the cuticle a green pulpy substance, or parenchyma, is found, which seems to be analogous to the rete mucosum, interposed between the true skin and the cuticle in animals. Mr. Desfontaines* has observed, that in palms, and in several other natural orders of plants, the annual deposition of new matter is not confined to the external surface, but that it takes place in various parts of the plant, as if it were composed of a number of ordinary stems united together.

There are three principal kinds of vessels in the different parts of vegetables: the sap vessels, which are found both in the wood and in the bark, although their nature appears to require further examination: secondly, the air vessels, or tracheae, which are composed of single threads wound into a spiral tube, like the spring of a bell, and capable of being easily uncoiled; these, though they have been called air vessels, and supposed by some to serve the purposes of respiration, are described by others as containing, during the life of the plant, an aqueous fluid: and they are probably little more than sap vessels, with an additional spiral coat; they are not found in the bark, nor in all species of plants; and it has thence been inferred that they are not immediately necessary to the growth of the plant. The third kind are the proper vessels of the plant, which are generally disposed in concentric circles, and appear to be unconnected with the sap vessels, and to contain the milky, resinous, and other peculiar juices, which are found in different kinds of plants; for the sap is nearly the same in all, at least it is independent of the gums and resin, which often distinguish particular plants; it contains a certain portion of mucilage, and probably in some plants, as the sugar maple, a considerable quantity of sugar.

Mr. Mirbel* has also made a number of still more accurate distinctions respecting the structure of the different kinds of vessels. The circulation of the sap is not completely understood; when an orifice is made near the root of a tree, it flows most copiously from above: when near the summit, from below. Dr. Hope actually reverted the natural course of the juices of a tree, without changing its position; by inoculating a willow with two others, he completely united its existence with theirs, and then, removing its roots, he found that its vegetation was supported by the juices of the two others. A tree may also be actually inverted, and the upper part will strike root, the lower putting out branches and leaves.

Plants perspire very considerably, and also emit a quantity of gases of different kinds; they generate a slight degree of heat, which may be observed by means of the thermometer, and by the melting of snow in contact with them. The growth of every tree takes place at the internal surface of the bark, not only the bark itself being formed there, but the wood also being deposited by the bark; for Dr. Hope separated the whole of the bark of a branch of willow from the wood, leaving it connected only at the ends, so as to constitute a hollow cylinder, parallel to the wood; and he found that new layers were formed within the bark: and in another experiment a part of the wood, deprived of the bark, although protected from the air, was also covered with new bark as it grew over from the old bark above and below. The layers of wood, which are added in successive seasons, and keep a register of the age of the tree, are very easily observed when it is cut across; sometimes as many as 400 have been found in firs, and oaks are said to have lived 1,000 years.

Mr. Knight† has inferred, from a great variety of experiments, that the sap, either usually or universally, ascends through the wood into the leaves, and then descends through the bark to nourish the plant. The leaves seem to be somewhat analogous to lungs, or rather to the gills of fishes: for plants have need of air, and it has been found, that even seeds will not germinate in a vacuum. As the lungs of animals appear to be concerned in forming the blood, so it may be inferred from Mr. Knight's experiments, that the sap first ascends to the leaves through the external fresh wood or alburnum, and through the central vessels of the young leaves and branches, derived from the alburnum, and accompanied by the spiral tubes; and after being perfected by exposure to light and air in the leaves, it descends in the bark, and serves for the secretion of the alburnum, and of the internal layers of the bark, being conveyed probably by two distinct sets of vessels. The sap, thus prepared by the leaves in the summer and autumn, is supposed to leave its extractive matter in the tree throughout the winter, in such a state as to be ready to unite with the aqueous juices, which ascend from the root in the succeeding spring. The internal parts of the wood, having served the purposes of vegetation, are hardened, and perhaps dried up, so as to be afterwards principally subservient to strengthen alone."

Mr. Gwilt, in his "Encyclopædia of Architecture," has given much useful information on the subject of timber as used for building, already treated of at some length in THE BUILDER.‡ We avail ourselves of a few notes from it.

"If the architect has the opportunity of selecting the timber whilst in a state of growth, he will, of course, choose healthy, vigorous, and flourishing trees. Those in which the trunks are most even are to be preferred. A mark of decay is detected in any swelling above the general surface of the wood. Dead branches, especially at the top of the tree, render it suspicious, though the root is the best index to its soundness. The notion of Alberti (De Re Ædificatoria) of using all the timber in the same building from the same forest, is a little too fanciful for these days, though we confess we have some misgivings in impugning an authority which, in most other respects, we are inclined to receive with the highest veneration.

In felling, not only the oak, but all other large trees, the great branches should be first cut off, so that the tree may not be injured or strained in its fall; and the trunk, moreover, must be sawed as close to the ground as possible. When felled, but not before, it is to be barked, trimmed of its branches, and left to season. Before, however, leaving it for this purpose, it is considered by workmen better to square it, which, it is thought, prevents its tendency to split. If to be employed for posts, boring it has been employed with success: but it is needless to observe, that in pieces subject to transverse strains such a practice is not to be spoken of.

The pieces selected for building must be chosen with the straightest grain; but there are pieces which are occasionally employed, as for knees and braces, wherein a curvilinear direction of the fibres of the timber is extremely desirable. It may, however, be generally stated, that, in the case of two equal sized and seasoned pieces, the heavier is the piece to be preferred.

In oak, as in all other woods, the bough and branches are never so good as the body of the tree; the great are stronger than the small limbs, and the wood of the heart stronger than all. When green, wood is not so strong as when thoroughly dry, which it rarely is till two or three years after it is felled. It is scarcely necessary to say, that, containing much sap, it is not only weaker, but decays sooner. It is weakened by knots, at which, in practice, it is found that fractures most frequently occur; and it is important to the architect to recollect that he should always reject cross-grained pieces.

PRESERVATION OF TIMBER.

The preservation of timber, when employed in a building, is the first and most important consideration. Whenever it is exposed to the alternations of dryness and moisture, the protection of its surface from either of those actions is the principal object, or, in other words, the application of some substance or medium to it which is imperviable to moisture; but the timber should be perfectly dry before the use of the medium. In Holland, the application of a mixture of pitch and tar, whereon is strewed pounded shells, with a mixture of sand, is general; and with this, or small ash sifted beaten scales from a blacksmith's forge to their drawbridges, sluices and gates, and other works, they are admirably protected from the effects of the seasons. Semple, in the work on 'Aquatic Buildings,' recommends that 'after your work is tied up, or even put together, lay it on the ground, with stones or bricks under it, to about a foot high, and burn wood (which is the best firing for the purpose), under it, till you thoroughly heat, and even scorch it all over; then, whilst the work is hot, rub it over plentifully with linseed

* Mém de l'Instit. i. 478.

* Bullet. de la Soc. Philom. No. 60. Journal de Phy. iii. 336. Anatomie et Physiologie Végét. 2 vols. Paris, 1815.

† His papers are in the Ph. Tr. 1795, p. 290; 1799, p. 195; 1801, p. 333; 1803. p. 277; 1804, p. 183.

‡ See series of articles by Mr. Wylson in Vol. II., and pp. 13, 32, 86, current volume.

nd tar, in equal parts, and well boiled together, and let it be kept boiling while you are sing it; and this will immediately strike and ink (if the wood be totally seasoned) one inch r more into the wood, close all the pores, and ake it become exceeding hard and durable, ither under or over water.' Semple evidently upposes the wood to have been previously ell-seasoned.

If timber, whatever its species, be well-easoned, and be not exposed to alternate dry-ess and moisture, its durability is great, ough from time it is known to lose its elastic nd cohesive powers, and to become brittle, if onstantly dry. On this account it is unfit, fter a certain period, to be subjected to arious strains; however, in a quiescent state might endure for centuries. Dryness will, carried to an excess, produce this category. he mere moisture it absorbs from the air in ry weather is not sufficient to impare its dura-lity; so, also, timber continually exposed to oisture is found to retain for a very long eriod its pristine strength. Heat, with mois-re, is extremely injurious to it, and is in most ses productive of rot, whereof two kinds are e curse of the builder, the *wet* and the *dry* t, though perhaps there be but little differ-ce between the two. They appear to be oduced by the same causes, excepting that the egree of evaporation determines the former, d an imperfect evaporation the other. In th cases the timber is affected by a fungus-e parasite, beginning with a species of mil-w; but how this fungus is generated is still *vexata questio*; all we know is, that its getation is so rapid, that often before it has rived to its height, a building is ruined. om our inquiries on the continent, we believe disease does not occur to the extent that it es in this country; a fact which we are in-ned, perhaps erroneously, to attribute to the of the timber of the country, instead of ported timber. Our opinion may be fanciful, there are many grounds on which we think t this is not altogether the case. Our notion that our imported timber is infected with the ds of decay long before its arrival here (we ak of fir more especially), and that the nparative warmth and moisture of the cli-te bring more effectually the causes of ay into action, especially where the situation lose and confined. Warmth is, doubtless, wn to be a great agent in the dry rot, and re especially when moisture co-operates h it; for in warm cellars and other close confined situations, where the vapour ch feeds the disease is not altered by a con-nt change of air, the timbers are soon de-yed, and become perfectly decomposed.

The lime, and more especially the damp kwork, which receive the timbers of a new lding, are great causes of decay to the ends em; but we do not think that the regulations the 19 Car. II., chap. 3, which directed builders, after the fire of London, to bed ends of their girders and joists in loam ead of mortar, would, if followed out in the ent day, be at all effective in preventing decay incident to the ends of timbers. ber in a perfectly dry state does not appear e injured by dry lime, and, indeed, lime is wn to be effectual in the protection of wood nst worms.

Nothing is more injurious to the floors of a lding than covering them with painted floor-h, which entirely prevents the access of at-pheric air, whence the dampness of the rds never evaporates; and it is well known oak and fir posts have been brought into nature decay by painting them before their sture had evaporated; whilst in the timber pewing of old churches which have never painted, we see them sound after the e of centuries. Semple, in his "Treatise Building in Water" notices an instance of field gates made of the fir of the place, whereof near the mansion were painted, had become rotten, while those more ant from the mansion, which had never painted, were quite sound.

After timber is felled, the best method of venting decay is the immediate removal of a dry situation, where it should be stacked ch a manner as to secure a free circula-n of air round it, but without exposure to n and wind, and it should be rough rried as soon as possible. When thoroughly soned before cutting it into scantlings, it is liable to warp and twist in drying. The ground about its place of deposit should be dry and perfectly drained, so that no vegetation may rise on it. Hence a timber-yard may be strewed with ashes, or the scales from a foundry or forge, which supply an admirable antidote to all vegetation. It is thought that the more gradually timber is seasoned, the greater its durability; and as a general rule it may be stated, that it should not be used till a period of at least two years from its being felled, and for joiner's work at least four years. Much, however, is dependent on the size of the pieces. By some, water seasoning has been recommended; by others, the steaming and boiling it; smoking, drying, charring, and scorching have also been recommended. The latter is, perhaps, the best for piles and other pieces that are to stand in the water or in the ground. It was practised by the ancients, and is still in use generally for the posts of park paling and the like.

In Norway, the deal planks are seasoned by laying them in salt water for three or four days, when newly sawed, and then drying them in the sun, a process which is considered to be attended with advantage, but it does not prevent them shrinking. Mr. Evelyn recommended the water seasoning for fir, but we incline to think that gradual dry seasoning is the best method.

Notwithstanding, however, all care in seasoning, when timber is employed in a damp situation it soon decays, and one of the principle remedies against that is good drainage, without which no precaution will avail. It is most important to take care that earth should not lie in contact with the walls of the building, for the damp is quickly communicated in that case by their means to the ends of timbers, and rot soon follows. No expedient to guard against this contingency is so good as what are called air or dry drains, which are areas formed by thin walls round the building, with apertures in the paving laid between them and the principal walls, so as to afford a constant current of fresh air. When the carcase of a building is complete, it should be left as long as possible to dry, and to allow to the timbers what may be called a second seasoning. The modern practice of finishing buildings in the quickest possible period has contributed more to dry rot than perhaps any other cause, and for this the architect has been blamed instead of his employer, whose object is generally to realize letting, or to enjoy occupation of them as early as possible. After, however, the walls and timbers of a building are once thoroughly dry, all means should be employed to exclude a fresh accession of moisture, and delay becomes then prejudicial."

NATIONAL ENCOURAGEMENT OF THE FINE ARTS.

We solicit our readers' attention to the following communication:—

Sir,—As her Majesty's Commissioners have postponed the exhibition of historical paintings in oil until 1847, and announced instead, that specimens of fresco painting may be sent to Westminster Hall in 1846,—but observe, *not for public exhibition*,—great uncertainty must now be felt by those artists who have, during the last three years, answered the call upon their profession by the royal commission. The object of thus submitting specimens of fresco can only be to obtain employment in assisting the few selected artists in the execution of their works. Now, it may fairly be asked, seeing that public competition in cartoons and fresco appears to be ended, what is to become of the talent and the time bestowed on innumerable experiments in the difficulties and vexations of fresco painting by the other competitors? Is it fair, is it just towards those artists (many of whom have distinguished themselves, although they be not among the selected few), to suffer this amount of talent to be useless?—for useless it must be, unless some method can be proposed to keep up their practice. Surely after the enthusiasm shewn by them in producing so many large works, at a great expenditure of time and money, something should be thought of. Are there no public buildings, no colonnades, no halls available in London, where frescos could be executed? If no better plan can be devised, wall can be built up, and painted on both sides.

Cannot the Government be induced to run up seven or eight hundred feet of wall, built upon public land, for this purpose, and inclosed with shed coverings, such as we constantly see erected for masons and workmen employed on buildings. Were accommodation thus provided for fresco painters, finer works would be produced than any we have yet seen, and no doubt most of the competitors would gladly avail themselves of the opportunity thus afforded. Artists have been so taxed in the late competitions, that it cannot be expected they could enter upon the further expenses of building wall and the proposed temporary coverings, paying also a rent for the ground, and all perhaps without a ray of hope that their efforts would be patronized as native efforts deserve to be. I do sincerely hope that the competitors will associate for the purpose of historical painting and the improvement of fresco practice, and, if possible, prevail on the proper authorities to grant them ground and materials for some temporary exhibition place, which may have the sanction and patronage of the Queen and the Royal Commission.

Many of your correspondents will be enabled by their experience to suggest improvements on this plan and the mode of accomplishing it; such information will be highly valuable, and assist materially the object proposed.

It is intended at an early opportunity to call a meeting of those artists who have competed in cartoons and fresco during the last three years, when some plan, founded upon the above suggestions will be proposed, and any information your correspondents can afford will be highly esteemed by, Sir, your most obedient servant, A Competitor.

Communications may be addressed to "B.", Institute of the Fine Arts, Newman-street, Oxford-street.

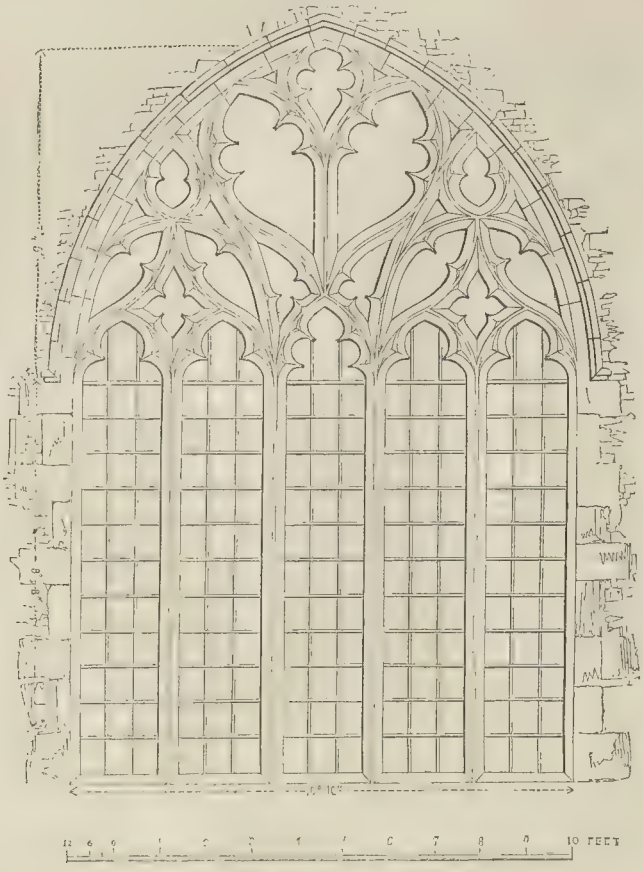
EFFLORESCENCE ON BRICK WALLS.

The surfaces of new walls, especially those built of bricks, are usually spotted with a white silky efflorescence, of a fine crystalline character. It is also very light and pulverulent; has a cool acidulated, or disagreeable alkaline taste. It has much the appearance of snow, and gives to walls a rather strange and unpleasing look. This flowery substance gathers on them very rapidly; but from being soluble, it becomes either melted or blown off by the weathering action of rains or winds; yet periodically accumulates again. This saline efflorescence is produced through a chemical affinity which subsists between the acids of the atmosphere, and the acids and alkali contained in the lime and magnesia in the bricks, as well as in the mortar or cement which is used in bedding and connecting them together. Most brick earths or clays contain about 5½ per cent. of carbonate of lime, and about 3½ per cent. of carbonate of magnesia; but sometimes a large quantity of calcareous matter or chalk is added, in order to improve the character of the bricks which are to be made from it.

The water of the ocean is impregnated with muriate of soda to the extent of about one-thirtieth of its whole quantity; and the waters of many of our mineral springs are also highly impregnated with it, and likewise with a considerable quantity of carbonate of lime. The efflorescence is generally composed of the nitrates of lime, magnesia, and soda; and sometimes of muriate of soda; and from the chemical action already noticed, these nitrates decompose or part from the lime and magnesia in the bricks and mortar or cement, and, by distillation, pass through the pores of the bricks, gathering on their exposed surfaces like spots and streaks of snow. It appears mostly on the surfaces of those bricks which have much chalk mixed with them, and which have not been very much burnt or vitrified. When mortars and cements are made with either sea or mineral waters, they give off, for some time after being used, in consequence of their alkaline character, considerable quantities of this saline efflorescence. It can very easily be washed away; but if it be allowed to crystallise, and be then heated and rubbed over the surfaces of the bricks, filling their pores, it will prevent them to some extent from attracting and absorbing moisture from the atmosphere.

John Phillips.

DECORATED WINDOW, ST. NICHOLAS', ISLE OF THANET.





Section of Window.

WINDOW AND CAPITALS

FROM ST. NICHOLAS' CHURCH, ISLE OF THANET.

RICKMAN describes this church in the following words:—"It is a large church with a lofty embattled tower; most of the church is also embattled; some portions are early English, and there are some good decorated windows, particularly the east window of five lights."

To this slight notice much more might be added, but it will perhaps be sufficient to mention, that the church contains very excellent specimens of all the styles from Norman to perpendicular, and will be found well worthy of attentive examination. The subject of the illustration, fig. 1, is the east window of the chancel, already alluded to; it has five lights, and is of very fair design, its only fault being the meagre appearance of the mouldings. The illustration comprises an exterior elevation and the moulding of the jamb at large.

In this same church, there is a great variety of moulded and ornamented capitals to piers. Among the most curious are those represented by figs. 2 and 3, which are very excellent specimens of the transition from Norman to early English. The arch-mouldings and enrichments are also well worthy of notice, and are included in the illustration.

Margate. W. CAVELER.

ASSERTED ABUSES IN THE WESTMINSTER COURT OF SEWERS.

AT a court of sewers for the city of Westminster, held on Friday, the 5th instant, M[r] Allason proposed a motion for the adoption of an amended mode for the construction of sewers, the one in operation at present being *very deficient* for that purpose. At the same time he laid upon the table three diagrams of the improved mode.

The court ordered that Mr. Allason's motion should be adopted, and that the diagrams should be lithographed and added to it.

The chairman, Mr. Edward Willoughby, rose and said, they had now come to that part of their proceedings which related to Mr. Leslie's pamphlet.* In this case, at the last sitting of the court, a letter had been submitted from the Secretary of State, requesting them to favour him with any observations they would wish to make against the allegations of abuses in this court. It appeared that it was his desire to hear both sides of the question. He (the chairman) did not propose to invite the attention of the court to the pamphlet itself, but he would suggest that a committee be appointed to draw up observations upon it, and report them, at its earliest convenience, to a future court. The remarks in the pamphlet travelled over a large period of time, going back to the year 1810, and from thence up to 184[4]. It was quite clear, therefore, that the committee would not be qualified to make those satisfactory inquiries which were needed unless it contained in its composition some of those commissioners who took part in the proceedings of this court at that time. One gen-

* See p. 398, *ante*.

NORMAN CAPITALS,—ST. NICHOLAS', ISLE OF THANET.



Figs. 2 and 3.

tleman who acted as chairman at that period, and would have been able to give the most important information on the subject, was unfortunately dead, but luckily there was still amongst them Mr. Donaldson, who had been their chairman for ten years, and there could be no doubt that from his position as such, he was more acquainted with the operations of this court than any other individual. It was obvious that any inquiry involving the regular practice of the court would be deficient without the aid of the chairman who presided at the time specified; he (the chairman) thought therefore, that Mr. Donaldson ought to be upon the committee. It had been suggested that the present chairman, and Mr. Harrison, the chairman of the committee of accounts, should also be on the committee for the same reasons, though in a less degree. They had assembled together for the purpose of appointing the committee, and their object was to have gentleman impartial and without prejudices; he would therefore further propose Mr. Alderman Johnson, Mr. Robert Gunter, and Mr. Hawkes, for he thought that those names were not at all open to any imputation or fear that they would not form their judgment with fairness, and he (the chairman) would feel very much pleased to co-operate with those gentlemen. His endeavour was to appoint such a committee as would carry out their duty with fidelity.

Mr. Gunter declined to act, his health not being sufficiently good to permit him to give the attention and application necessary for such an inquiry. All who are interested in the subject, and know Mr. Gunter's clear head and rigorous integrity, will regret that he was not induced to act.

Mr. John Gunter was then named, but was obliged to decline, as he was going out of town. Mr. Hawkes also wished to withdraw, on the ground that he was not in office at the time alluded to in the pamphlet. Mr. John White was requested to join the committee, but he thought he ought not to do so, as he had often expressed himself strongly against the proceedings of the court; afterwards, however, Mr. White consented to act.

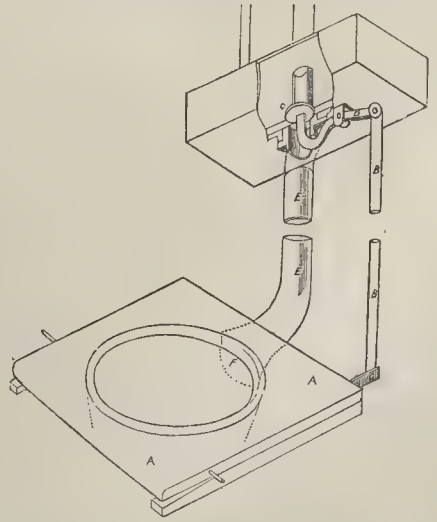
The following gentlemen constitute the committee as ultimately formed: — Mr. Wilioughby, Mr. Donaldson, Mr. Harrison, Mr. Alderman Johnson, Mr. Hawkes, Mr. John White, and Mr. Frederick Crace; three to be quorum.

On a notice being read of a motion to sanction an order of the court for building 450 feet of main sewer in Gloucester-road, Paddington, estimated at 1,237*l*. Mr. Leslie objected strongly to certain proceedings by which an amendment on this motion moved by him at the last meeting had been set aside. He also accused the court of levying a rate upon the public in order to make a balance in the hands of the banker and whilst, he said, there were 20,000*l*. in the bank, not a single public work was in hand. He objected to the abiding by the contract made for the building of the sewer, urging the inefficient manner in which the former part of the work had been completed as the reason why the engagement should be broken off. He then submitted an amendment to the effect, that the proposed work be not done until a carefully prepared plan, section, specification and estimate, including every expense, be made; and then that the works be thrown open to public competition by advertisement in The Builder and other papers. This was seconded by Mr. White, but was ultimately lost by a majority of sixteen to six. Mr. Gunter, Mr. John Gunter, Mr. Fuller, and Mr. Boodle, junior, voted for the amendment. The following gentlemen voted against it: Messrs. Allason, Branscombe, Cantwell, T. L. Donaldson, Wm. Donaldson, Walpole Eyre, J. France, Gutch, Hawkes, Harrison, Kendall, Lewis, Nutting, G. O. Smith, and the chairman.

SIMPLE SELF-ACTING WATER-CLOSET.

The poisonous effect of the effluvia arising from decomposing matter has been adverted to on several occasions in our pages. One regulation should be instantly enforced; every open cesspool at present vomiting forth its pestilential gases should be arched over,—no privies should be permitted,—and one fruitful source of disease would be stopped. We are indebted to Mr. Henry Austin, the excellent honorary secretary of the Metropolitan Improvement Society, and of the Health of Towns' Association, for the introduction of the cheap and efficient self-acting water-closet for poor tenements, represented by the accompanying engraving. The weight of the person sitting upon the seat A, forces upwards the rod B, and so causes the valve C, at the other end of the lever D, to close the lower aperture of the service-box, and to open the upper one, allowing it to fill with water. The pipe E is much larger than what is generally used, and the distributer F is so constructed as to preserve the whole force and velocity of the water. This arrangement has the advantage of being inexpensive, and not easily put out of order. A metal cylinder, 9 or 10 inches in diameter (in the place of a basin), trapped at the bottom in an ordinary manner, is all that is necessary to make a complete water-closet, requiring no care, and prepared for rough usage.

SIMPLE SELF-ACTING WATER-CLOSET.



WORKS IN THE PROVINCES.

The proposal to enlarge the parish churchyard at Gainsborough has led to another which has met with far more general approbation, viz., the formation of a cemetery. Two meetings have already been held on the subject, and there is little doubt but at the next active proceedings will be determined upon.——The great "Peter" bell in York Minster is now safely suspended in its own tower. It is placed (at a height of nearly 200 feet) diagonally in the tower, for the greater security to the building, and above 300 cubic feet of timber have been used for its support. It may be rung with two wheels, and will revolve entirely if necessary.——The new district church, at Blaydon, in the county of Durham, has been consecrated by the bishop of the diocese. It is dedicated to St. Cuthbert.——Ground has been purchased in the parish of Bradpole, near Bridport, for the erection of a Roman Catholic church, and tenders for commencing the work forthwith have been advertised for.——The restoration of Sudely castle, which has been steadily progressing for some considerable time past is now nearly completed.——The tenders for enlarging St. Peter's church, Bedford, were opened last week; that of Messrs. Francis and Son, Taylor, and George Small, was accepted for the sum of 351*l*. The works will be commenced immediately.——At Bridgwater a Roman Catholic chapel is about to be erected. The site chosen is in St. John's-street.——Some pillars, and other remains of a Roman building, and two beautiful coins of the Emperors Antoninus and Domitian, have been discovered in High-street, Stamford. ——At Hull, the Kingston Cotton Mill Company have procured a site for their intended works at Wincolmbe, on the west side of the river Hull. The purchase consists of upwards of twelve acres of ground.——The Government have it in contemplation to dispose of the prisons at Prince-town, Dartmoor. They cover a space of thirty acres, and during the late war 10,000 prisoners were lodged within them. ——The Rev. Hugh M'Neile has commenced the erection of a very spacious residence for himself and family at Aigburth, Liverpool. Messrs. Samuel and James Holme are the builders. No time has yet been fixed for laying the foundation stone of Mr. M'Neile's new church in the Princes-park.——The new church at Milton-next-Gravesend, an account of which has already appeared in The Builder (see p. 365 *ante*), was consecrated last week by the Bishop of Rochester. It is dedicated to the Holy Trinity.——The clearing of a site for the proposed Free Church College, Edinburgh, has involved the removal of an extensive cluster of houses, mostly of great antiquity, situate between the Castle-hill and the head of the Mound. This range of buildings includes the palace and chapel of Mary of Lorraine, widow of James V., and queen-regent of Scotland from 1554 to her death in 1560. A new police-office is being erected in the High-street, Edinburgh, the design for which a local paper mentions in high terms of approval.——The first stone of a new church at Winchester is to be laid during the first week of October by the high steward of the city, the Right Hon. Charles Shaw Lefevre, Speaker of the House of Commons, assisted by the mayor and corporation. ——The Rev. H. Fardell having at his own expense restored the south porch of Wisbeach Church, the parishioners have determined upon defraying the cost incident to the restoration of the other parts of the building. It is proposed to bring the fabric as nearly as possible to its original condition.—— The monument erected by the Marquis of Lansdowne on Cherhill-hill is now completed, with the exception of the steps which are to surround its base.—— Mr. James Simpson, the eminent water-works engineer, has been in Newcastle and the neighbourhood during the last week, taking preliminary steps for the execution of the works of the Whittle Dean Water Company.——A wooden chapel was opened last week at Hinton Dyrham, near Bristol. The building, which will accommodate about 150 persons, is 27 feet long, 18 feet wide, and 14 feet high: the cost is about 150*l*. Messrs. Foster and Mees, of Bristol, were the builders.——Government has recently purchased twenty-one acres of land near the town of Tipperary, for the purpose of erecting barracks to accommodate 2,000 soldiers. They are intended for a general army depôt in that part of Ireland.——The old abbey church at Dunfermline is about to undergo a complete renovation. Mr. Nixon, the crown architect for Scotland, has recently inspected the building by order of the Commissioners of Woods and Forests. The result is a determination to erect a new roof, to restore the windows to their former size and style, to beautify the old pillars, and to give the entire church an appearance similar to what it had when Malcolm, its founder, and his good queen, Margaret, trod its aisles. The expense is estimated at 2,000*l*.——It is the determination of several railway companies whose lines pass through Wolverhampton, to unite in the erection of one grand station as near the centre of that town as possible. The bottom of Queen-street is the spot named for the joint terminus.

JOTTINGS ABOUT RAILWAYS.

Mr. De La Haye, of Liverpool, has just made public a plan he has long contemplated for the construction of submarine railways applicable to rivers and narrow seas. His proposition is to construct wrought-iron tunnels in divisions of about 400 feet in length, and to place them on the bed of the sea. He submitted the idea and its details many months since to Sir Joshua Walmsley and Mr. George Stephenson, and in all probability it led to the project of the latter gentleman to cross the Menai Straits by means of a suspension tunnel. ——Amidst the many projects connected with railways, we find one now in course of adoption for the establishment of a club-house in London, where gentlemen of all ranks may daily meet for the interchange of railway information. A mansion has already been taken at the West End. Another project of a similar character is an attempt to form a Railway Club-house Chambers and General Goods Depôt Company, the object of which is to provide a suitable fire-proof building for the general concentration of railway business, a portion of which to be converted into a commodious commercial club-house for the resort of directors and shareholders, a large hall for the holding of general and other meetings, suites of private offices for railway companies, and an extensive range of warehouses for the reception and transit of goods. The proposed capital is 300,000*l*.—— A preliminary announcement has been issued during the past week to the effect that a company is in course of formation with the object of establishing a complete system of telegraphic communication, connecting the metropolis with the different ports and cities of the kingdom by means of Messrs. Cooke and Wheatstones patent.——The battle of the gauges is not likely to effect railway interests in Ireland. The 5 feet 3 inch gauge is the one universally adopted there. It was recommended by the Board of Trade in the case of the Dublin and Drogheda railway. The gauge of the Ulster line, which at present is 6 feet 2 inches, is about to be altered to the above standard, the expense of which will be shared in equitable proportions by the lines running northward. ——The conversion of canals into railways is becoming so general, as to leave little doubt that in the course of a few years the former mode of transit will be entirely destroyed. A group of canals having at one of their extremities the Chester and Birkenhead railway, and at the other the London and Birmingham, are to be converted into one extensive London and Birkenhead line.——The Kennet and Avon canal is about to merge into the London, Newbury, and Bath direct railway. Mr. Blackwell and Mr. Maclean are the engineers. This conversion will be effected for about 414,800*l*., or about 7,500*l*. per mile.

Stone Bridge over the River Taff.—Since the appearance of the article on this bridge which appeared in last week's Builder, we have learnt that in consequence of the inconvenience and danger attending the old structure, the owners of property in the neighbourhood of Newbridge contemplate the erection of a new bridge below the site of the present bridge, so as to afford better accommodation for that rapidly improving and populous locality.

ARCHITECTURAL PRIZES IN ROME.

Rome, 21st August.—The Papal Academy of Arts *San Luca*, whose chair had been once filled by Thorwalsden, has proposed several great prizes, open to artists of all *nations* (and of all *confessions*). Those of *architecture* are the following. *First class.* Plan of a splendid royal residence in a large city. Its chief apartments to be hall of throne, chapel, library, museum, theatre surrounded by saloons, all adequately decorated. Besides, the building has to contain the usual *apartments* of a royal abode, for the cold and warm seasons (both the latter on the first floor). On the ground floor are to be the offices, guerd-rooms, bath, kitchen, and in the *entresol* quarters for the high officers of the court. The place for stables and the servants is also to be marked out. Before the palace a large square, with monuments of the two preceding monarchs. Behind the palace, the gardens with appropriate buildings. There are to be *seven* designs accompanying this prize—*viz.* two ground plans, two sections, two elevations, and one view of any chosen part of the building. Each plan 0,840 metres by 0,576. *Second class.* Entrance gate of a large metropolis (not fortified), with adjoining edifices for the porters; the excise and the police soldiers(!) The gates to have three passages, for elegant carricles, waggons and carts, and beasts of burthen. The room for the guard is to be calculated at twenty privates and one petty officer. The officers on duty to have an orderly room, a dining and sleeping room. There is to be another guard-house for a detachment of cavalry with dwelling for the officers, prison, stables, and other appurtenances. The excise department to comprise a public office, dwelling for two superior and two inferior officers, a barrack for two detachments of troops, foot and horse soldiers, a guard-house properly so called, stables, and other appurtenances; prison, stores for smuggled and seized goods, a place for the strict examination of the vehicles, room for porters, and a waiting-room, also a dwelling for the porters. The police has a room for the revision of the post (!!!) Another place for the searching of persons and goods, a prison for both sexes separately (!), also a dwelling for the officers of police. This prize is also to be accompanied by seven plans, *viz.*, one ground plan, one plan of the upper rooms, two prospects taken from the inner and outer part of the town, one longitudinal section, one transversal section, and one plan of miscellaneous details. Size of plans as above. The competitors have to transmit their works to Mr. Silvagni, secretary of the academy, on or before the 20th July, 1846, under the usual formalities of prize competitions. The prices of the first class are forty, those of the second twenty zechins. The crowned plans are property of the academy. [As an English artist has met with such success in the competition for the Hamburg great prize—we consider it expedient to make known the above prizes, open to all the world.]

J. L.

ART-UNION OF LONDON.

In the three weeks ending Saturday last, during which the prizes were exhibited to the subscribers and their friends by tickets, 150,000 persons visited the gallery. During the present week, it has been open to the public without any limitation.

On Monday the works of art become the property of the various prize-holders and will be removed to their several homes. If the Art-Union of London did nothing more than provide this annual enjoyment for all classes of the community, it would be entitled to our gratitude.

The distribution of the outline illustrations by Mr. Rimer, of Thomson's "Castle of Indolence," due to all subscribers of the past year in addition to Doo's fine print of the "Convalescent" after Mulready, which is nearly ready for the press, commenced on Monday. They form an interesting series, and are likely to be popular.

Holloway, of Bedford-street, Covent-garden, has published at a low price, a very beautiful edition of the text, with additional illustrations by the same artist.

COURSE OF STUDY IN THE SCHOOL OF DESIGN.

Sir,—The publication of those designs for which premiums have been awarded by the School of Design, is certainly the best way to enable the public to come to a right conclusion as to the capacity of the masters, their mode of instruction, and the progress made by their pupils. The public are certainly indebted to your paper (No. 135), for giving them so practical a proof of the incapacity of the masters, the little progress made by the pupils, and the wretched designs. *The Illustrated London News* has published several of these premium designs, and if we except some few sketches made by the female pupils, whose innate taste for what is elegant and beautiful enables them better to skip over the stumbling blocks placed in their way, the whole of them are of the same indifferent character.

You must be aware, Sir, that if the School of Design had proper masters—those who were able to illustrate the first principles of design on the black-board (the only way by which any great body of pupils can be taught)—the authors of such designs would get more kicks than halfpence.

You know that I have no connection whatever with the School of Design, and that what I have stated is an unbiassed opinion. I have had great experience in teaching youth, and I know it requires the unwearied attention of the most able masters to ensure the slightest success.—I am, Sir, &c., M. I. B. A.

*** We have refused insertion to several letters on this subject in favour of the management, because they throw no additional light on the question; and we must pursue the same course with those of its opponents. We have received another communication from Mr. R. Burchett, but for the above reason do not print it. As regards the present condition of the school, he says:—

"In March, 1843, the last month of *Mr. Dyce's* directorship, there were in the evening school, as entered in the Register of Attendance kept in the school, 220 students.

In the same month, March, 1845, after two years of *Mr. Wilson's* directorship, with the lure of 200 guineas then forthcoming for prizes, the number in the evening school was 210, being a decrease of 10; and in July last, at the time of the private pic-nick exhibition of productions—so desperately forced and fudged up for the occasion—the evening school consisted of no more than 114;—shewing a falling off of 106!! from the number in the evening school at the time Mr. Dyce was forced by persecution to leave the institution. There is no denying these facts. They can be verified by any student in the school."

BOOKSELLERS' PROVIDENT RETREAT.

On the 4th inst., the first stone of a structure for the reception of aged and infirm persons who are members of the Booksellers' Provident Institution, was laid at Abbot's Langley, Herts, by the Earl of Clarendon. The situation is beautiful, overlooking the London and Birmingham Railway, and the interesting old church described in last week's Builder. The structure is to consist at first of seven houses, after a design in the early English style of architecture, by Mr. Cooper; and, in addition to the dwelling apartments in the central house, there will be a large room for the use of the committee, and a commodious hall as a place of general meeting for the inmates, which is also to be fitted up as a library.

We have not seen the design; some who have, speak badly of it.

ST. JAMES'S CHURCH WINDOW.

We learn that the committee have sent special instructions to Mr. Wailes that he is to take out of his design *every thing Gothic*. As well might you tell a man who brought you a French book when you wanted an English one, to take out of it every thing French. The window is essentially Gothic,—*wholly* Gothic, and no alteration can possibly fit it for St. James's church. Can nothing be done to induce the committee still further to modify their original determination, and so avoid the lasting annoyance they will otherwise lay up for themselves? They *know* they are in error, yet fear to retrace their steps.

EFFLUVIA FROM SEWERS.

Sir,—It is with great pleasure I peruse your continual advocacy of that necessary and essential requisite for the health of towns, namely, proper and sufficient, as well as systematic ventilation; there however appears to me one grand thing yet wanting, to provide a more cleanly, wholesome, and unvitiated atmosphere *without*, the consideration of which I shall but slightly discuss in my present letter; but as soon as I shall be in possession of the requisite statistical data, I will enter more fully into the consideration of this important subject, a subject becoming every day more interesting, as the present system of sewerage and drainage becomes more extended or improved.

The powerful and requisite enactments contained in Lord Lincoln's Bill for "Improving the drainage &c., of towns," I need hardly quote, having already been conspicuously before the public, and most ably commented on by the different journals; suffice it to say, the more such measures are enforced, the more favourable will be the result of the plan I am about to propose.

It is quite unnecessary to remind any person accustomed to traverse the streets and alleys of this great metropolis, more especially the confines of the city, of the nauseous and offensive gases and effluvia, continually arising from the "gulley-holes" and other openings connected with the sewers; and to such an extent (especially before heavy rains) do these gases and effluvia arise, as to be perfectly visible under the form of a vapour, causing epidemy and not unfrequently the worst symptoms of malaria in the immediate neighbourhood. What I would venture to propose is as follows:—"Let every man-hole, gulley-hole, or other open communication with the sewers be trapped, so as effectually to prevent any effluvia from arising therefrom; but in order to get rid of the effluvia, which must necessarily arise from the vast accumulations in sewers, I should propose the erection of columns at large thoroughfares, or grand connections of sewerage (carried to a height above that of the surrounding neighbourhood), which are to be connected with the sewers, and let the gases which arise either be consumed by fire at the top by jets of gas, or be carried away by the influence of the atmosphere. I have thus briefly brought before your notice a plan, which I am confident, if brought fully and properly into operation, would greatly benefit all classes of the community, and cannot see any difficulty in the plan (saving the expense), as the all-powerful Commissioners of Sewers have power granted them "to take any property, upon proper compensation, that may be deemed desirable for the improvements in sewers, &c.," added to which, these erections of columns might be turned to a variety of useful as well as ornamental purposes the consideration of which will form a part of my next letter. J. L.

151, New Bond-street.

New Buildings on Hampstead Heath.—Sir Thomas Maryon Wilson having determined upon erecting a number of villas on Hampstead heath, the ceremony of laying the first stone was performed last week by his sister, Mrs. Drummond, in the presence of a large party of friends and a considerable number of the inhabitants. The new buildings are to be distinguished by the name of "East-park." Mr. Gwilt is the architect, and assisted at the ceremony. It is said that East-park will not in any way whatever encroach upon the heath, or any of those portions of Hampstead to which the public are in the habit of resorting for recreation.

Fatal Accident in Sinking a Well.—Accidents frequently occur to persons while employed in digging wells; sometimes through the gross ignorance or carelessness of the operative, at other times through the false economy of the master in not allowing sufficient timber to span the work securely. A case occurred last week at Whitechurch, near Charmouth, when a poor man while pursuing his labour, was buried under upwards of ten waggon loads of soil and stones. Assistance was instantly obtained to extricate him, if possible alive, but the attempt was ineffectual; there is no doubt that he met with instant death.

THE FRUGAL INVESTMENT ASSOCIATION.

The first subscription meeting of the shareholders in this association was held, pursuant, to public advertisement, at the Hall of Commerce, Threadneedle-street, on Tuesday afternoon, the 2nd inst. The meeting was very numerously and respectably attended. The president, Mr. John Neale, took the chair, and Mr. Edward Smith, the solicitor, explained the principles and proposed advantages of the association. It is based upon the provisions of the Friendly Societies, Act 4 & 5 Wm. 4, c. 40, and contemplates the following objects:—

1. Investment of capital in 100*l.* shares, payable by monthly instalments of 1*l.* per share. 2. Pecuniary advances to the members (only) on mortgage of real or personal security, or both, accompanied by a life policy of assurance, they paying a redemption or anticipating fee of 8*s.* per share per month. 3. The advance of the whole 100*l.* on each share to those members who anticipate the discount or bonus:—that is, the amount agreed to be sacrificed by the member upon his share, as the competition bidding is not deducted from the 100*l.* all at once (as in the case on a sale of shares in building societies), but is spread over the whole period of the association by equal monthly instalments. 4. The certain termination of the society at the expiration of eight years and four months. 5. An annual division of the profits in which both borrowers and capitalists, namely both classes of the members, participate, so that the borrower is not prejudiced as such by availing himself of the society's pecuniary resources by anticipation. Various questions were asked by the gentlemen present to elicit further explanation, and several hundreds of the shares (which are limited to 2,000), were then taken, and the first monthly subscription of 1*l.* per share paid thereon. The next monthly subscription meeting was announced for the 2nd Tuesday in October, at the same place. *

FREE ADMISSION TO PUBLIC BUILDINGS.

We mentioned a fortnight ago, that a memorial had been forwarded to Sir Robert Peel, from Lincoln, praying him, in the appointment of the new dean, to have regard to the free admission of the public to the cathedral.* One of the parties to the petition has received a note from the premier, acknowledging the receipt of the memorial. Sir Robert concludes his letter with the following sentiment:—"It will be gratifying to Sir Robert Peel if the Dean and Chapter of Lincoln shall be enabled to give the same facilities for free admission to the cathedral which are given at Westminster and Durham."

Relative to the insolence of the verger at St. George's Chapel, Windsor, alluded to on a former occasion, we have received a letter of thanks from an influential inhabitant of the town for the reproof of this man's conduct. His incivility, it seems, is complained of on all hands. We shall pay him a visit before long, for the express purpose of observing his behaviour, and shall hope, if only for his own sake, to find an improvement.

From Paris we learn, that the Prefect of Police, having discovered that money was exacted from the persons who came to view the different parts of the Pantheon by the parties who are paid for taking charge of it, has interfered, and insisted upon this abuse being ended.

Calcutta Cathedral.—From a statement put forth by the committee, we learn that this cathedral, of which the model is now on view at Guildhall, is 248 feet long, 116 feet wide at the transepts, and 206 feet high from the plane of site. It is further intimated that the whole body of the building, with the tower and spire, is erected, and that the roof is on, but that the internal fittings are yet unfinished. The choir, for the performance of divine service, is 131 feet by 61, and 47 feet high—spanned by an iron trussed roof, and capable of containing 1,000 persons. It is expected that the consecration will take place at the close of next year, or very early in the following, should the state of the funds admit.

* P. 415, *ante*.

THE SECOND ARCHÆOLOGICAL MEETING AT WINCHESTER.

The second division of the Archæological Association have met in great strength at Winchester during the past week. Lord Northampton it seems came from abroad to preside, and was supported at the opening meeting, on Tuesday, by Lord Ashburton, Sir Wm. Erle, the Count Mortara, the Right Hon. Shaw Lefevre, Sirs J. Boileau, S. R. Glynne, M.P., Wm. Heathcote, M.P., and R. G. Simeon, Barts.; Sir Richard Westmacott, Knt.; the very Rev. the Deans of Westminster, Winchester, Ely, and Hereford; the Revs. the Master of the University and Warden of New College, Oxford; the Warden and Principal of St. Mary's College, Winchester; the Master of Trinity College, Cambridge; A. B. Hope, Esq., M.P., J. B. East, Esq., M.P., E. P. Shirley, Esq., M.P., General Frederick, Colonels Vandeleur and Colville; Captain Pearson; Revs. H. Addington, J. G. Bedford, F. C. Blackstone, Dr. Bliss, &c.

On taking the chair, the president said, "Archæology had been justly called the handmaid of history; without it history would have been little more than a skeleton—it re-animated, as it were, the marrow, the bones, and the colours of life itself. Without the discovery of antiquity history would have failed to guide the path of the statesmen of former times. They must consider those changes which time and the progress of human ingenuity had produced. He understood that a notion had been entertained that this meeting was in some degree a political meeting; but such a proposition was so truly absurd, that he thought he was not called upon to deny it. It had also been supposed that this meeting was of a polemical character—a supposition not founded in fact. When he saw himself surrounded by so many ornaments of the church of England, and in the midst of such ecclesiastical monuments, which adorned a city that boasted of William of Wykeham, as the founder of its college, and the church of St. Cross, it was evident that it was not for the discussion of any polemical subjects that they were now assembled. If there was a difference among the members of the established church of this country, however deeply it was to be lamented, that was a circumstance with which the society had nothing to do. All it called upon its friends to do was to join with them in lending their aid to maintain those sacred edifices dedicated to the service of God. Although they had met together on the present occasion for the consideration of archæological subjects, still there was no reason why they should not discuss the wars of the roses, while they abstained from discussing the religious differences of the nineteenth century. With these differences the society had nothing to do. It was not its province to revive any unfortunate differences which might have arisen amongst archæologists. It stood by itself on its own merits, but holding out the hand of fellowship and friendship to every man who was willing to join its ranks.

The Dean of Westminster read an able paper in defence of Archæology. The antiquary was looked upon by some as at best a harmless creature, and to a certain extent the reproach and ridicule thrown upon him may have been deserved. How this had arisen they might inquire hereafter, but at present they would turn to other matters. They would look to the noble fellowship of bygone ages, which had made them what they now were, a link in the golden chain from the beginning to the end. Time had been likened to an old beggar putting good deeds into his wallet. They would look with earnestness and love into the wallet to see what those good deeds really were, and how brought about. This, then, was their purpose, to reproduce old times, watch with care over them, as a witness of that which was and is not; not considering the dust as precious as the writing it bore, but setting upon it a true value; with a scrutinizing, but no irreverent eye, to open the barrow, the monument, and ancient grave, linger over their words and deeds, of the thoughts they were thinking, and help us to reconstruct the busy active past—thus linking past and present. The history of the past exhorts all to venture on like noble deeds. Marathon, Thermopylæ, Agincourt, Trafalgar, the bowmen of Henry V., and Nelson's sailor, alike made example, and said, "Thou art the child of brave men, who never feared, never yielded;" who would say, "Kill me, but I never will be a slave." Come what danger there will, he was prepared to meet it. But there were also peaceful bonds—one language, one common history, one birthplace, were the sinews that bound the past to the present. There were the seed and the bud, the virtues and the vices. We must know our father lives ere we can live. Without the past there is no future. We see this even in infancy; to its unformed age all is present. It has no future till it has made a past, and it is on the mouldering monuments of antiquity making our past that we must build our future. The man who is a trifler in antiquity would be a trifler still did his mind take any other turn. Servile he must have been whether he gathered rusted coins, or, being a bookworm, became a mere pedant. There are those who, while ages have rolled away, would cling to their forms, but the spirit having left them, we cannot go back to them; we maintain there is a life in the past and in the present which have linked them to each other. These false claimants deny faith in the present life—they point to the liberality of former times, and will not allow we have the same quickening spirit within us now. They would make us unreal; they would dress the old man in the clothes of his childhood, thinking with such would come back the joyous days of youth. How unlike the spirit of one of those revered ancestors who, if he could rise up among us, would feel compassion for such a one, who could degrade the man to the mere outside shell. We see in the arrangement of churches much to love and study in their minutest details; but while we notice the hagioscope, we cannot forget the ill view afforded to the spectator; and admiring the intersecting aisle, its external magnificence, and the beauty of the lengthened chancel, we cannot forget that it shut in the clergy and shut out the laity. Looking to ancient monuments and matters of history, yielding ourselves to the power within us, let us only use them as incentives to action; let us view them not as worn-out customs, but that we may fashion for ourselves the outward circumstances we need.

The Dean of Winchester, Professor Whewell, and others, afterwards addressed the meeting. Dr. Plumptre took credit to the Gothic Architectural Society, at Oxford, for being the first in the field to revive a taste and knowledge of architecture amongst the clergy.

On Wednesday the cathedral and the church of St. Cross were examined, and in the evening papers were read by the Rev. J. B. Deane on the early uses of Druidical temples, Mr. E. A. Freeman on the architecture of St. Cross, and the Rev. J. L. Pettit on Romsey church.

CONTINENTAL NEWS.

As H. M. the Queen is now one of the subscribers for the rebuilding of the dome of Cologne, every thing connected with that grand conception of the middle ages becomes of still greater interest. The splendid painted glass windows, which the King of Bavaria has promised to furnish, have already been begun at Munich, by the artists intrusted with that task, Professor H. Von Hess, Inspector Ainmüller, and Mr. A. Müller. The next works in extent and beauty, which are now in hand, at the royal establishment for painted glass at Munich, are the large windows destined for the new dome of Agram, and made by order of the chapter. The three chief middle windows of the great choir have to receive these rich ornaments. The chief *picture* will represent the transfiguration of the holy Virgin, aside which will be the two patrons of Hungaria kneeling. The smaller *lunettes* around will contain various architectural ornaments. The glass paintings of the church of St. Mary, in the suburb of Munich, have been completed and placed some time ago. J. L.

Reservoir in Greenwich Park.—The authorities having given instructions to form the threatened reservoir in Greenwich-park for the purpose of supplying the hospital with water in case of fire, the work was commenced last week. Some of the residents of Greenwich look upon it as an encroachment upon the rights of the public; while others, viewing it as a necessary evil, suggest making it as ornamental as possible, and propose erecting a large oval-shaped stone basin with a fountain in the centre.

PAYMENT TO BUILDERS FOR ESTIMATING WORK NOT EXECUTED

We state the following case without comment, as we may be only partially in possession of the circumstances. Mr. C., a builder, was requested to estimate for the erection of a public-house with the understanding that the tenders would be opened in the presence of the parties. Having made his estimate and delivered it, he hears nothing more of it, but ultimately learns that the first intention has been abandoned, and that the surveyor is preparing plans for a smaller house. Thinking it unjust that he should lose his time and trouble, he applied for compensation, and was told that his tender was not the lowest, and therefore that he had lost nothing by the abandonment of the plan. Not considering himself bound to believe this, as the tenders had been opened privately, he claimed five pounds and summoned the party who employed him, to the Court of Requests on his refusal to pay it. After two hearings a verdict was given, last week, in favour of the builder, and he agreed to accept three pounds, the employer paying the builder's witness and all expenses.

LIST OF NEW PATENTS RELATING TO ARCHITECTURE, ENGINEERING, &c., GRANTED FOR ENGLAND.

Furnished by Mr. A. Prince, of the Office for Patents of Inventions, Lincoln's-inn Fields, London.

[SIX MONTHS FOR ENROLMENT.]

William Young, of Paisley, manufacturer and dyer, and Archibald McNair, of the same town, merchant, for certain improvements in the construction and means of manufacturing apparatus for conducting electricity. August 4.

Charles Henry Joseph Forret, of Lille, in France, but now of 17, Great St. Helens, Bishopsgate, gentleman, for a new and improved Archimedean screw, which he calls "Davaine's Screw." August 4.

Peter Francis Maze, of Mark-lane, merchant, for improvements in combining iron and other materials for the purpose of constructing bridges, roofs, arches, floors, and other similar structures. August 5.

Francis Taylor, of Romsey, Hants, surgeon, for improvements in giving alarm in case of fire, and in extinguishing fire. August 6.

John Evans, of Kensington, gentleman, for a new perazotic product, and its application to the arts. August 7.

Henry Smith, of Liverpool, engineer, for improvements in the manufacture of wheels for railways, and in springs for railway carriages, and in axle guards for railway carriages. August 7.

Henry Emanuel, of Pond-street, Hampstead, gentleman, for improvements in atmospheric railways. August 7.

Peter Armand Lecomte de Fontainemoreau of Skinner's-place, Size-lane, for certain improvements in apparatus for raising and supporting vessels and other floating or sunken bodies, and its application for the better preservation of life and property. August 7.

Peter Higson, of Clifton, Lancaster, mining engineer, for certain improvements in machinery or apparatus for connecting and disconnecting the steam-engine, or other motive power with or from the load, or other matter to be driven or moved. August 9.

Thomas Henry Russell, of Wednesbury, Stafford, tube manufacturer, for improvements in the manufacture of welded iron tubes. August 14.

Thomas Oxley, of Westminster-road, civil engineer, for certain improvements in constructing and propelling vessels and in the machinery connected therewith. August 22.

Mathieu Francois Isoard, of Paris for improvements in obtaining motive power. August 23.

Charing Cross Bridge.—At the half-yearly general meeting of the proprietors of this bridge (better known at present as the Hungerford Suspension Bridge), it appeared from the report of the directors, that "during the period the bridge has been opened, nearly 14,000 persons daily have used it," and that "on two or three occasions there had been between 14,000 and 15,000 persons upon it, and it remained perfectly unshaken." It is in contemplation to lease the bridge to the Central Terminus Railway Company for 186,000*l.*, the proprietors to receive half their capital in cash, and half in shares in the new company.

Correspondence.

PREVENTION OF SOUND.

SIR,—An acquaintance of mine having a machine turned by hand for cutting meat, wished to have it inclosed, to prevent it from being a nuisance, the neighbours having complained of the great noise it made. I surrounded it with 9-inch brick walls, turned an arch all over in cement, lined the inside with patent felt, making it air-tight, and placed the feet of the machine on india rubber two inches in thickness. The sound, however, is only partly prevented by these arrangements; and I should feel obliged if some of your numerous correspondents will be so kind as to inform me, through the medium of your excellent journal, the best method which can be adopted to prevent the noise altogether.

I am, Sir, &c., W. H.

Miscellanea.

THE "RAILWAY KING" OF FRANCE.—The "Railway King" in France, the French Hudson, is an odd-looking, but keen-observing individual, of the name of M'Kenzie. He is a great favourite of Louis Philippe, at whose numerous and promiscuously attended *soirées* M'Kenzie cuts a droll and conspicuous figure. If not a native of Liverpool, he was at no distant date a "navie" there, working—and no shame to him—in high-lows, ankle-deep at the docks in mud and clay. This gentleman, though entirely uneducated, and of brusque manners, is remarkable for his practical knowledge of engineering; and it is proved by the flattering fact, that M'Kenzie is consulted by the Government authorities of France touching the practicability of the various railway lines either in progress or contemplated; and this in preference to the engineers of Paris, who have long been celebrated for their knowledge in the science or art, for it partakes of both. M'Kenzie has a partner, named Barry, once—he may be so still—a gentleman connected with the Manchester newspaper press. These facts are highly honourable to all parties. M'Kenzie's oddity of manner and appearance present a curious contrast to that of the Parisians; *malgré*, he carries all before him, whether on the Champs Elysées, where the railway shareholders, jobbers, &c., "most do congregate," or in the gilded salons of the Tuileries. —*Liverpool Chronicle.* [The Mr. M'Kenzie named above was a considerable contractor for public works in this country for many years. He was the contractor for the Junction Dock, at Hull, and other works there. Mr. J. D. Barry, who is stated to be his partner, was, subsequently to his connection with the Manchester press, editor of the *Chester Chronicle.* —*Manchester Guardian.*

PICTURE GALLERIES.—It cannot but excite the surprise and regret of every person who has reflected on the subject, and been desirous of admiring and dwelling on finer works of art, whether pictures or sculptures, to find them placed in common rooms with several small windows directly opposite the subjects, and these windows indiscriminately facing either the east, west, north, or south; added to which disadvantages may be seen a total disregard to the colour of the walls, and to contiguous objects. After thousands of pounds have been expended on a collection, it is astonishing to find it thus sacrificed, thus immured, either in dark cells or exposed to the scorching and dazzling sun. Let us, however, hope that a better taste has commenced, and that the noble art of architecture will be liberally encouraged by the affluent, and skilfully employed by the professor to protect and adorn her sister arts.—BRITTON'S *Illustrations of Fonthill Abbey.*

WESTMINSTER BRIDGE.—From 1810 to 1838 this bridge cost in repairs, 83,097*l.* 6s. 9½d. From 1838 to 1844 the amount was 82,661*l.*, and a further sum of 52,879*l.* was required for further works. The property belonging to the bridge only realizes 7,464*l.* 11s. 8d. a-year.

MALT-HOUSE FLOORS.—A correspondent wishes to know the best material wherewith to construct malt-house floors. Either, faced slate slabs, or a coating of Roman cement on a solid foundation, will answer the purpose.

ORNAMENTAL CHAIR.—A very elaborately carved Gothic chair, in the style prevalent during the fifteenth century, has recently been placed in the vicinity of the altar of our cathedral. It is worked in oak, and the most striking feature about it, at first glance, is its high back, ornamented with rich tracery, and terminated by a crocketted gable, flanked by pinnacles. At each elbow or side of the seat, is the figure of an angel bearing a shield, and on the border of frieze beneath, is a scroll containing the following inscription:—"PELLEW. DEC. NORWIC. DEO. ET ECCLIE. D.D. MDCCCXLV." This chair is for the use of the bishop, and another chair similar in general design, but differing in some of the details, has yet to be added for the dean. The chair which we have described has been executed under the superintendence of Mr. John Brown, the architect, by Mr. W. C. Vincent, a native of Norwich, but now carrying on business as an architectural carver in London. He is engaged in completing the chair for the dean, which, we understand, will be here shortly, and the effect of the two noble pieces of ecclesiastical furniture in conjunction cannot fail to be not only rich and beautiful in itself, but also such as will materially enhance the appropriate character of that portion of the sacred edifice to which they appertain.—*Norfolk Chronicle.*

SPLENDID IRON BRIDGE OVER THE NEVA. —Messrs. Bury, Curtis, and Kennedy, the celebrated engineers, of Liverpool, have received instructions from the Emperor of Russia to construct an iron bridge of powerful dimensions to be erected over the river Neva at St. Petersburgh. This river is at present crossed by three bridges of boats only, and in the winter season the damage done to them by the ice is so considerable, that it has been determined to erect the bridge in question; and it is probable at a future time the other two will be replaced by bridges of iron. The length of this bridge is 1,078 feet, and will consist of seven arches—the centre one being 156 feet span; and the three on each side, 143 feet, 125 feet, and 107 feet respectively. A separate arch at one end will be devoted to a swivel-bridge, seventy feet wide, by which vessels can be admitted to the Custom House. The total weight of iron in this enormous structure will be nearly 10,000 tons, or about five times the quantity which was employed in the famous Menai bridge; the cost of the iron alone will exceed 100,000*l.*—*Mining Journal.*

RE-OPENING OF COOMBE-BISSETT CHURCH. —The parish church of Coombe-Bissett is an interesting one to the Ecclesiologist, portions of the edifice being as ancient as the early part of the twelfth century. The interior exhibits distinct features of the Anglo-Norman and early English styles—the font being of the latter class; and these features have been preserved in the restoration which the building has undergone. Open sittings, of very substantial oak, are liberally distributed on the floor, and have been fashioned from an ancient pattern of similar seats formerly existing in the church. The new roofing is formed of polished oak, with the ancient corbel heads restored. Appropriate texts of Scripture, in the illuminated style, are placed on the walls and pulpit. The exterior repairs have also been very considerable—large portions of the walls having been entirely rebuilt. Previous to its repair, the church was in a most dilapidated condition, and afforded miserable accommodation for about 150 persons; now at least 300 may find sitting room.

ADVICE TO GOTHIC ARCHITECTS, BY SIR WALTER SCOTT.—In his novel of "The Pirate," in reference to the Cathedral and Earl's and Bishop's Palaces at Orkney, the author of "Waverley" remarks, that "Several parts of these ruinous buildings might be selected (under suitable modifications) as models of a Gothic mansion, providing architects would be contented rather to imitate what is really beautiful in that species of building, than to make a medley of the caprices of the order, confounding the military, ecclesiastical, and domestic styles of all ages at random, with additional fantasies and combinations of their own device, 'all formed out of the builder's brain.'"

RISE IN THE PRICE OF IRON.—Several of the largest houses in South Staffordshire have issued circulars, quoting the price of bars at 20s. and pigs at 10s. in advance of the prices we recently published.

INCREASED VALUE OF LAND.—If proof was wanting to shew what an extraordinary increase has taken place in the value of land in this country during the last half century, we might point to the great price which the sale of each successive estate brings that is put into the market. In the "Scots' Magazine," of 1792, it is stated, that the estate of Kelly, in Renfrewshire, was sold in that year to Mr. John Wallace, for 10,750*l.* The same estate, when sold the other day, brought 65,000*l.*, although denuded of a valuable part of the shore ground, which has been retained by the late proprietor. There is no other commodity in this country which is at all to be compared to land for an increase of value, especially if that land has received proper attention in agricultural improvement similar to the estate of Kelly.—*Glasgow Chronicle.*

JARROW COLLIERY EXPLOSION.—Sir H. de la Beche and Mr. Playfair have been appointed by the executive to make a searching investigation into the causes of the explosion at Jarrow Colliery.

Tenders.

For the rebuilding of the Parochial School-rooms, Bethnal Green:—

Vargan	£2,297
Crowhurst	1,796
A. Wilson	1,597
Simmons	1,580
J. Goss	1,545
Cubitt	1,500
Smith	1,470
Charnock	1,447
Cooper	1,398
Lockwood	1,387
Geary	1,360

For the erection of a New Infirmary building to Lambeth Workhouse; Mr. W. Rogers, architect:—

Macey	£1,698
Messrs. Ward	1,673
Robson	1,590
Plaskett and Shelton	1,580
Thompson	1,550
Gerry and Son	1,534
Burtenshaw	1,529
Smith	1,525
Patrick	1,520
Barr	1,500
Cooper and Davis	1,495
Crowhurst	1,492
Mason	1,450
Cubitt	1,377
Ryder	1,300
Willson and Son	1,298
Cuttress	1,260
Wilson	1,244

Not opened in the presence of the parties; Cuttress's Tender accepted. The quantities were furnished by Mr. Marsland.

For building Six Houses and One Stable, in the Bow-road, for Mr. William Mott:—

Hill and Son	£4,180
Curton and Son	3,998
Glenn	3,622
Hawke	3,590
Ketling	3,503

For erecting School-rooms at Chatham on the British system; Mr. Edward Gotto, architect:—

Andrews	£863	14	0
Langley	728	0	0
Clements	720	0	0
Beveridge	702	0	0
Robins	685	4	7
Dadd	658	14	0
Bush	635	0	0
Foord	611	11	0
Pemble	557	10	0

All the Parties tendering, except Mr. Pemble, were supplied with the bills of quantities by the architect.

Tower Hamlets Sewers: Homerton to Clapton-square, 4 feet by 2 feet 6 inches; length, 415 feet: Church-street to Clapton-square, 4 feet by 2 feet 6 inches; length, 330 feet: total length, 745 feet:—

Curtis	£634
Livermore	617
Stewart	600
Hill	599
Crook	598

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 3, York-street, Covent-garden.]

For certain Masons', Carpenters', and Plumbers' and Glaziers' Work about to be performed in various repairs and restorations to St. Mary Redcliffe church, Bristol.

For building railway goods' waggons, ballast waggons and horse boxes, and supplying carriage couplings according to plan, for the Great Southern and Western railway (Ireland).

For the execution of Works on the Dundalk and Enniskillen railway, being a distance of ten miles.

For the execution of Works on the Leeds and Thirsk Railway.

For the execution of several lengths of Earthwork on the Aberdeen Railway. There are 5 separate Contracts, varying in lengths from 3½ miles to 4¾ miles.

For the construction of Three Reservoirs for the Blackburn Waterworks Company: also, of Stone Culverts for conveying the water a distance of about 2¾ miles. The earthwork will amount to about 180,000 cubic yards.

For the execution of works on the Manchester South Junction and Altringham Railway, in two parts: 1, being a distance of 1½ mile; 2, being a distance of 7¾ miles.

For the execution of Works on the Manchester and Birmingham Railway in 2 parts. 1. The Ashton Branch, being a distance of about 4¾ miles. 2. The Macclesfield branch, being a distance of about 30 chains, including a tunnel of 330 yards in length.

For the execution of that portion of the Edinburgh and Northern Railway, extending from Burntisland Pier to Kinghorn.

For supplying the Clydesdale Junction Railway Company with about 2,500 Tons of Rails, and about 600 Tons of Chairs.

For supplying the Leeds and Thirsk Railway Company with 100,000 Railway Sleepers.

For the execution of works on the East Lancashire Railway, viz., the Accrington Contract, being a distance of about 8 miles.

For the execution of that portion of the Newcastle and Berwick Railway, extending from Netherton to Tweedmouth, being a distance of about 53 miles. To be let in four contracts.

For the execution of works on the Leeds, Dewsbury, and Manchester Railway, viz., the Churwell Contract, being a distance of about 2½ miles.

For the performance of the several Works necessary in the erection of a Wesleyan Chapel at Alton, Hants.

For the execution of a portion of the Edinburgh and Northern Railway, being a distance of about 8 miles; to be estimated for in two lots.

For the execution of the Richmond Branch of the Great North of England Railway.

For supplying the Eastern Counties Railway Company with 100 Goods' Waggons, agreeably to specification.

For supplying the Eastern Union Railway Company with 8 First Class, 12 Second Class, and 8 Third Class Carriages; to run on six wheels, the gauge being 4 feet 8½ inches.

For supplying 15,000 Sleepers of Larch, 7 feet 6 inches long, and 7 feet 3½ inches at the small end; to be delivered at the Menai Bridge, Holyhead, within the next four months.

COMPETITIONS.

The Committee for the establishment of Public Parks, Walks, &c., at Manchester, offer two prizes, one of 50 guineas and the other of 25 guineas, for the best and second best set of Plans (with estimates), for the laying out, &c., of the sites already purchased by them.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

Adjoining the entrance to the East Country Dock, Rotherhithe, about 65 loads of new East-India Teak, and 60 loads of sound African Oak Timber.

On the Alderholt Park Estate, near Fordingbridge, Hants: about 500 Oak Trees, and about 100 Fir Trees; all of large dimensions.

The remaining portion of the Old British Museum, consisting of the centre building, the entrance Hall and Grand Staircase, &c.

Adjoining the Canal Bridge, Kingsland-road: a very large quantity of capital Timber in all lengths and thicknesses; 10,000 feet of 1¼-inch warehouse floor-boards, &c.

BY TENDER.

In the Plantations of the Duke of Montrose, situate in the Parishes of Drymen and Buchanan, Stirlingshire: many Thousands of Larch Trees of some size, adapted for Railway Sleepers, Roofing and Joisting, and other purposes.

TO CORRESPONDENTS.

"Italian Alabaster."—*A subscriber wishes to know where the white Italian alabaster can be obtained, and what is used to give it a smooth face after it is cut with the tool.*

"A Man with many Hands."—*After Mr. Crace's distinct assertion, that not a single foreigner is or has been engaged on the decorations of the House of Lords, the question is unnecessary.*

"E. H." (Woodford).—*Complains justly of the dilapidated state of the parish church of Chingford, near Woodford, Essex. We will recur to his letter.*

"J. W." (Liverpool).—*We do not know "any institution where architecture is taught in the day time." Drawing-schools are to be found, but there is no place in which to acquire the routine of business but an architect's office.*

"A. C."—*We shall mention the new works at the Tower next week.*

"W. W." (Slough).—*Thanks for the drawing. We cannot at present promise to engrave it.*

"J. C." (Hants), *will find an answer in another page.*

"T. C." (Slough); "H. L.;" "E. N." *next week.*

Received. — "*A Constant Reader of* THE BUILDER" (*Farm Buildings*).

ADVERTISEMENTS.

A MAGNIFICENT, EXTENSIVE, and UNIQUE COLLECTION of TROPICAL FRUITS, modelled by Mons. Grimaud during his long Residence in the Isle of France, is just deposited at the ROYAL POLYTECHNIC INSTITUTION. The ATMOSPHERIC RAILWAY is lectured upon by Professor Bachhoffner, and exhibited Daily, and in the Evenings. A NEW AMERICAN INVENTION, COLEMAN'S PATENT LOCOMOTIVE ENGINE for ascending and descending inclined planes on Railways without the aid of stationary power. SWIMMING and DIVING ILLUSTRATED by the Son of Capt. Stevens, the celebrated teacher of Swimming, on Mondays, Wednesdays, and Fridays, at Two o'Clock, and on the Evenings of Tuesdays and Thursdays, at half-past Eight o'clock. The other Exhibitions, &c., as usual.—Admission, One Shilling; Schools, half-price.

PATENT OFFICE, 5, CHANCERY-LANE, NEAR FLEET-STREET.

INVENTORS requiring protection by LETTERS PATENT should apply direct to the PATENT OFFICE, as above, where Patents can be speedily procured for the United Kingdom, &c., and by which a great saving of expense will be effected. CAVEATS are entered at this office, fee 1*l.* 1*s.* DESIGNS of all kinds are REGISTERED. Apply at the PATENT OFFICE, 5, Chancery-lane, near Fleet-street.

NOTICE TO INVENTORS.

OFFICE FOR PATENTS OF INVENTIONS and REGISTRATIONS of DESIGNS, 14, Lincoln's-inn-fields.—The printed INSTRUCTIONS gratis, and every information upon the subject of PROTECTION for INVENTIONS, either by Letters Patent or the Design Acts, may be had by applying personally, or by letter, prepaid, to Mr. ALEXANDER PRINCE, at the office, 14, Lincoln's-inn-fields.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1845. The Prizes will be awarded by competent judges on the 10th June, 1845. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

VARNISH.—It has long been a desideratum amongst the consumers of Varnish to obtain a good and genuine article; brilliancy, facility of drying, hardness, and durability are the qualifications necessary, but these are seldom if ever found united. The experience of a life-time devoted exclusively to the manufacture of this article, the great and important discoveries of modern chemistry, and the daily improvements in machinery, have enabled Messrs. George and Thomas Wallis to produce Varnishes (both oil and spirit) unrivalled in every respect, and they confidently recommend them to the trade, as deserving of notice both in price and quality.

Builders, Coachmakers, Painters, and others may depend on being supplied with a genuine and unadulterated article. Fine Oil Varnish, from 10s. per gallon; best White Spirit Varnish, 21s. ditto; Best Spirit French Polish, 20s. ditto; White Lead, Oil, Turps, and Colours of every description at the very lowest prices.—WALLIS'S Varnish, Japan, and Colour Manufactory, 64, Long-acre, one door from Bow-street. Established 1750.

WALLIS'S PATENT LIQUID WOOD KNOTTING. — This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; a boy can use it as well and effectually as the best workmen: it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20s. per gallon.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

Agent for Liverpool, Mr. WYLIE, 56, Gloster-street; ditto for Manchester, Mr. J. THOMPSON, Back King-street; ditto for Chester, Mr. J. HARRISON, Linen Hall-street.

ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architecture and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

MARTIN'S PATENT CEMENT.
TO ARCHITECTS, BUILDERS, AND PAINTERS IN FRESCO.

STEVENS and SON, PATENTEES and SOLE MANUFACTURERS, beg respectfully to announce that this beautiful Cement has now arrived at a degree of excellence far surpassing their most sanguine expectations. For all internal work it possesses a great superiority over every article hitherto in use; it is now being used extensively by Government in the British Museum and other public buildings. IT DOES NOT THROW OUT ANY SALT, but presents a beautifully plain and perfect surface, which may be painted upon dry work within four days without peeling. It is equally applicable for walls or lath, for mouldings, architraves, skirting, or flooring; and is admitted to form the best ground for fresco painting, having been used for many of the prize frescos lately exhibiting in Westminster Hall. It will bear an intense heat without cracking, and for hardness, durability, and economy, cannot be equalled.

186, DRURY-LANE, LONDON.

Agent for Liverpool and Manchester, Mr. R. Part, 11, Atherton's-buildings, Dale-street, Liverpool.

KEENE'S PATENT MARBLE CEMENT.—The Patentees of this composition beg to refer to the British Museum, the Royal Exchange, the new works at Bethlem Hospital, Greenwich Hospital, and the Coliseum in the Regent's-park, as buildings finished or in progress, in which Keene's Cement has been used as an internal stucco. Its superiority to common plastering consists in its extreme hardness, and the rapidity with which it dries, which qualities fit it to receive paint or other finishing sooner than other water Cement.

When employed for skirtings, architrave, and other mouldings, in place of wood, it checks dry-rot, is impervious to vermin, prevents the spread of fire, and is more economical in its application than the material for which it thus becomes the substitute.

Confirmation of these statements is to be found in the almost universal adoption of Keene's Cement for Skirting and Hall flooring in the new houses on the Hyde Park Estate, where its application is to be seen to the fullest advantage.

In Liverpool and Manchester, Keene's Cement has in several cases been used for the covering of the fire-proof warehouse floors, where its lightness and hardness give it the preference over tiles and flagging, which are much heavier, and necessarily leave the floor intersected with numerous joints, whilst Keene's Cement is laid down in one unbroken surface.

The high polish and marble-like hardness of which this Cement is susceptible render it the most suitable material for the manufacture of Scagliola.

Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

Depôt in Liverpool, 36, Seel-street; James Woods, Agent.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application to MANN and CO., SOLE AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOUR STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the suction, thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, producable by no other Paint whatever. It is cheap in its application,—and may be used by any Painter, in any climate, even in the most exposed Marine situations.

The Builder.
No. CXXXVII.
SATURDAY, SEPTEMBER 20, 1845.

THE practice common in our law-courts of referring matters to arbitration after the causes are ready for trial, has been recently severely reprobated by the press, and with great justice. "All the expenses," says the *Times*, "have been incurred, the pleadings gone through, counsel fee'd, witnesses in attendance, the judge ready, the jury in the box; and then there is enacted a grave farce,—wigs converge, some whispering goes on, some flourishes of protestation follow; and the client, *nolens volens*, is told to attend in such an evening at Mr. Emptybag's lodging; who is entirely ready and excessively willing to serve as judge and jury—for a consideration." This is specially the case with matters connected with architecture and building; so much so, particularly as to the settlement of accounts, that it seems surprising parties do not resort to reference in the first instance, and avoid the delay and additional expense caused by going into court. Our object in remarking on this subject is, not to induce parties to *refuse* to refer, because in nine of the cases out of ten to which we allude, a more just conclusion will be come to by able arbitrators than by a jury, but to point out to them the advantage of adopting this course without the interposition of a judge, the expenses of barristers, and, in many instances, a special jury. The saving of expense, moreover, is not the only advantage that will be gained by at once agreeing to refer a dispute, rather than commencing or defending an action at law. When a reference is ordered by the court, a *barrister* is always appointed referee, and that, too, without any regard to his knowledge of any thing about the matter. Generally speaking, he knows nothing about it whatever, and must depend on the statements of others rather than his own knowledge: he is necessarily unable to appreciate the merits of the case than those who does; and may be influenced by a legal trouble to commit injustice. Neither plaintiff nor defendant has a voice in the appointment, and the selection falls on Mr. Sharp or Mr. Dull, according to friendly feelings may happen to dictate: the certain hope contending parties can reasonably entertain is, that the referee so chosen may adopt the too common custom of his brethren in the same position, and "split the difference;"—a custom so general, indeed, as to have made it a mode of settlement, namely, the division of the amount in dispute, synonymous with a barrister's award."

We do not for a moment deny the ability of the English Bar,—it is as unquestionable and as great, as the insolence, *in court*, of many of its members; but it cannot be expected that one man can know every thing, and as there is an educated and able class of persons who have paid undivided attention to the one subject in question, it is from this class that referees should be chosen. We have seen evening after evening wasted, in satisfying a barrister-referee on a case which an architect in that position, would have decided of his own knowledge in a few minutes. We address these brief remarks especially to two correspondents who have asked our advice in cases of apparent perplexity, and we seriously advise them to avoid the expense and great uncertainty (under such circumstances) of the law courts, with the probability, when the expense has been incurred, that the matter will be referred to a barrister, and to assent at once to leave it to the arbitrement of properly qualified persons.

WORKS IN THE TOWER OF LONDON.

On the 14th of June, the first stone of the Waterloo Barracks was laid by the Duke of Wellington, on the site of the small armoury, destroyed by fire in 1841.* It is placed at the north-east corner of the building, and is thus inscribed:—"This first stone was laid by Field Marshal the Duke of Wellington, K.G., G.C.B., G.C.H., Constable of the Tower, and Commander-in-Chief of H.M. Forces, on the 14th of June, 1845."

Since then the works have been proceeded with vigorously, and the building is now nearly one story high throughout. The structure was originally proposed to accommodate 826 men, but recent alterations have fitted it to receive nearly 1,000. The length in front is 288 feet, and at the back 271 feet 8 inches. The width of the main building is 65 feet, but at the flanks it extends to 82 feet. The size of the principal rooms is 28 feet by 24. The floors are to be formed with iron girders and brick arches, so as to render the building fire-proof. The style of the building is castellated Gothic of the fifteenth century: the walls are faced with Kentish rag, and the dressings of windows, doors, &c., are of Anston stone. Major Hall, as chief of the engineering department, is the director of the works; Mr. W. Harrison, the contractor for masonry, brickwork, &c., and Mr. John Harrison, for the carpenter's work. The total cost is estimated at nearly 50,000*l.*

Many other works are contemplated in the Tower involving a very large expenditure. We should be rejoiced to hear that they included the restoration of the keep, known as the White Tower, which is at present a disgraceful monument of ignorance and want of taste. This interesting structure is called by many writers, "Cæsar's Tower." Shakspeare says, in Richard II.,

> "This is the way
> To Julius Cæsar's ill-erected tower."

And Gray apostrophises,

> "Julius' towers! London's lasting shame,
> With many a black ad midnight murder fed."

In Richard III., as Mr. Godwin pointed out in his "Churches of London,"† Shakspeare seems almost to discuss the question. The Prince of Wales says, when Gloster is about to send him to the Tower:—

> Did Cæsar build that place, my Lord?
> *Gloster.* He did, my gracious Lord, begin that place:
> Which, since, succeeding ages have re-edified.
> *Prince.* Is it upon record? Or else reported
> Successively from age to age, he built it?
> *Buckingham.* Upon record, my gracious Lord.
> *Prince.* But say, my Lord, it were not registered;
> Methinks the truth should live from age to age,
> As 'twere retailed to all posterity.
> Even to the general all-ending day.—Act iii., s. 1.

The present keep was built by William the Conqueror, under the superintendence of Gundulfus, Bishop of Rochester (originally a monk of Caen, and one of the best architects of his time),‡ and contains one of the very few ecclesiastical examples of the Conqueror's time at present in existence. The chapel within the keep* is near the top of it, and though ponderous and rude, is a very interesting remnant. The roof is of singular construction. It is a barrel vault composed of small flat stones fixed wedge-wise in a bed of cement; and must have been supported by a wooden framework till it acquired consistency.† This chapel fortunately escaped the hands of the barbarous cobblers, who destroyed the outside.

The Tower contains a second place of worship, the church of St. Peter *ad Vincula*, erected in the reign of Edward I., which nearly adjoins the west end of the new barracks.

Restorations have been in progress here for some time past under the direction of the office of works. The masons are now putting up a new three-light window at the west end, for the design of which we cannot give much praise. It *may* be apparently like the original window, but slight differences, almost indescribable, sometimes produce a striking change in the effect. It seems just possible that they have restored a restoration.

The tower is to be recased, and a new bell-turret constructed. This church is remarkable as the burial place of the greater number of distinguished persons who were executed for treason during the sixteenth and seventeenth centuries. We avail ourselves of the following notice of them in a work before alluded to.‡

In one place rest the remains of Gerald Fitzgerald, Earl of Kildare, the Lord Deputy of Ireland, who, being committed to the Tower on suspicion of treasonable practices, died there of a broken heart, in 1534. In another were placed the worthy, the witty, but bigotted Sir Thomas More, and his friend, Fisher, Bishop of Rochester, who were beheaded in 1535. The body of the former, it is said by some, was afterwards obtained by his excellent daughter, Margaret Roper, and was re-interred in old Chelsea Church, in the chancel of which he had caused a vault to be made some years previous to his death. Faulkner, in his "History of Chelsea," however, supposes that this could not have been the case, from the circumstance that Bishop Fisher's body, which was originally placed in the Church of All Hallows, Barking, was removed to the Tower by Margaret, in order that it might be interred according to his request, near her father. In front of the altar lies the ill-fated Anne Boleyn, the second wife of the abandoned Henry VIII.; and immediately adjoining is the resting-place of her unworthy successor, Catherine Howard; the brother of the former, George, Lord Rochfort; and the venerable Margaret, Countess of Salisbury, who was the last descendant of the Plantagenet family.

Near this group was placed the body of Thomas Seymour, Lord High Admiral of England, who was beheaded in 1549, under a warrant from his own brother, the Protector Somerset; and between the two queens lies the Protector himself, brought from the scaffold a few months afterwards. John Dudley, Duke of Northumberland, the rival of the latter, also decapitated, rests here, as do the unfortunate Lady Jane Grey, an unwilling usurper of a throne, and her husband, Lord Dudley.

Thomas Howard, Duke of Norfolk, his son Philip, Earl of Arundel, and the impetuous Essex, the favourite of Queen Elizabeth, were buried here during her reign. In 1685, the body of James, Duke of Monmouth, the profligate son of the "merry monarch," who was beheaded for high treason, was placed beneath the communion-table; and at the west end of the church, beneath the gallery, are those of Lords Kilmarnock, Balmerino, and Lovat, leaders in the rebellion of 1745. Nor should we omit in this mournful catalogue the name of Thomas Cromwell, Earl of Essex, who was originally a blacksmith's son, but raised himself by his talents to be the first minister of king Henry VIII, and was his chief agent in the overthrow of the papal supremacy. Having offended the king, he was committed to the Tower on a charge of high treason, and notwithstanding the most humble supplication for mercy, was beheaded in 1540."

* A procession was formed across the parade, having the troops on the right, to the foundation of the barracks, and which proceeded in the following order:—The chief warder, Mr. Lund, in advance, followed by the whole of the Tower Yeomen of the Guard on duty in their coronation dresses, bearing halberts, walking two abreast; Serjeant Major Howe, the master-gunner of the Tower. Then came the Government contractor, bearing the plummet, and also the clerk of the works with the mallet. Mr. Stacey and Mr. Barratt, of the Ordnance department, carrying the coins to be deposited beneath the stone. Next followed the officers of the Royal Artillery, and the Royal Sappers and Miners quartered in the fortress. Major Hall, the commander of the Royal Engineers, with the plans of the intended building, and the Clerk of the Board of Ordnance, Capt. Boldero, M.P., with the trowel. Officers of the Ordnance Department; officers of the garrison. Field Marshal his Grace the Duke of Wellington, accompanied by the Right Hon. Sir George Murray, M.P., Master General of the Ordnance. Major Elrington, Col. Gurwood, the Chaplain of the Garrison, and a staff of officers as guard of honour bringing up the rear. The Rev. Mr. Melvill offered up a prayer; coins were deposited beneath the stone, and the Duke, having first spread the mortar, finished the ceremony by striking the stone several times with a mallet.

† Vol. I. Account of St. Peter's in the Tower.

‡ He also built Rochester cathedral.

* "Dum idem Gundulfus, ex præceptis regis Gulielmi, præesset operi magnæ Turris Londoniæ." Textus Roffensis. Quoted by Mr. Gally, knight, in "An Architectural Tour in Normandy," &c. p. 225.

† "Architectural Tour in Normandy," *ut supra*.

‡ "The Churches of London."

CONSTRUCTION OF WASH-HOUSES AND OTHER SMALL BUILDINGS.

MODIFICATION OF METROPOLITAN BUILDINGS ACT.

UNDER the clause in the Buildings Act, which gives her Majesty's Commissioners of Works and Buildings power to modify any rules thereby prescribed, on the representation of the official referees that the objects of the Act would be attained better or as effectually by the adoption of such alteration, the following modification has been issued:—

Whereas the official referees have by their report in writing, bearing date the 8th day of August, 1845, certified to us, that with regard to wash-houses, privies, and other small attached or detached buildings, as offices to dwelling-houses within the limits of the Act before mentioned and referred to, it is their opinion that the rule of the said Act, in schedule C. part 7, under the head "Attached Buildings or Offices," videlicet: "With regard to buildings or offices now built, or hereafter to be built (except green-houses vineries, aviaries, or such like buildings) and that whether such buildings or offices be attached to or detached from the buildings to which they belong, every such building is to be deemed in respect of the walls thereof and all other requisites as a building of the rate to which it would belong if it had been built separately," is inapplicable to such wash-houses and other small attached or detached buildings, as offices to dwelling-houses, and that by the adoption of the modification hereinafter directed of such rule, the objects of the said Act will be attained as effectually. And whereas the official referees have also stated in such report the grounds of such their opinion, and on the investigation thereof it appears to us, the said commissioners, that such opinion is well founded. Now, we the undersigned, two of the Commissioners of Works and Buildings, pursuant to, and in exercise of the power in that behalf given to us by the said recited Act, do direct that such modification may be made in the rules prescribed by the said Act, by inserting after the rule of the said Act, in schedule c. part 7, under the head "Attached Buildings or Offices," above quoted the following words, videlicet:—

"Provided always, with regard to wash-houses, privies, and other small attached or detached buildings built as offices to dwelling-houses in reference to the external walls thereof:—

That if any such office building do not exceed in area one square, nor in height eight feet, then the same must be built of brickwork at the least of the thickness of four inches, or half a brick, except the quoins and the jambs of all door and window openings, which must be at the least eight and a half inches in thickness for a length of eight and a half inches upon every quoin and upon every such jamb, and the same must be built upon footings at the least four inches wider than the wall standing thereon.

And further that if any such office building consisting of one story, and not exceeding eight feet in height, and not exceeding half a square in area, be detached from any other building and from ground not in the same occupation to an extent equal at least to its own height from the ground, then the external walls thereof may be of any materials whatsoever.

But that every such office building must be built in every other respect in conformity with the rules and directions of the said Act."

Which modification being made in such rules, will, in our opinion, give effect to the purposes of the said Act.

As witness our hands this 5th day of September, 1845. (Signed.)

LINCOLN. } Commissioners of Works
A. MILNE. } and Buildings.

NEW EXCHANGE AT AMSTERDAM.—This building was opened with great ceremony on the 8th inst. The dimensions are much more considerable than those of the old Exchange as the following particulars will shew:—Area of the new Exchange 2,833 square ells.; ditto of the old Exchange 2,156 ditto; the new Exchange covered part, 2,043 ditto; ditto, uncovered 790 ditto; the old Exchange, covered 1,163; ditto, uncovered 987.

MAGNESIAN LIMESTONE,

WITH REFERENCE TO ITS PROPERTY AND FITNESS FOR THE COMPOSITION OF MORTAR.

THE magnesian limestone formation, from its resisting and extremely durable character, is exceedingly well adapted for a building stone, as well as for making mortar after it has been burnt to a lime, and consequently is a great acquisition for building purposes. Its hardness appears to be a mean between the extreme hardness of the granitic formation below, and the freedom and softness of the oolite above; and its superiority for architectural purposes, is moreover considerably enhanced from combining in its formation great strength, compactness of texture, and facilities for working; and it is also remarkable in checking and preventing vegetation from gathering on its surface, owing to the presence of the magnesia. This stone is found in abundance in several of the northern counties of England, where it is met with in beds sometimes of considerable thickness, alternating with the new red sandstone formation, which, in several places, lies immediately above the coal deposits; and it also appears occasionally resting upon and traversing the mountain limestones. When observed by a magnifying power, the aggregated particles of many varieties of this stone appear to have been crystallized into fine rhomboidal shapes, and, from this cause, it has generally the appearance of a very fine sandstone; indeed, it has very frequently been taken for such.

The colour of this limestone varies, being of a pale yellow, light or dark cream, sometimes having a reddish appearance, but commonly of a yellowish brown. It is slightly impregnated with silica, oxide of iron, and alumina, but is almost entirely composed of carbonate of magnesia and carbonate of lime: the relative proportions of these ingredients varies very considerably, the carbonate of lime always predominating, there being from fifty-six to sixty-five per cent. of it in combination with from thirty-five to forty-four per cent. of carbonate of magnesia. Many varieties of this stone are, in their natural state, very hard, much more so than calcareous spars, and sparks of fire are usually emitted when struck with a steel instrument.

When a piece of this stone is exposed to the simple test of diluted nitric or muriatic acid, the action of effervescence and the dissolution of its parts are extremely slow and feeble. Pure caustic magnesia, when water is thrown on it, does not become heated and fall to a hydrated powder like other limes; nor does it absorb carbonic acid gas from the atmosphere; but it has a remarkable affinity for silica. During calcination the carbonic acid contained in the magnesia is evolved with greater rapidity than it is from the lime; and when mortar is made from this lime it does not harden and indurate near so quickly as some other mortars, owing to its power of absorbing carbonic acid from the atmosphere being extremely slow; for the *lime*, having a much stronger affinity for this acid than the *magnesia* has, not only absorbs carbonic acid from the *air*, but attracts and deprives the *magnesia* of the greater part of that which it itself absorbs.

The setting property of common mortar—that made from nearly pure carbonate of lime, such as chalk—is dependant upon the slow absorption of carbonic acid; and when mortars absorb this acid with great rapidity, they do not attain to so great a degree of hardness as those which absorb it slowly and regularly; therefore from the very slow attraction between the lime made from this stone and the carbonic acid, mortars made of it become very hard and strong, and are not so liable to decay as some which are made from other limestones; for the action of driving rains and the acids of the atmosphere upon the magnesia is so slight, that it affords a powerful protection to the composition; and, in fact, this mortar usually becomes so hard, strong, and resistable, that the exposed joints are often seen projecting before the bricks and stones—where these have been worn down by atmospheric influences—the mortar being, as it were, untouched or unacted upon. After having been exposed to the action of the atmosphere, even for months together, the calcined stones will still be found in a caustic state; and owing to the great quantity of magnesia in their composition, they do not slake when water is thrown on them near so readily as those limestones which contain a superabundance of carbonate of lime.

From the magnesia in the lime having a considerable affinity for the siliceous and the calcareous sands mixed with it, during the composition the heat obtained by the admixture of water in slacking, as well as from the chemical attraction between the ingredients, causes the oxide of iron and alumina, but more especially the magnesia, somewhat to dissolve, and from the affinity already alluded to, the ingredients, while in this state in some degree enter into chemical combination with each other, and therefore these mortars possess the peculiar property of hardening and indurating when used in wet situations or under water. But still the degree of hardness to which they are susceptible of attaining is not extremely great when used in the latter situation; and if the best and most durable mortar is particularly required for hydraulic purposes, this, from the foregoing reason, is not much to be depended on without the addition of an aluminous or oxidating substance capable of improving its hardening and indurating properties.

The proportion of clean, sharp sand requisite for proper admixture with this lime depends of course on its nature and quality, and the sort of work for which it is intended to be used; but from observing the action, and from the appearance of a variety of mortars composed with this lime, as well as from several experiments which I have made with it, one part of lime to two parts of clean coarse sand appears to be the best, as also the most usual proportion for dry or damp situations; but when this mortar is used under water, the process of induration is exceedingly slow, and for this kind of work the proportion of sand to the lime should be something less than for the former purpose, or two parts of sand to one and a-half of lime.—JOHN PHILLIPS.

THE SECOND ARCHÆOLOGICAL MEETING AT WINCHESTER.*

A WAR of words has again commenced between the friends of the respective divisions. The mighty *Times* has opened its pages to the disputants, and while it banters both associations, with too little consideration if we may venture to say so, for the ability and learning which were unquestionably displayed at both meetings, leans clearly to the side of Lord Albert Conyngham's party, as comprehending the majority of the original promoters and workers. With the various statements of the two parties our readers have been long acquainted: our own opinion, too, upon the originally insignificant squabble, and the present much-to-be-regretted position of affairs, has been several times expressed; we therefore shall not trouble our readers with any remarks of our own on the present occasion, but proceed to place before them the heads of the papers read at the meeting which relate to architectural antiquities, and will at the end report briefly the ultimate result.

ROMSEY ABBEY CHURCH.

The following is an abstract of a paper on this structure by the Rev. J. L. Petit.†

This ecclesiastical edifice is valuable as presenting more completely the outline and general aspect of a purely Norman conventual church, than any building of equal dimensions in England. For although a considerable portion of the nave belongs to a later style, still, if the whole is compared with the Norman parts that remain, and we notice how carefully the later part of the work is made to harmonize with the earlier parts, it will lead to a conclusion that the dimensions and proportions intended by the original architect are preserved throughout; and in fact the whole design followed as nearly as the difference of styles would permit. The church transepts, and tower, evidently retain the original plan of elevation, changed only by the depression of roof and gables, and occasional alterations in the parapets; these are trifling when compared with those which almost every large Norman church in the country has undergone. Many have the choirs extended, or rebuilt on a differ-

* See p. 442 *ante*.

† We are indebted to the *Hampshire Chronicle* of 13th instant, which contains a full report of the meeting

plan, as Carlisle, Ely, Southwell, Selby, Christ Church, in this county, and others. Some have a large superstructure on the old choir, as Tewkesbury, Gloucester, and Norwich, which completely changes the character, even if it be accomplished with little deviation from the ground plan; and the erection of later towers, or the addition of a story to the older ones, as at Kirkstall, or of a spire, as at Norwich, however little the rest of the church may have been changed, gives the whole a totally different aspect from that intended by the builder. The church, which is cruciform, has a low massive tower at the intersection. The internal arrangement of the east end is remarkable, as it is divided by a central pier, to which a flat external buttress corresponds, having on each side of it a window. The eastern limb of the cross exceeds only by a few feet the length of the transepts. This peculiarity is almost universal in pure Norman buildings, though at a very early period in the succeeding style the part eastward of the tower was much lengthened. The choir is a fine Early-English one of seven bays. The Norman part of the church seems to have been commenced a little before the middle of the twelfth century, and it would be difficult to find a purer or more characteristic specimen of the style. The central tower was evidently open as a lantern, and must have had a fine effect; for although perfectly plain on the outside, it is ornamented in the interior with two ranges of arches, in the lower one of which may be noticed a peculiarity which shews how carefully the medieval architects studied position and point of view. Few buildings tell more plainly the story of their progress to completion. The choir, central tower, and transepts, were built in the Norman styles, which they still retain throughout, with, comparatively, a small number of subsequent insertions. The four first bays of the nave (from the tower) were also completed in the same style as high as the string under the clerestory range, though an increased number of mouldings in the triforium shew that the transition was in progress, and this was probably the limit of the actual Norman work; but probably the Norman design comprehended the whole length of the present building. The clerestory of the four first bays belongs to that style of pointed architecture called the transition, distinguished from the Early-English as retaining some characteristics of the Norman, especially the square abacus. The three western bays of the nave are purely Early-English; a very small interval of time must have elapsed between the completion of the former part, and the commencement of these. But though distinct in style, this new portion is made to harmonize as much as possible with the old. In the west front itself, the architect was altogether absolved from the necessity of conforming to Norman proportions, and how he felt and appreciated his emancipation from the restraint, he has proved by a composition not exceeded in grandeur by any structure of similar dimensions. A vast triplet of lancet windows, the principal one of which must be near forty feet in height, occupies the central compartment; these are comprised under a vide pointed arch, reaching into the gable; in the head of this arch is a cinque-foiled opening. There is no western door, there being one Early-English doors in the fifth bay of the nave (from the tower) on the north and south sides. This fine edifice is rather distinguished by massiveness and simplicity, than by profusion of ornament; yet its enrichments are not wanting either in variety of design or delicacy of execution. The corbel tables alone would form a valuable study. Romsey Abbey is a remarkable proof how readily the pure Norman and the completely developed Gothic may be made to assimilate with each other. The transition, in fact, is gradual. I have now continued the rev. gent.), after expressing my thanks for the assistance rendered me by Mr. Carter, in furnishing me with drawings, plans, and measurements, to trespass upon you for a short time longer. You will agree with me that none of our edifices have suffered more from neglect or from inadequate or injudicious repair, than our large conventual churches; and this from no fault of those to whose care they are committed, but simply from the want of sufficient funds. Such buildings as those to which I have called your attention, are national monuments, and ought not to depend upon single parishes, or the exertions of a few individuals in one locality. In the present case private liberality has done much; the fabric is now undergoing a most careful repair. If we who are assembled here in consequence of the interest we take in this and similar objects, encourage by our assistance those engaged in the work (and it has been suggested to me that a proposal has been made to this effect) we shall prove that our interest does not spring from motives of mere curiosity, but from admiration and affection; that we are in earnest when we profess to cherish those monuments which are most valuable as historical records, as developments of genius, and as legitimate aids to devotion. It is not my office now to appeal to higher feelings and motives; I rest the claim upon the mere value, as an architectual specimen, of the building in question; yet we shall not contribute the less readily from the certainty that while we are gratifying our own feelings, and presenting a suitable testimony to individuals whose work we approve, we are also conferring a benefit of the highest order. (70*l.* were subscribed in consequence.)

Mr. E. A. Freeman read a paper on

THE HOSPITAL OF ST. CROSS,

of which the following is an outline:—Interesting as are the remains of antiquity with which the city of Winchester abounds—poor fragments though they be of its ancient greatness—none, perhaps, at all equal the charm attaching to the hospital of St. Cross. Whether, among the numerous similar societies which fell beneath that spirit of sacrilegious rapacity which could not spare the very resting places of aged poverty, any at all existed which approached St. Cross in its wealth and splendour, is doubtful. It stands incomparable among its own class—the "roof and crown" of such foundations. No one can pass its threshold without feeling himself landed, as it were, in another age—the ancient features of the building, the noble gateway, the quadrangle, the common refectory, the cloisters, and, rising above all, the lofty and massive pile of the venerable church; the uniform garb and reverend mien of the aged brethren, the common provision for their declining years, the dole at the gate-house—all lead back the thoughts to days when men gave their best to God's honour, and looked on what was done to his poor as done to himself; and were as lavish of architectural beauty on what modern habits might deem a receptacle for beggars, as on the noblest royal palaces. The hospital was founded in 1136, by Henry de Blois, Bishop of Winchester, to whom also is attributed the design of the Abbey Church of Romsey. Like that church, it seems to have been built from one uniform plan, but being erected at the time when Gothic architecture was beginning to be engrafted on Romanesque, the details of the different parts of the church vary, so that, though in an inferior degree to Romsey, it affords a valuable lesson in the transition from Roman to Gothic architecture. It does not indeed exhibit some change in detail at almost every step, and some parts are apparently actual alterations, still the transition is well and plainly marked, and the idea of the whole church and many of the details are admirable. The church is cruciform, possessing, small as the building is, all the features of a conventual or collegiate establishment—that indescribable something which distinguishes the minster from the parish church: no one, even were the hospital buildings not attached, could mistake it for a mere parochial edifice. The church is remarkably lofty for its other proportions, a great merit, as I think, English buildings, of whatever rank, being, with a few exceptions, ordinarily too low. Mr. Freeman gave a minute description of the church. The eastern end, which is the most ancient portion of the building, is a fine specimen of Romanesque in all its purity and majesty. The west front is also admirable. It is well finished, with buttresses and strings, and this elegant doorway, with the splendid western window, the graceful lancets at the ends of the aisles, and the small gable lights, collectively form a most beautiful and simple composition. The west window and clerestory, all fully developed Decorated, are the latest portions of the original church, which seem to have been erected at intervals during a period of more than a century. On entering the church at any point, two particulars are observed, in which English churches are for the most part but too deficient—height and vaulting, the latter continued throughout the church. The choir and transepts are transition, and afford a vast mine of Romanesque ornament; but, where the work remains, have much more of a Romanesque character, except in the pointed pier and vaulting arches, and in the tendency to rounds and hollows in the mouldings; the abaci are still square, and all the capitals and ornamental surface mouldings retain the character of the late highly enriched Norman style. But it is very remarkable that the original Norman piers have either been cased or else removed, and have given way to huge octagonal ones of perpendicular style. The choir seems, like that of Romsey church, to have been surrounded by a solid wall as a screen. Some of the shafts are of marble, but their tints, as well as those of the ancient paintings, which seem nearly to have covered the chancel wall, are ruthlessly smothered by a dingy yellow wash. Above the pier arches is the celebrated triforium of intersecting arches, to which Dr. Milner attributes the origin of the pointed style. It becomes us to speak gently of one who, though of course far behind the present advance of architectural knowledge, was certainly far before most of his own age equally in knowledge, taste, and reverence; but it will be hardly necessary to do more to allude to this as a mere exploded theory. Probably the windows, which have been the occasion of so much controversy and theory, were merely cut through the elder openings for the purpose of giving additional light, at the same time that the roof of the aisle was lowered, most probably during the fifteenth century. In the nave the rapid progress of the transition may be easily traced. The first pier, reckoning from the east, is a half cluster, retaining the Romanesque capital and abacus; the rest may be considered as Early English, the final pier being a very graceful half cluster. The font remains in the nave, a Norman basin mounted on a later vase, as at Dorchester. The church appears to have suffered very much as to its arrangements, by being made a place of parochial worship for the parish of St. Faith, the arrangement of some of the stalls has been altered, and pews and other incumbrances introduced. The domestic buildings are said to have been originally situated on the south side of the church, and to have been rebuilt on their present site to the north, by the second founder of the hospital, Cardinal Beaufort. The most prominent objects are the noble gate-house and the hall, with its elegant windows and bold open roof. The whole retains nearly throughout an ancient air.

THE ARCHITECTURAL HISTORY OF THE CATHEDRAL

was undertaken by Professor Willis, and was looked for anxiously by those who had heard of his discourse last year at Canterbury. For the report of the professor's present remarks we avail ourselves of the notice of it in the *Athenæum* (where it appears evidently "by authority"), in preference to our own notes.

He began by regretting that Winchester had not, like Canterbury, a Gervase for its historian. The references to its early history were a few detached notes contained in two of our old chronicles, and in these cases unfortunately the name of the individual who furnished the funds was given, and not the individual who designed the building. It was his wish to compare these detached notes with the existing building, and to assign the several portions to the probable period of their erection. Much had been done in this way by the late Dr. Milner, the able historian of the city, and one of the fathers of the present race of architectural antiquaries. But Milner had still left something for succeeding antiquaries to accomplish. "I will not detain you," he said, "with the legendary history of the cathedral, but select only those parts, as I go on, which relate to the architecture of the building. The present transepts were thought by some writers to be of Saxon workmanship, but there was no portion of the edifice older than the Norman Conquest and the period of Bishop Walkelyn. The excessive rudeness of the architecture of the transepts has led people into this untenable opinion. Now we know for certain that the

centre tower of the building fell not long after the interment of William Rufus, in the choir of the cathedral, and that the tower was rebuilt immediately after this disaster. The tower-piers of the present edifice are the largest tower-piers in England; they are a great deal too large for architectural elegance and for the weight they were required to carry; and I am inclined to think that they were erected by a people labouring under a kind of panic — a people determined to erect an edifice not likely to fall for a long time to come. Now the tower that fell he believed to have been the work of Bishop Walkelyn, a Norman bishop, and this was partly confirmed by the circumstance, that the tower of Ely Cathedral, built by the Bishop of Ely, the brother of Bishop Walkelyn, fell in also, though, it is true, at a period somewhat later. But the brothers, it appeared to him, worked with the same school of masons, and probably with the same design. The plan of Bishop Walkelyn's building was preserved in the crypt of the present cathedral, and he would direct the attention of all who are curious in the progressive history of our architecture, to a careful study of this crypt—an examination easy at this time, from the liberality of the dean and chapter, who had thrown open every part and recess of the cathedral to the members of the Archæological Association. And here he would wish to call attention to a curious discovery that had been only recently made, viz., that a bed of concrete foundation, extending to a distance of about fifty feet from the western portion of the edifice, had been laid there, evidently with the intention of carrying two large towers. The limits of this concrete foundation had been laid open by the liberality of the dean and chapter, who were anxious to render every assistance in their power likely in any way to illustrate the history of their cathedral. Bishop de Lucy, who died in 1204, was the builder of the low-roofed aisles and chapel, and the east of the choir, which are in the so-called Early-English style of architecture: and this he did without disturbing the walls of the Lady Chapel, as was evident from the distinct seam of masonry between them. Hereford, Salisbury, Chichester, St. Albans, Wells, Exeter, and Romsey, afforded similar instances of the aisles to the east being lower than the choir itself. He would now make a jump from 1204 to 1370, from Bishop de Lucy to Bishop de Edington, Wykeham's predecessor in the see of Winchester. William de Edington left certain moneys for the completion of the cathedral, but no one has hitherto determined what portion of the edifice was erected with this money. The whole of the nave and of the west end of the cathedral were built either by Edington or Wykeham, and it now became desirable to distinguish the work of Wykeham from the work of his predecessor in the see. After a very careful examination of the whole of the nave for this purpose, and after an equally careful examination of the two passages in Wykeham's will, which relate to the works at Winchester, he had come to the conclusion that the great west window, and a west window in each of the side aisles, were the work of Edington. The curious observer might remark this for himself, by contrasting the coarse mouldings of Edington's work with the more delicate mouldings of Wykeham's workmanship. William of Wykeham was a very practical man, and was, moreover, the architect of his own cathedral. But Wykeham rather re-adapted the Norman work, than rebuilt the whole of the nave from the foundation. The Norman nave originally consisted of a low pier arch, a triforium, and a clerestory; the nave of Wykeham (the present nave) of a high pier arch, a balcony (rather than a gallery), and a lofty clerestory window. The difference between the two would be seen at a glance by the sections he had prepared for this purpose. William of Wykeham scraped and reduced the old Norman piers—shaped their square edges of masonry into ornamental mouldings—threw the triforium and small clerestory windows into a handsome balcony and lofty clerestory windows, producing in this way the style distinguished as Perpendicular. It would be, perhaps, sufficient evidence of this view of what Wykeham did, to refer solely to the Norman character of the masonry, so distinctly observable in the piers of the nave; but, happily for this view, there was a further and still stronger evidence in the original Norman arches of the triforium, which still remain, left there by this great architect, to strengthen and support the work he had reduced from rude strength into work equally strong, and far more elegant and graceful. From the work of Wykeham he would then pass to the choir, the work of a later period, for which there was no other than heraldic evidence, and the information derived from the study of the several eras of architecture which it exhibits."

In comparing this account of the cathedral with that by Mr. Cresy, which appeared in our pages a few weeks ago,* the main point of difference is seen to be the existence of any part of the Saxon structure. We may hereafter discuss this question.

Professor Cockerell followed Mr. Willis with some observations on

THE WORKS OF WILLIAM OF WYKEHAM.

He said, "As a professional architect, accustomed to contend with the difficulties of uniting in an extensive and therefore, necessarily a complex plan, the paramount consideration of convenience and economy of distribution with proportion and beauty, I have been ever impressed with the great merit of William of Wykeham in these respects, and with the lessons of wisdom and of taste which his works display. As the deviser of the Kings's Buildings at Windsor and at Queenborough, versed in military no less than in civil architecture, Wykeham acquired all the sagacity of an experienced tactician in the management of the accidents and advantages of site. His works at Winchester and at Oxford will well repay an attentive examination; by such an examination the architect will be enabled to appreciate the skill of a great master in the science of his art, while they reveal to him the leading motives which guided the economy and the style of monastic and ecclesiastical buildings in a very interesting period in the history of English architecture."

The professor then explained the course pursued by William of Wykeham in enlarging and rebuilding the grammer school where he received his education, and described the various portions that he erected:—

"The chapel is a very fine one. The chief ornaments of this noble chapel are the groined ceiling in wood, perhaps the most elegant specimen of groining in its day, and, at the same time, a most curious specimen of the carpentry of the period. It has been erected at greater cost and in better taste than the roof of the chapel of the same great architect at Oxford, which is a mere hammer-beam roof. We are to attribute this superiority, I presume, either to the affection of the architect for the scene of his early education or to the greater funds at his command when his college at Winchester was built, for New College, Oxford, is a building of an earlier date than the noble college in this most interesting city. The second glory of this elegant chapel is the contemporaneous east window describing the genealogy of our Saviour. Near the head of Jesse are three small figures kneeling. These three figures are in the highest degree interesting—representing, as they do, the effigies of the surveyor, carpenter, and glazier of this most noble edifice.

I wish I could extend my commendations to the small chapel and oratory at the west end of the building as you enter, and to the bell tower, built simultaneously against Wykeham's Chapel, seventy years after the death of the founder. But I cannot. These works, however tasteful they may appear in their external forms, have proved alike ruinous to the work of the founder, and the architectural reputations of all concerned. The bell-tower of this interesting chapel is now in a most hazardous condition, and will undoubtedly entail considerable expense before many years are over.

The proportions of Wykeham's chapel, at Winchester, are infinitely superior to the proportions of his chapel at Oxford. The chapel at Winchester is three diameters in length, and not quite two in height. The chapel at Oxford not quite three. I wish I could explain to you the superior beauty of the *three* diameters over the *not* quite three. The comparative drawings which I have had made for the purpose of illustration, which are open to your inspection, will best explain to you the superior beauty of the Winchester proportions,

* See p. 396.

and I shall be happy to answer, to the best of my ability, any questions which you may please to put to me on the subject of the architecture of Wykeham's College, in the college itself, which it is your intention to examine this afternoon on your way to the cathedral. The perception of proportion seems to be the last acquirement of the student of architecture. We begin by admiring ornaments, details, and forms, but it is at a more advanced state that we make all these considerations subordinate to that sense of rhythmical proportion, that harmony of dimensions, which affects the mind through the eyes, like a mathematical truth, and like a concord of musical sounds is perceived and confessed by the ear as obvious and unalterable."

It is pleasant to find the professor, notwithstanding the expressions of contempt with which he occasionally alludes to Gothic architecture from his chair at the Academy, expatiating eloquently on the genius of William of Wykeham.

Mr. E. Smirk offered some remarks on

THE COUNTY HALL.

The late Dr. Milner, and others who preceded him, have stated as a fact beyond contradiction, that the Assize Hall of Winchester had been a chapel dedicated to St. Stephen, and coeval with the king of that name, by whom they suppose the castle to have been built, and the round table of Authur made. In consequence of this current belief, a controversy has lately arisen at Winchester, and the county has been charged with the desecration of an ecclesiastical building. The object of the paper was to shew that it was an ancient hall of the castle erected, or rather rebuilt, by Henry III. The arrangement and plan of the building indicate that this was its original destination, being wholly unlike those of any sacred edifice. The windows and seats under them, and the position and form of windows shew this. Nor is it probable that so large a chapel existed where there was no collegiate or conventual establishment. The contemporary records shew that there were four chaplains and chapels in, or attached to the castle, who were paid by eleemosynary stipends out of moneys that annually came into the sheriffs hands, and there was no endowment or provision for an establishment adequate to the service of so magnificent a chapel. These presumptive proofs against its dedication as a chapel are confirmed by the Pipe Liberate, and other rolls and accounts, extending through the reigns of Henry III., Edward I., Richard II., and Henry VI., in all of which the "Great Hall" is constantly referred to and no such chapel as St. Stephen ever mentioned. The castle was probably erected by the Conqueror, and there was a hall before the time of Henry III., but the latter sovereign was doubtless the substantial founder of the present hall, which was perhaps based on the old one. Numerous entries in contemporary rolls point out the gradual progress of the work, and the expense of the carriage of stone for the columns is mentioned in detail in detached accounts. The hall was probably always used for the administration of justice. There is a striking instance in the reign of Henry III., mentioned by Matthew Paris. In the reign of Elizabeth it was in a decayed state, and underwent repairs by the corporation and the crown; and the local records of the county, which begin in the 16th century, shew its constant designation as "the Great Hall," and constant use for the purposes of assizes and sessions.

EAST MEON CHURCH, HANTS.

Was chosen by Mr. O. B. Carter for illustration. He said, a correspondent in the *Gentleman's Magazine* of 1816, states thus—It is a well-authenticated fact that Walkelyn, the cousin of the Conqueror, evinced his liberality and taste by the erection of this present fine church. Be this as it may, this parish appears to have engaged his special attention, and this circumstance may, perhaps, be accounted for by the close connection between the parish and the see of Winchester. The church, as it at present exists, presents a fine specimen of Norman architecture in its lower and principal doorways. It was evidently a cruciform structure in its original state, lighted by small windows, of which one only at present remains, and is shewn on the north-west angle of the

nave. The south aisles, both of the nave and chancel, are evidently additions in the early part of the thirteenth century, and the manner in which the communication with the south transept is effected, under the flying buttress, is worthy of notice. The east and west windows present indications, in their joint mouldings, of having been insertions of the same period, but they have been subsequently altered, and are, at present, in a very anomalous condition. The straight-sided arch of the south transept is well worthy of notice, and is particularly effective. The pulpit is of stone, and is a very good specimen of perpendicular work. It remains merely to notice the font.—It is of the same date as the fonts at Winchester cathedral, and St. Michael's church, Southampton, and is the work of the same individual. The material of these fonts has been described as black marble, but I have been informed by a competent authority that they are of blue lias. The spire is of lead, and from the character of the corbel table which finishes the tower, and is, probably, of the same date, I should assign its erection to the early part of the thirteenth century, the same date already mentioned as that of the aisles. In the south-western window of the tower is still suspended the tintinabulum or saint's bell, by which appellation it is still distinguished.

The Rev. C. H. Hartshorne contributed the following paper on

PORCHESTER CASTLE.

The natural position of Porchester rendered it eligible as an early fortress so soon as the Romans had gained a footing in Great Britain; the precise age of it is uncertain, but probably later than the works at Richborough, Pevensey, and Dover. The inhabitants of Hampshire having assisted those of Brittany in their revolt against the youthful Crassus, urged Cæsar the following year to undertake the conquest of Britain. His landing-place doubtful, but effected exactly 1900 years back. In the uncertainty as to the precise dates of the different Roman fortresses on the southern coast, it is essential to examine the modes of construction employed in the works themselves, since this plan will exhibit the close analogy and characteristic marks of Roman architecture in England, with what is observable on the opposite coast; and shew that all the military works of that age are precisely the same in their principles. The works on the coast are the earliest; and as the conquest of the country extended, the same quadrangular forms of encampment followed its progress. The foundations of these buildings, upon examination, shew them to have been laid in conformity to the rules given by Vitruvius. The towers on the walls, the modes adopted to give them stability, and the method of binding them together, by means of Roman brick, the bad building materials employed in the work, are all in obedience to the precepts of this great architect, as shewn at Leicester, Lincoln, Wroxeter, Burgh, Richborough, Dover, Porchester, and other places. The same system, in fact, prevails from Caenwent and Caernarvon to Dover and Silchester; and from Lillebonne and Soissons to Autur in France. The durability of these tiles is occasioned by the clay having been thrown up a long time previously to its being used. The more important question of cements was next entered upon, from which it appeared that by a careful analysis having been made of several, they were found to agree with the rules of Vitruvius, and, moreover, to shew that their peculiar hardness depends upon their coarseness, which hastens crystallization, and causes the latent cohesiveness of the slaked lime to be brought into action, so that the mass became more perfectly carbonated. By the application of this kind of inquiry it is proved that Porchester still exhibits, notwithstanding the continued repairs it has undergone, from the reign of Henry II. to the present day, indisputable marks of its high antiquity. But there is no connecting link between the genuine Roman work of the second century and the Norman keep of the twelfth. This keep, which was the temporary residence of King John on nineteen different occasions, gives a curious insight into the domestic inconveniences of the early English monarchs, who, when compelled to stay within doors, must have passed much of their time in murky twilight,—a gloom they tried to dissipate by the great quantity of wine that was always ordered to precede their visits. These castles were always held by constables under the crown, and garrisoned by its tenants, who were bound to perform service here during time of war, on which tenure they frequently held their estates. During the prevailing taste for the study of ecclesiastical architecture, it is to be feared that the military remains of England, which do not make the same sacred appeals for preservation, do not receive the attention that patriotism should excite, and are suffered to perish without any exertions being made to record their character. Yet they must ever be dear to the history of our country, as having been at once its terror and safeguard. Structures, it is true, that rose at the bidding of ambitious rulers, and at a time when the upper classes tyrannically repressed every exertion that aimed at extending the natural rights of society, yet are still to be preserved as the memorials of a despotism which civilization has overthrown, to shew posterity that the misery and rapine inseparable from feudalism has been transferred from bitter endurance to the pages of history, or the records of national injustice, and to teach them how dearly those privileges should be cherished which a gracious sovereign has ratified to a united people. Stained as these fabrics may be by the deeds of unrelenting and merciless men, still let their tottering walls be kept from entire destruction, were it only to afford a sequestered spot where the unlettered hind may gaze in mute astonishment and moralize, where the painter may gather up those broken lines of beauty that charm and captivate the eye when traced upon his canvas, and where the exploits of chivalry — the songs of wandering minstrels — the fictions of legendary lore — and the charities of holy men may become idealised by the creations of poetry.

Our notice of the papers read already engrosses more space that we can spare, and only leaves us room to mention briefly, that at a general meeting held on Monday last, Lord Northampton in the chair, the name of this division of the old society was changed to "*The Archæological Institute of Great Britain and Ireland*." Lord Northampton was elected president for the ensuing year, and York was fixed on as the next meeting-place. We highly applaud the committee for the alteration in the title, and trust that the two societies will now separately pursue their important objects each in their own way and without collision.

ENGLISH CARVINGS.

We have recently examined with much gratification a number of beautiful carvings by Mr. Rogers, of Newport-street; the more so because some of them are executed for a foreigner, and are to be sent to Paris. We allude particularly to the decorations of a cabinet for the new mansion of Signor Mario, in Paris. The frieze is composed of grotesques, masks, the infant genii sporting in the foliage; the tablets below have boldly sculptured trophies of the sports, shields, and monograms. Above the cornice are six Flamingo-like boys half life size, representing the seasons, &c. In another room is an enriched border for a picture, from "Spenser's Faëry Queen," 8 feet high, 6 feet wide, projecting about 16 inches; this is composed of the lightest Venetian foliage, bound together with garlands of flowers, in which are gamboling boys with musical instruments, mounted with the bust of Queen Elizabeth, and a scarf to be chased in the manner of the old Venetian work.

Mr. Rogers has addressed a letter to us denying the truth of a remark on him in the communication signed "Justice," which appeared in our columns last week. As to his personal skill in carving (a matter with which, excepting in connection with the terms of the Government competition, we should not allow any remark in our journal), Mr. Rogers remarks that he "served seven years to it with the late David Mc Lauchaulan, and therefore ought to know something about it. I have created, by my own industry during the last twenty years, a *large* business, and have been rewarded by liberal patronage from almost every capital in Europe, as well as in my own country, where her Majesty's Commissioners awarded me the most unqualified and marked approbation.

In reference to the workman whose name was mentioned as one of my best men, I *never* had a man of that name in my establishment; but in looking over my books, I find in 1837, during an excess of business, that several outdoor journeymen as supernumeraries were employed, and that *one of that name* had three weeks' work. What impression that could have made on the carvings sent to St. James's Bazaar (as their value was six or eight hundred pounds), I leave you to judge."

MACHINE FOR MAKING BRICKS FROM UNTEMPERED CLAY.

A PATENT for this purpose has lately been granted in America to Mr. Benjamin H. Brown. The following abridgment is from Mr. Keller's reports in the *Franklin Journal*.

The clay, as it is taken from the bank, is deposited in a hopper by elevators, and from the hopper it passes between two rollers, that move with different velocities, by which it is drawn through in thin cakes, and thrown on to a set of permanent teeth, and there cut up by the action of sets of teeth on a roller that works between the permanent teeth. It is then conducted by a spout into a moveable mould which, when filled, slides under a piston, actuated by a cam, to be compressed and formed into a brick, which is then discharged by a follower, actuated by another cam that forms the bed of the mould.

Claim.—"I do not claim the use of the cams for operating the pistons in pressing brick, nor do I claim the manner in which the bricks are received, compressed, and delivered; but what I do claim as my invention, and which I desire to secure by letters patent, is the arrangement of the two cams for effecting the pressure and delivery of the bricks, in combination with the pistons and moveable mould. I also claim the combination of the rollers and pins for pulverizing the clay as above described."

SETTING OUT CURVES ON RAILWAYS.

SIR,—Permit me, through the medium of your valuable columns, to express my obligation for the very useful information given by Mr. Hawkins respecting the setting out of curves on railways. Although I have never had any practice in railway surveying, yet I have taken considerable interest in the subject; it may not, therefore, be deemed presumptuous in me to offer the following method (in addition to those already given by Mr. Hawkins), for setting out a new tangent to the curve, which presented itself to me whilst investigating the formula given in your journal.

Referring to the diagram (in BUILDER, July 26th), let D be the last ascertained point in the curve from whence it is required to set off the new tangent. From A, lay off on A T a line equal to $\frac{A B + B D^2}{2 A B}$: a line from the point thus determined ranged forward through D, will be the tangent required. E. NUGENT.

Ordnance Trigonometrical Survey Office, Preston.

*** If our correspondent will reconsider the formula given by Mr. Hawkins, he will find that it is a reduction from the above impression.

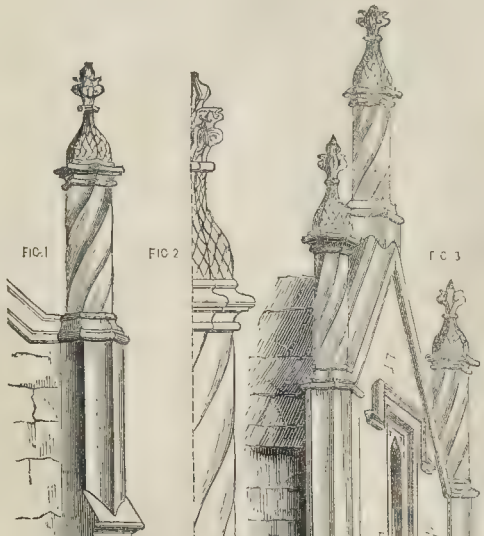
ARCHITECTS' DESIGNS.

We have received a letter from Mr. Cooper, Architect of the "Booksellers' Provident Retreat," referred to in our last number, complaining, as we had not ourselves seen the design, that we had inserted the opinion of some who had. If architects will not furnish us with information of their works, or afford us opportunities for judging of them by lithographs, &c., when published, and in some cases even neglect to reply to a polite inquiry, they must take the chance of being misrepresented in ignorance. We have yet to learn, however, that our informant's opinion of Mr. Cooper's design is unsound.

ARUNDEL CASTLE.—The Duke of Norfolk has given permission to view the exterior of Arundel castle, and the keep, on Mondays and Fridays during the season.

BARRINGTON COURT, SOMERSETSHIRE.





GABLES AND PINNACLES.

BARRINGTON COURT, SOMERSETSHIRE.

This fine example of the Tudor Gothic domestic architecture, is situated a few miles to the south-west of Petherton, in a low and woody country. The precise year of its erection is unknown; it was built by the Clifton family, who held the manor from the reign of Edward VI. to the thirtieth year of the reign of Elizabeth: it came about that time into the possession of the Phelips', who settled in this place from Wales. A third son of Sir Thomas Phelips, of Barrington, was the queen's-serjeant, who built that splendid structure Montacute House, a few miles distant.

The whole of the building of Barrington Court is of stone; the carved work of the pinnacles is of the best design, and the execution throughout is capital. The house is now occupied by a gentleman farmer, Mr. Hunt, who is very anxious for its careful preservation. The family occupy the left wing of the building; the right wing is used as a depository for cider barrels: no carved work remains in the the interior. The most curious portions are the attics, which form one large room or gallery, always a marked feature in old buildings.

The small prints, figs. 1, 2, 3, 4, and 5, are some of the details of the stone-work. Fig. 2 is the half-elevation of a pinnacle, drawn to the scale of ½ inch to the foot.

C. J. Richardson.

Saint Paul's Cathedral.—The railings of the circular gallery at the top of the dome of St. Paul's Cathedral have recently been gilded, and the effect is good, as it harmonizes with the golden ball and cross which surmounts the building.

CHIMNEYS,—BARRINGTON COURT.

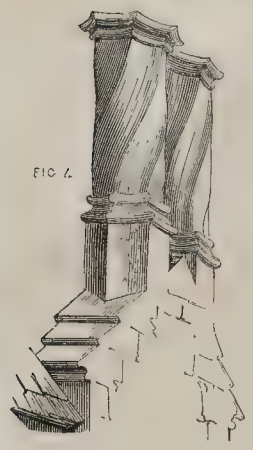


FIG. 4.

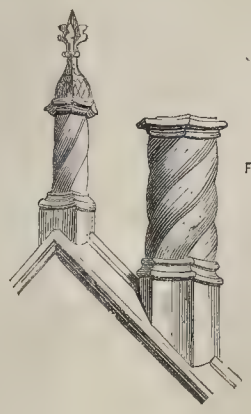


FIG. 5.

LESLIE'S PATENT FOR HEATING AND VENTILATING.

A PATENT has been recently granted to Mr. eslie, of Conduit-street, for improvements in ranging stoves and other apparatus for heat- g and ventilating. The following is the pa- ntee's own description of the engravings:—

Fig. 1 shews the section of a stove and appa- tus for heating a boiler and an oven, and so for ventilating a kitchen or room, in which ch apparatus may be employed.

Fig. 2 is a front view thereof; *a a* is the fire- ace or stove, there being no fire-bars at the ttom, the front being composed of wire-bars small diameter, and the fire-place is very allow from front to back, the back consisting fire-brick or tile, *b*, constituting one side of e oven, which I prefer to be of fire-brick or e, but it may be of cast-iron, or other suitable terial; *e* is the oven, there being a flue of e same width as the fire passing over and der it, so that the draft into the chimney es the course indicated by the arrows; *d* is oiler, the shape of which is clearly shewn, d it offers a very extensive surface to be ted by the passage of heat through the e, *e e*, from the fire to the chimney. The per surface of the boiler is suitable for a hot te, and there may be openings with suitable es, or apparatus, to have steaming appa- us applied thereto. Proper means of sup- ing the boiler constantly with water are to applied, and a cock or cocks for drawing hot water. Just above the back of the boiler pply a damper in the chimney, so as to be e to cut off or regulate the draft. The oven r may be of cast-iron, but I prefer it to be fire tile or brick, placed on one side of the n, the other side being closed; by this ar- gement a very small consumption of fuel l take place, and yet a very large frontage ire surface will be obtained for roasting or er purposes, and at the same time the oven l be in a constantly heated state suitable for ing, and a large quantity of water will be t heated to a degree to give off steam. In er to ventilate the kitchen or room in which h apparatus is set, I cause a long opening, to be made into the chimney, rising from upper surface of the boiler to the cornice eiling, which opening may be from two to r inches wide; and it will be found that by n means there will be a constant passage of air from the kitchen or room through such opening, by which any impure air will be ried off; and in order that the outgoing air not be greater than the case requires for time being, I have iron covers, shutters, or es, which may be caused to cover such ning to a greater or less extent, and such ers may be a series of doors, slides, or cters, one above the other, hinged to the of the opening, *f*, or they may be metal es moving on axes, in the character of *re* boards, so arranged that any of them may closed, or more or less open. And it will be found by this arrangement of apparatus there will be no tendency for the smoke or vapours passing up the chimney from the fire to pass into the kitchen or room, but there will be a constant draft from the kitchen or room up the chimney, which will not only carry away the products from the fire up the chim- ney, but also the air from the room or kitchen, thus producing any desired degree of ventila- tion, as well as an advantageous consumption of fuel. In constructing stoves and apparatus for heating drawing and other rooms, the same principle of arrangement, so far as the shallow fire and opening into the chimney is observed, but there being no oven or boiler there will be no tortuous descending flue as above shewn and described.

Fig. 3 shews a front view, and fig. 4 a ver- tical transverse section of a stove and appa- ratus, suitable for heating and ventilating rooms; *a a* is the fire-place, which I prefer to have as near as may be to the floor, and that the sides and back should be of fire-brick; the chimney, *g*, has an opening, *f f*, of two or more inches wide in the chimney, with means for closing or partially closing of the same, so as to regulate the quantity of air carried off by the draft up the chimney. The opening, *f*, rises to the cornice as is shewn.

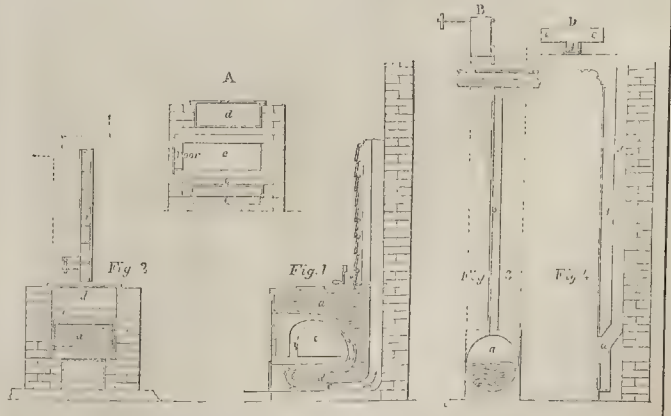
I would remark, that I have in the drawing shewn the apparatus in the plainest and most simple form, but architectural ornaments may be resorted to, both in respect to the chimney and to the opening, for the fire-place as well as for the opening into the chimney, according to the taste of the person directing the con- struction of apparatus according to my inven- tion. I would remark, that the arrangement of stove and apparatus just described will be found to offer great advantage in consuming fuel economically, giving off the largest quan- tity of heat to the apartment where it may be applied, and at the same time producing a very healthful ventilation by carrying off the impure air of the room through the long opening, *f*, into the chimney. In figs. 1 and 2, the long opening, *f*, is more or less closed by means of a series of flaps with horizontal axes, which may be more or less opened; and in figs. 3 and 4, the long opening is covered by vertical flaps as shewn. JOHN LESLIE.

A stove in Mr. Leslie's kitchen, formed in the manner described, gives an excellent roast- ing fire, a large boiler, steam for cooking, a hot plate, and an oven that bakes all the bread used in the house, for 7d. a day. As a ventila- tor, its effect is necessarily very powerful.

JOTTINGS ABOUT RAILWAYS.

THE novel means of traversing the metro- polis by underground railways has been sug- gested to her Majesty's government by a Mr. John Williams. He proposes to make a sort of system of tunnels under and through every main street of the metropolis; in which not only are two lines of railways to be laid down, but the various water, gas, and drainage pipes are to be deposited — a matter alone which he has long urged in preference to the existing practice of laying the water pipes, &c., in the earth, inaccessible except by breaking up the streets and pavements. The subways he sug- gests for the water, gas, and drainage pipes, are to be made available for a system of under- ground metropolitan railways.——The conduct of nobles is sometimes ignoble, and provokes contrasts. We lately noticed the threat of the Duke of Cleveland to treat all railway sur- veyors as trespassers; last week the Lord President of the Council, Lord Wharncliff, celebrated the commencement of the Hudders- field and Sheffield Railway by himself cutting the first sod of earth; and the Marquis of Downshire has subscribed 1,000*l.* towards the preliminary expenses of the Great County Down Railway.——The Grand Junction have very judiciously determined that a compart- ment of a first-class carriage shall in future be reserved for ladies travelling alone. The ex- ample will doubtlessly be followed by other companies.——It is rumoured that the Central Terminus Company have bought Hungerford Bridge for 280,000*l.*, being 100,000*l.* more than it cost, and are in treaty for the purchase of

HEATING AND VENTILATING APPARATUS.



A. Cross section of parts
B. Separate view of the lower flap, and rod connecting separate flaps together.
D. Sectional plan of Chimney.

the market itself as their station.— A correspondent of the *Post* has suggested that at night, or during fogs, when signals are not visible, the signal man should reply to the whistle of the engine by some sound—a large bell, for instance, giving thereby an assurance that all is right.——The *savans* of the French Academy are busying themselves with railways. M. Laborde proposes an electric telegraph, which is to tell its signals by sounds. M. Ruaux has a plan to substitute horse power for steam in locomotives.——The immediate effect of the opening of the railway to Guildford has been to reduce the price of coals 10s. per ton—an effect which has had a sensible influence in smoothing away the prejudices with which the advent of the railway was regarded. Three months ago there were three coaches between Guildford and London daily. There are now trains ten times in the day.—— Perhaps the most startling project in modern times, is the attempt to establish a *Great European Railway Company*, whose object is to supply railway accommodation to a population of *only* 236,000,000 of human beings. From their prospectus now before us, we learn that the portion of the earth comprehended in their title, covers an extent of *only* 3,700,000 English square miles. The capital required is modestly set down at 1,000,000*l*.——The committee of the directors of the Polytechnic Institution have procured the model of a novel invention recently brought from the United States; the object of which is to enable trains to ascend acclivities or steep gradients on railroads. It has an Archimedean screw between the axles of the carriage, which comes in contact, when required, with a series of friction rollers, placed between the rails; and by means of this contrivance the carriage and train attached to it are forced up the incline. The apparatus is brought into action without delay or stoppage, and in the model mounts a gradient of about 1 inch in 6. Two gentlemen claim the merit and the patent-right of the invention, the one is Mr. Coleman from America, whose model we have just described; the other is Mr. Templeton, who we understand obtained letters patent for this and other improvements in railway propulsion some time previous to those of Mr. Coleman.—— Messrs. Railton and Son, of Manchester, in their circular, make the following remarks on the prevalent rage among gentlemen of the present day for becoming railway directors in as many companies as possible. "From amongst many who eminently figure as aspirants for railway fame, we may quote a gentleman lauded in the *Hampshire Independent* as the railway viceroy, and who certainly seems as worthy of extensive fame as any literary or scientific D.D., M.D., or F.R.S.; and, if abbreviated titles of honour mean any thing, this gentleman is entitled to the following appendages to his name, as signifying the relation in which he stands to diverse railway interests:— "****** ******, Esq., T.V.M. and G.J.; D.C. of the M.B.M. and M.; D. of T.V.; W.L. or L.S. and P.; D.C. of I. of W.; M. and S.; M. and W.; L. and B.; P. and W.E and D.J.; W.M; Y. and C.; and D., and W., and L.; B.S. and B.; C.J.; F.P. and W.J. 'Tis not every mortal that is gifted with the attribute of ubiquity. Hail! more than mortal!"—— The surveys connected with the London and Windsor railway are nearly completed. We understand the line decided upon is through Knightsbridge, Kensington, Hammersmith, Turnham-green, Brentford, Hounslow, Bedfont, Staines, to Windsor, by a tunnel under the Long Walk, with an alternative line from Staines to pass by Datchet, and enter Windsor by a bridge at Black Potts.——The following is the course determined upon for the Richmond railway. The terminus will be in the Broadway, Richmond. The line will then run nearly parallel with the Richmond-road, as far as East Sheen, leaving Kew a mile and a half distant on the left. It will afterwards cross Barnes-common, having a station as near to the high road leading to Hammersmith-bridge as convenient, and running alongside the Upper Richmond-road, will cross Putney High-street by a cutting of from 12 to 18 feet in depth, over which a bridge will be thrown, to continue the old thoroughfare. This cutting will be continued to North-fields, Wandsworth, where a viaduct will be commenced, and carried across the road leading from Wandsworth to Putney, through a row of houses called Point-pleasant, across some marshy land to an extensive osier bed. Here the excavation will have to be carried 18 feet deep before a foundation can be obtained for the viaduct, and in consequence of the tides overflowing this part, it will be the most difficult undertaking on the whole line. Continuing the viaduct, a double-arched bridge will cross the Wandle, after which the works, meeting with little engineering difficulty, will be continued to their termination at Falcon-bridge, Battersea, where men are already at work. There will be stations at Putney and Wandsworth, and it is expected that the whole line will be opened on the 1st of May next.

CHURCHES AND CHAPELS, UNDER METROPOLITAN BUILDINGS ACT.

The following application and certificate serve to shew the requirements of the official referees on this subject, and may enable other parties so to arrange their drawings and statements when applying as to prevent delay. Messrs. Locke and Nesham being about to build Trinity Church, in Wenlock Barn, City-road, submitted the drawings to the referees, and asked for their certificate.

In reply to the application, the following letter, from the registrar, was received by them:—

"Gentlemen,—With respect to the proposed Church at Hoxton, I beg, on the part of the official referees and myself, to inform you that it appears to the official referees upon careful consideration of your drawings, that the spread of the concrete under the footings of the tower is too much restricted, and that you have not indicated in detail the mode of springing the walls of the tower from the inverted arch, or of abutting them against that arch; the mode of tying in the sides of the spire has not been indicated, and the northern buttresses of the tower are not shewn upon the plan as to be built from the foundations with the walls in the same manner as the other buttresses. It also appears, that timber plates are intended to be inserted into the walls of the tower, which the official referees consider objectionable, and in opposition to the rule in schedule D, part 2. It is also to be observed, with reference to the roof of the nave, that no efficient means appear to be provided for preventing the roof from spreading; and with reference to a gallery indicated on the plan, that none of the drawings submitted shew the manner in which it is proposed to be constructed. Under these circumstances the official referees request that you will be so good as to state whether you would prefer to supply the deficient information before they proceed to certify, that any conditions upon the points alluded to may be avoided in the certificate, or that the certificate should be prepared with such conditions as the official referees may deem necessary to secure sufficient strength in the construction throughout."

The builders stated that the architect preferred the official referees should add their requirements to the certificate, rather than that the drawings should be withdrawn and altered.

They further gave the following replies:—

"With regard to the detailed mode of springing walls of tower from inverted arch, that the inverted arch would be made nearly a semi-arch. The intersection being in the middle of the wall.

The sides of spire would be tied in by a strong chain bond—stone and iron. The northern buttresses would be made to project above the body of the church and not built from foundations.

The timber plates the architect will omit and carry on stone or iron corbels.

The architect considers the roof of nave not likely to spread, especially as the roof of the side aisle abuts against it.

With regard to the concrete for the tower and body of church, the architect would leave it to your discretion to award as much beyond what is shewn as you please. We herewith send you additional drawings shewing the gallery."

The following is the certificate:—

"With regard to a certain church proposed to be built in Wenlock Barn, City-road, Hoxton, in the parish of St. Leonard, Shoreditch, in the county of Middlesex, and in the district of St. Leonard, Shoreditch, within the limits of the Metropolitan Buildings Act, 7 & 8 Vict. cap. 84.

Whereas the Official Referees of Metro olitan Buildings, duly appointed in pursuance of the said Act, have received and duly considered certain particulars and drawings o the said church, submitted to them by Messrs Locke and Nesham, builders, of Theobald's road, London, copies of parts of which draw ings, representing the foundations, walls, roofs and other constructions, are hereto annexed and marked respectively A, B, and C.

Now the said official referees do hereby certify that (it being understood that no excava tions for graves or otherwise are to be made a any time within the said proposed building, o within ten feet of the footings on the outside thereof,) the heights, thicknesses, and dimen sions, shewn in the said annexed drawings, ar approved by them, except in so far as the same may be inconsistent with the following condi tions, and that the works may proceed in con formity with the said conditions and with th said drawings as modified thereby, subject, a to the soundness and sufficiency of the founda tions, and of the work in every part thereof and as to its accesses and stairs, and in ever other respect, to the provisions, rules, an directions of the Metropolitan Buildings Act and to such supervision and special supervisio as are therein prescribed in that behalf.

And the said official referees do hereby de termine and declare that the said church is t be deemed to be a building of the extra first rate of the third class within the meaning o the said Act.—Dated this 16th day of August 1845.

Conditions referred to in the foregoing certificate.

That the concrete foundations of the towe extend at the outer sides at the top 6 inche beyond the toes of the footings, and at the bas 6 inches more for every foot beyond the firs foot that such concrete foundations may be i depth.

That the walls of the tower be built of re gularly coursed and bonded brickwork or ma sonry over the concrete bed, throughout th spandrels of the proposed inverted arches a well as above the springings upon thos arches.

That the two buttresses on the north side tower be built up from the foundations, course and bonded with the walls in such manner tha no part of the superstructure shall overhan the substructure thereof.

That the sides of the tower at the springin of the spire be efficiently tied.

That no timber as bond or as plates be la into any wall upon the face of a wall, and th all beams, girders, joists, or other bearin timbers requiring a bearing upon any wa rest upon a stone template of not less leng than twice the thickness of the timber to borne.

That the bearings of the breastsummer bean of the gallery do not exceed 10 feet, unle their scantlings be increased to justify long bearings.

That some more efficient means be appli than the drawings indicate of preventing th roof over the nave of the church fro spreading."

Ventilation.—Amongst the new syste of ventilation is the plan proposed by M Wroughton, which consists of a mercur valve acting upon a spring, and opening a po tion of a window in such a way that the roo will always remain at the temperature desire and the foul air be replaced at every instant a supply of pure air from without. M Wroughton's plan is indeed but an extensi of the principle of the mercurial self-acti valve of Dr. Arnot's stove, but the appli tion of it to the purposes of ventilation new.

Exhibition at the Royal Institutio Manchester.—The exhibition of paintin this year is universally admitted, says t *Manchester Guardian*, to be the best we hi ever had. The number of pictures alre sold is eighty-three, and the aggregate amo received for them is greater than the to amount of sales last year, including even t thirty-six pictures taken by the holders prizes in the Art-Union. The exhibition is be opened in the evening at a lower rate th at present on and after the 29th instant.

WORKS IN THE PROVINCES.

At Canterbury a company is being formed having for its object the establishment of a general cemetery without the walls of, but contiguous to the city. The capital required is 15,000*l.*——The present extravagant price of gas in Wolverhampton has suggested the project of a new company, with a capital of 30,000*l.* When the situation of the town is considered, its proximity to the coal-fields, and its cheap water communication therefrom, it cannot but be matter of surprise that gas should have retained a higher price, ranging from twenty-five to thirty per cent., than what is charged in many towns of inferior local advantage.——A new corn hall has lately been opened at Bungay. The *Ipswich Express* says, it is scarcely possible to speak too highly of the liberality with which the proprietors have endeavoured not only to accommodate the persons attending the market, but also to beautify the town, by the erection of this building. Mr. Thomas Farrow was the architect, and Mr. Foulger the contractor.——The Ecclesiastical Commissioners have voted 3,000*l.* towards the restoration of the Bishop of Exeter's Palace.——Considerable progress has recently been made towards completing that magnificent and colossal undertaking the Queen's Drive, Edinburgh. The portion which runs through what was formerly a marshy meadow, and a great nuisance, is finished, and joined at the one end to the portion commencing opposite the foot of Arthur-street, and at the other end to the outlet at Parson's-green, so that the low lying portion of the carriage-way and footpath is now finished and open to pedestrians. With regard to the more elevated section of the drive, commencing at Mushat's Cairn, and terminating at St. Leonard's, the operations are in a forward state. Workmen have lately been employed in throwing down the old city wall on the west side of Bristo-street, Edinburgh, for the purpose of widening the thoroughfare in that part of the city. This old wall, which is now fast disappearing, is a venerable relict of past times, having been erected immediately after the battle of Flodden Field, and has, therefore, stood upwards of 300 years. There is still a considerable portion of it standing in the north of Drummond-street.——Extensive improvements are now in progress at Dunrobin Castle. The *John o' Groat Journal* says, when they are finished "the old castle will have to boast of some rooms as noble as any of which our southern nobility are proud. Its antique character will also be preserved; and the magnificent suite of apartments marked in the architect's plan as "The Queen's Rooms") will harmonize, at least externally, with the ancient feudal towers of Dunrobin, that have braved fully five centuries."——A new bridge of a neat and substantial character is being erected at Widford, near Chelmsford.——The new Catholic church in Coventry, the nave of which was opened for public worship about twelve months since, is now finished. The ceremony of consecration took place last week.——An attempt is being made at Yarmouth to raise by subscription 5,000*l.*, for the purposes of restoring the parish church of St. Nicholas, and of establishing a national school in connection therewith. With respect to the restoration, the committee say, "As a parish church, it is one of the largest in the kingdom, and has many parts of great architectural interest. Its present aspect is extremely melancholy, but as there is now a strong desire throughout the kingdom to render churches worthy of the high and holy purposes to which they are devoted, it is hoped that the voice of the prophet of old, which says, "Is it time for you, O ye, to dwell in your ceiled houses, and *this house* lie waste?" will now be heard, and that a building which in former ages appeared exceedingly splendid and solemn, may once more assume its pristine grandeur."——Lord Mostyn has given the munificent donation of 100*l.* towards rebuilding the ancient church at Mostyn, which has now fallen into great decay. The Hon. E. M. Lloyd Mostyn has also given 100*l.* in furtherance of that desirable object. It is proposed that the new church shall afford accommodation for 800 persons.——A temporary building in the New London-road, Chelmsford, designed for the Roman Catholic service, is nearly completed, and will shortly be opened. It is built within an enclosure, purchased for the erection of a more extensive building, on the completion of which, the present structure is to be applied to schools. ——Mr. Mason, of Exeter, is the successful contractor for the erection of the Wesleyan College, near Taunton. The contract is under six thousand pounds. It is Mr. M.'s intention to proceed with the excavation for foundations forthwith, and the buildings are to be completed by Lady-day, 1847.——The Rev. Mr. Smith is building new schools at Taunton, entirely at his own expense. There will be two rooms of 50 by 20 feet each, with sliding doors, the whole room when the doors are slid back being 102 feet 6 inches. At the southern extremity is the master's cottage, behind which are to be ample courts. The style chosen is that of the collegiate and domestic edifices, of the latter part of the fifteenth century, having large transomed and mullioned windows, and steep gable ends to the roof. The school-rooms will accommodate 420 children, and are designed for Sunday and day schools.——The old poor-house, Walcot, Somersetshire, has been purchased for the purpose of being converted into baths and laundries for the poor.—The price was 800*l.*——The new theatre at Manchester is nearly completed. The stone façade in Peter-street will be finished by the opening day, the 29th instant. The marble statue of Shakspeare, which is to occupy the niche in front of the building, has not yet arrived from Italy.——For a long time nothing has remained of Panxworth Church but the tower, standing in an arable field, a reproach to the parish and the neighbourhood. — Lately, however, efforts have been made for the restoration of the edifice; and as a comparatively small sum, 500*l.* is required, several gentlemen have resolved to raise the necessary funds. Mr. Watson, of Norwich, whose plan will probably be adopted, has offered the east window, equal in value to 25*l.* subscription. The design is in the style of the fourteenth century, with a nave and chancel.——The Earl of Ripon is rebuilding his family mansion, at Nocton, destroyed some few years back by fire.——Extensive alterations and improvements are in progress at Hatfield House. At least 300 workmen and artists are at present employed there.——The Commissioners of the Birmingham Street Act have expressed themselves in favour of the plan proposed by the Birmingham, Dudley, and Wolverhampton Railway Company, of erecting a capacious station in the centre of the town. —— The Dock and Harbour Commissioners at Leith have closed the lower drawbridge for the purpose of levelling the bridge and otherwise improving this extensive and increasing thoroughfare. The work will be one of great expense, and will, it is expected, occupy three months in the execution.——The Hull Dock Company are prosecuting their various, extensive, and highly important works with a vigour and dispatch rarely witnessed. The railway dock, the great east dock, the warehouses, the iron yards, &c., are now in course of rapid construction, and when completed cannot fail to raise Hull far above her present position.

EFFLUVIA FROM SEWERS.

Sir,—I was very pleased to observe the letter of "J. L." on the important subject of "effluvia from sewers" in your last number, and I believe that whenever this matter is taken up in good earnest, a remedy will not be long wanting to lessen, or altogether get rid of, the mischievous effects of the pestiferous gases continually rising from our subterranean drains or sewers. You are of course aware that the subject has engrossed the attention of persons connected with these matters for many years past; and with respect to the plans proposed by "J. L.," I believe the first of them can lay no claim to originality; in fact, the idea of "trapping," in connection with our street sewers, has been proposed and laid aside as futile and visionary long since. The remedy for this serious grievance appears at first sight so simple, and at the same time so effective, that no doubt it will strike some persons as strange that it has not been applied to some extent before this time. I am not prepared at this moment to assert that it has, but I am inclined to believe so. The bar, however, to its introduction, you are no doubt aware, has been the danger and serious injury that would result by the explosions and bursting of the sewers—the natural consequence of shutting the safety valves—for in such relation may the gulley-holes be considered to stand with reference to the main sewers. Your correspondent's plan, however, of meeting this difficulty is not so common, and in some measure provides a remedy for the danger to be apprehended from explosion, although here again many difficulties would present themselves in obtaining sufficient, safe, and convenient sites for the "columns," or vitiated air-flues; as they should recur very frequently, not only to insure the stability of the sewer, but also the lives of persons whose duty it is occasionally to pass through them for the purpose of examination or repair. The experiment, however, in the manner proposed — that is the combination of a system of "traps" and "columns," may, I believe, be tested without any enormous outlay; and with regard to the mode of destroying the gasses on their emerging from the columns, chemistry would lend us innumerable aids, and, I believe, might be made an index whereby to shew the amount of vitiated air consumed under the various changes of the seasons and atmosphere, and other circumstances, and which we are now compelled to inhale in our daily search after London fresh air. I am also of opinion that the system could be made more complete by the introduction of draft-creating machinery on the principle of the wind guards and ventilators. This would, I believe, prevent much of the annoyance felt at times, within doors, from the back or down-drafts in the sewers in windy weather.

Before concluding these few remarks on a subject, perhaps one of the most useful that can occupy the varied pages of your paper, let me ask your correspondent whether he has conceived, and is prepared with, the detail as regards the "traps" which he proposes to use; as on this point much of the successful working of the system would depend. These traps must of course always contain a sufficiency of water, and they must be continually replenished and cleansed, or they would in time become themselves the receptacles (in a more prominent position) for stagnant matter, and thus increase the evils which they were designed to remove. Nothing, it appears to me, would so effectually conduce to the constant efficiency of the "traps" as a small branch from the "water main," turned at will, so as to keep up a greater or less flow of water down the gulleys.

Begging "J. L." and other of your readers who take an interest in the subject to give us the benefit of their opinion thereon,

I am, Sir, &c., Συνεργος.

P.S. It just occurs to me, that reformation, like charity, should begin at home; and therefore it behoves us before crying too loudly against "*public*" sewers, to put a proper "trap" (not on our mouths only) but on our own *private* drains and cesspools; for I feel persuaded that *much* of the annoyance before adverted to proceeds (from inattention to this latter point), from the vaults and areas of our houses, and not entirely from the gulleys of our public sewers.

Σ.

Drain Traps.—Contrivances to prevent the escape of foul air from drains often fail to produce the intended effect, and great expense is often incurred in attempting to apply a remedy in the wrong place. 'The drains smell, we shall have rain,' is a common expression, but perhaps few inquire why drains send forth their peculiar intimation of a change in the state of the atmosphere. It has become the practice to trap drains where they leave the house to prevent the ingress of rats from the sewer, so that a large quantity of air is inclosed in the drain between these large traps and the smaller ones, at the sinks in the house. Now, this air being liable to expansion from various causes (among which are the diminution in the pressure of the atmosphere indicated by the falling of the mercury in the barometer, and the introduction of hot water), occasionally displaces the very small column of water in the sink-traps, and escapes into the house, to the serious annoyance of its inmates. The remedy is, to insert one end of a pipe into the highest part of the drain, so that the foul air may escape at the other extremity of the pipe, where it can produce no inconvenience.—*Supplement to the Penny Cyclopædia.*

EARLY DOMESTIC BUILDINGS.*

By the restorers of ancient architecture, chimney shafts, though necessary, were considered to be excrescences on the design. In edifices designed in forms derived from temples, theatres, and other ancient buildings, with their parapets and roofs decorated with vases, statues, and pediments, the introduction of chimney shafts destroyed, in the eye of taste, the antique impress attempted to be given to the composition. A shaft rising from the apex of a pediment, or from the cornice of a façade, or coping of its parapet, would have been an eye-sore like a cocked hat placed on the Apollo Belvidere. To avoid the necessity for this barbarous combination, the Italian architects formed the hearth recess in the internal walls, and by this disposition, brought the chimney shafts into a situation where, if they could not be hidden, they could be grouped and disguised to have the appearance of something they were not, and be thus made to harmonize better with the general character of the building. It was rarely that the hearth recess was made in an external end wall, and then it was seldom indicated by any projection. The chimney shaft was placed on the parapet as a base, or appeared to rise from a plinth or pedestal placed on the cornice or roof. At this period, when the Italians were raising palaces and villas unequalled for their beauty, the English architects, whose eye had been educated amid combinations seen in buildings of the pointed style, practised a manner of design most extraordinary in its display of magnificence in plan, and Vandalism in the taste and application of decoration. Immense windows and an absurd exuberance of frittered and pedantic ornament, made their edifices appear better adapted for aviaries, than protection from a cold humid variable climate like that of England.† In such houses, Lord Bacon said, one did not know where to be out of the sun; and maugre their great fire-places, and blazing logs, he might with equal truth have added, nor where, in winter, to be out of the cold unless one stood within the chimney. In buildings erected, from the Conquest to the close of the reign of Henry VIII., the rule appears to have been to make the hearth recess in the outer wall, and between the windows.

When three or four hearths were thought sufficient in a large mansion, their position and form were of minor importance; but when, in the progress of improvement, a chimney had to be constructed in each of a number of apartments, they became objects of much consequence, both in the interior and in the aspect of the building. The chimney stacks were arranged in two ways on the exterior, one by attaching them like towers to the walls, as at Blithefield and Costessy, the other by resting them on the parapet, as at Thornbury. The first, though not the most frequently practised, is the most ornamental. It is difficult to say which is the most ancient.‡ Single chimneys of the upper floors often rose like a column attached to the walls, supported by a corbel. The form given to the shafts was the same, whether they rested on a projection or on a parapet; sometimes they were carried up from the parapet like separate columns, in imitation of Venetian chimneys—or they were united at top by a cornice—or appeared like a group of pillars attached to each other. A third manner was practised when architects, in the reign of Elizabeth, discarded the ancient rule, and in imitation of the Italian practice, placed the hearth recess in the inner wall, and opposite, instead of between, the windows. The shafts were then sometimes made to assume the appearance of a parapet, ornamented in different ways, rising above the roof; but their shafts ceased to be so ornamental to the building as in the earlier fashion. The chimney-piece, however, in its turn became an object on which much architectural decoration was lavished.

But, if their fireplaces and windows were faulty, the sound judgment and good taste of Druell, Moston, Percy, John of Padua, Mascall, Havens, Holte, Thorpe, and other architects of this period, were, in one point, worthy of infinite praise and admiration. Feeling that houses were made to live in, as well as to look at; and that, from the nature of the climate, and habits and wants of the inhabitants, fireplaces in rooms were essential to enjoyment and comfort, they were not ashamed, like the "artists" who succeeded them, to let the chimney shafts appear in their designs, but, on the contrary, by ornament and position, they brought them forward as essential parts of the fabric, and pleasing and picturesque objects in the composition. This was in truth the period of the triumph and glory of the chimney shaft. Invention was racked for variety of form, and novelty and elegance of decoration; Doric, Corinthian, composite, and other sorts of columns, fluted, twisted, square, polygonal, and elliptical; single, clustered, and in groups; crowned with pediments, scrolls, and vanes; obelisks, altars, vases, all covered with roses, lozenges, frets, guilloches, festoons, armorial bearings, heads of monsters, initials, figures, and a host of other devices, combined with a most fantastic and capricious imagination, gave a superlative lightness, and grace, to the parapets and roofs of Tudor houses.

With the exception of regal and baronial mansions, the greater part of the houses throughout England were mostly one story high; except in towns, a two storied habitation was a mark of distinction, and were constructed of timber, but in parts of the west country, they were built of stone, and some few houses in London were of brick. This partiality for wood was, however, as much from taste as economy, for Holinshed says, they might have been built at nearly the same expense of one material as the other. In the woody districts, fabrics were strong, and so well timbered as not to have more than six or nine inches between stud and stud. But in tracts, such as the fens, where wood was scarce, no studs were used, but only "raysins, groundsells, transomes, and upright principalls, with here and there an overthwart post in the walles, whereunto they fasten their splintes and radles, and then cast it all over wyth clay to keepe out the winde," or strike them over with a rough plaster, which was afterwards whitened, and ornamented with a fine mortar, often beautified with figures and other curious devices. In other cases, instead of clay, bricks were used to fill in the spaces between the timbers; and instead of being plastered over, they were laid so as to form zig-zag, lozenge, and other simple patterns on the face of the wall. This was a very common method in Kent and Essex. They had large porches before their entrance doors, and generally one large hall, or parlour, or kitchen, the other rooms were comparatively small. Town houses, more pleasing to the painter's eye than comfortable for habitation, were built with one story jutting over the other, so that when the streets were narrow, the people in the upper stories on opposite sides of the street might not only converse with each other, but shake hands if so minded. The fashion was carried to an absurd excess; Ray saw an old house at York, of which the upper story projected fifteen feet beyond the foundation.* In towns, more especially in London, where the houses were generally three or four stories high,† they were full of rooms with low ceilings, built at random, without any thing of contrivance, having steps from one to another, and blind staircases. Although their fronts were nearly composed of glass, with the windows projecting, the apartments were dark, as if the inhabitants were afraid of light and good air, and loved to play at hide and seek.‡

The pompous mansions of the Tudor period are deplorably deficient of all that comfort and convenience arising from a plan suitable to the wants and habits of an improved state of society. The whole interior was sacrificed for a certain display in a small portion of it. In a mansion consisting of eighty apartments, as at Leckinfield, four or five rooms only, says Bishop Percy, were adapted for the use of the noble owners and their guests, the rest were cheerless cabins to sleep in, coarsely plastered and white-washed, with ill-fitted doors and imperfect glazing, or they were appropriated for offices.§ In houses of this class, the presence or privy chamber, my lady's chamber or bower, and two or three bed-rooms, form the list of what would now be called, from their finishings and furniture, habitable apartments. In the presence chamber the walls were hung to a part of their height with tapestry, or they were lined with panelled wainscot, ornamented with a profusion of carved ornaments, that often also covered the ceilings, or with stamped leather having gold devices on coloured grounds, that came into fashion in the time of Henry VIII. The doors were clumsy, and still coarsely hinged and fastened. It had shutters secured by rough bolts and padlocks.

These evils were tolerated from habit, not from ignorance, for the public was familiar with the most judicious precepts for the preservation of health, and the construction of buildings. 'For health's sake,' says Lucar, one of the neglected monitors, 'let the principal doors and windows of your house be open to the north-east, south-east, south-west. Moreover, make all the rooms within your house lightsome, of a convenient height, and of a laudable largenesse. Build in *every chamber* within your house a *chimney*. Lodge always in a high chamber, that is severed from the roofe with a floore betweene, rather than in a roome belowe, and beware you do not sleepe at any time in a close place nor upon the ground. And in no wise suffer a stable, ox stall, standing poole, filthy ditch, or stinking sink, to be neare your house or garden.'*

Sash windows, that were introduced about the time of the great fire, were very common. The upper valve was fixed, and the under one, when raised, was kept at various heights by means of a series of notches and a catch to hook into them. The next improvement, introduced with King William, is considered to be a Dutch invention. In this the under sash was suspended by a weight and line, and moved over a pully. The wood-work of these sashes was very massive and clumsy, and, from the thickness and width of the astragal, a large window had much the appearance of a portcullis filled with glass, of a very indifferent quality. The sill of the window frame was most imperfect. Shutters were common, and corresponded in clumsiness with the sashes. They had not yet, however, become necessaries in bed-rooms, except in the best chambers of great houses. Rebated doors were also another contribution to comfort at the Revolution; and carpenters now began to tongue and groove the flooring boards, which prevented persons in the chamber overhead seeing what was going on in the room under, where the ceilings were not plastered. Tongueing and groovin boarded partitions was another clever innovation which shut up a multitude of holes, that made as many crevice winds as there were deals used. When I compare, says Neve, the modern way of building with the old way I cannot but wonder at the genius of old times. Nothing is, or can be, more delightful and convenient than height, and nothing more agreeable to health than free air; and yet one would think the people of former ages were afraid of good air and light, 'whereas the genius of our times is altogether for light staircases, fine sash windows, and lofty ceilings.' And such has been of late our builders' industry, in point of compactness and uniformity, that a house after the new way will afford of the same quantity of ground many more conveniences. The contrivance of closets in most rooms, and painted wainscot, now so much used, are also two great improvements, the one for convenience, the other for cleanliness and health; and indeed for so damp a country as England nothing could be better contrived than wainscot to keep off the ill impression of damp walls. In short, for handsome accommodation and neatness of lodging, London has undoubtedly got the pre-eminence. The greatest objection to its buildings, mostly of brick, is their slightness, occasioned by the fines exacted by the landlords, so that few of the common houses are built to last longer than the ground lease, which runs from fifty to sixty years. In the meantime, however, if there happens to be a fit of excessive heat or cold, the tenant must needs be uneasy at it. The plastered ceilings also, so much used in England beyond other countries, make, by their whiteness, the rooms much lightsome and are excellent against raging fires; they stop the passage of the dust, lessen the noise overhead, and in summer time the air of a room is something the cooler for them, and in the winter something the warmer, because

* See p. 415, *ante*. Notes from Bernan's "History of Warming and Ventilating."
† Clarke's Views of Tudor Houses, and Britton's Arch. Antiquities.
‡ Buckler, Historical Account of Eltham Palace, p. 18.

* Itinerary, p. 166. † Hentzner. Travels, p. 89.
‡ Neve. City and Country Purchaser, art. Building.
§ Strutt. Horda. vol. iii, p. 101.

* Lucar Solace, p. 152.

keeps out cold air better than boarded floors can do.'*

The excellent arrangement introduced by Jones, Wren, and others into houses, greatly improved every thing connected with comfort and convenience."

Correspondence.

COLOURING FOR CEMENT.

WILL any of your practical readers oblige me, and I may say hundreds besides, with a receipt for the above purpose, that will stand in a bleak situation and not wash off? it would be a most desirable thing to know, as all I have hitherto tried only last a few months.—I am, Sir, &c., A BUILDER.

*** Johns' patent stucco *paint* is strongly recommended.

Miscellanea.

THE SMOKE NUISANCE. — Seven persons were lately fined 40s. each at the Manchester Borough-court, for not consuming the smoke of their steam-engine furnaces. It appears from report of the proceedings in the *Manchester Guardian*, that the question of the practicability of greatly diminishing, if not altogether extinguishing this evil, was set at rest by the evidence of Mr. Henry Holdsworth and Mr. Thomas Ogden, the chimneys of whose works have long set an example to the district. Mr. Holdsworth stated, and, as far as such matters can be proved in a court of justice, proved, that the means essential to an almost perfect combustion of smoke were by no means costly; that, in ordinary cases, they might be applied at a cost of 10*l.* or 15*l.*; and that the result, while it secured all that could be desired in the removal of the nuisance, was in this case attended with a saving in his consumption of fuel of not less than 18 per cent. In the three years, 1838-1840, his consumption of coal was one ton per hour; in 1841 the smoke-consuming apparatus was adapted to his furnace, and in the three following years, 1842-1844, his consumption of coal was reduced to 16 8-10ths cwt. per hour. The general accuracy of these statements impugned by Mr. Armstrong was confirmed by Mr. Fairbairn, C.E., who stated that two simple elements only were needed to ensure the consumption of smoke, a sufficiently high temperature and the admission to the furnace of a sufficient quantity of atmospheric air.

ADMISSION TO PUBLIC BUILDINGS. — We are happy to state that it is her Majesty's intention to abolish the office of state housekeeper at Windsor Castle by granting compensation to the lady who at present holds the office, and thereby getting rid of the unpopular tax upon the public in the shape of housekeeper's fees for shewing the state apartments at Windsor, which will in future be placed under the custody of the Lord Chamberlain. We feel truly grateful for this concession to public opinion, and sincerely hope that this excellent example will be followed in all public places where fees have been hitherto exacted.

HULL GLASS WORKS.—A company is being formed at Hull for the manufacture of glass. The prospectus, which is now before us, states that "the repeal of the duty on glass, and its consequent reduction in price, must necessarily occasion an immense increase in the demand for it, not only as concerns such portion of its manufacture as relates to domestic and horticultural purposes, but in the higher and more elaborate branches of its manufacture in plate and flint glass, as well as in the hitherto unknown articles of water-pipes, drains, and roofing." The capital required is 200,000*l.*, which it is proposed to raise in 10,000 shares of 20*l.* each.

MALT-HOUSE FLOORS. — Mr. Livesey, architect, of Portsmouth says, Claridge's Seyssel Asphalte, laid on a sound concrete bottom, makes the best floor for malt.

KING'S COLLEGE, LONDON. — The classes for engineering, architecture, and manufacturing art will be re-opened on Wednesday, the 1st of October next.

HOUSES OF PARLIAMENT.— Rumour says Mr. Gwilt has been appointed to examine and report on the present state of the building.

* Country and City Purchaser. Art. Building.

ELECTRICITY. —A correspondent of the *Mining Journal* states his opinion that the simultaneous and instantaneous ignition of gas lamps in cities and towns by means of electricity will ere long be substituted for the present slow and irregular method. He further states, "I confess that I am astonished that electricity has never been enlisted into the service of the *steam-engine*, when every sound reflecting mind, and clear intellect, must readily perceive that it must ultimately do away with the present employment of fuel and boilers, and their auxiliaries. I have no pretensions to the vision of the prophetic vista, when I venture to predict that the time is not far distant when the globe will be circumnavigated by the agency of electricity."

Tenders.

For building St. Mary's Parish Schools and Teachers' House, Chester; Mr. James Harrison, architect:—

Messrs. Royle and Son.....	£598
Mr. Wm. Evans	585
Mr. Wm. Andrews	575
Thomas Gill and Co.....	570

The latter was accepted.

Tower Hamlets Sewer: At the last meeting only one small sewer, in Devonshire-street, was submitted to public tender; the dimensions were 4 feet by 2 feet 6 inches, length 320 feet. The amounts were as follows:—

Livermore	£245 0
Crook	239 0
Curtis	236 10

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the execution of Works on the Dundalk and Enniskillen railway, being a distance of ten miles.

For the execution of several lengths of Earthwork on the Aberdeen Railway. There are 5 separate Contracts, varying in lengths from 3½ miles to 4¾ miles.

For the execution of works on the Manchester South Junction and Altringham Railway, in two parts: 1, being a distance of 1½ mile; 2, being a distance of 7¾ miles.

For the execution of Works on the Manchester and Birmingham Railway in 2 parts. 1. The Ashton Branch, being a distance of about 4½ miles. 2. The Macclesfield branch, being a distance of about 30 chains, including a tunnel of 330 yards in length.

For the execution of that portion of the Edinburgh and Northern Railway, extending from Burntisland Pier to Kinghorn.

For supplying the Leeds and Thirsk Railway Company with 100,000 Railway Sleepers.

For the execution of works on the East Lancashire Railway, viz., the Accrington Contract, being a distance of about 8 miles.

For the execution of that portion of the Newcastle and Berwick Railway, extending from Netherton to Tweedmouth, being a distance of about 53 miles. To be let in four contracts.

For repairing the Footways of the Streets and Public Places within the liberty of the Bishop of Winchester, Manor of Southwark on the Clink, for one, two, or three years.

For the execution of Works on the Syston and Peterborough Railway, in 2 parts: part 1 being a distance of about 9½ miles; part 2 being a distance of about 12 miles.

For supplying the Liverpool and Bury Railway Company with Sleepers, conformable to specifications.

For Re-building the White Hart Inn, at Beaminster, Dorset.

For supplying the Parish of Christ Church, Surrey, with Guernsey Granite of the best quality, and broken to a two-inch ring.

For the execution of works on the Leeds, Dewsbury, and Manchester Railway, viz., the Churwell Contract, being a distance of about 2½ miles.

For the execution of a portion of the Edinburgh and Northern Railway, being a distance of about 8 miles; to be estimated for in two lots.

For the execution of the Richmond Branch of the Great North of England Railway.

For supplying the Eastern Union Railway Company with 8 First Class, 12 Second Class, and 8 Third Class Carriages; to run on six wheels, the gauge being 4 feet 8½ inches.

For the Erection of Stone Booking-offices for Sheffield and Manchester Railway Company.

For supplying 15,000 Sleepers of Larch, 7 feet 6 inches long, and 7 feet 3½ inches at the small end; to be delivered at the Menai Bridge, Holyhead, within the next four months.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At the Ship Yard, Ipswich: a large quantity of Oak Timber and Planks, &c.

At Heytesbury, Wilts: about 4,000 feet of 1-inch and ¾-inch Oak Boards; 1,200 of 1-inch, 1¼-inch, and 1½-inch Oak Quarter Board; from 2,000 to 3,000 feet of Elm, Ash and other Board of various thickness; 900 feet of 2, 3 and 4-inch Oak Plank; 3,000 feet of Oak, Ash, and Elm Quarter and Plank, from 2½ to 4-inches thick.

At Little Bentley Hall, Essex: 1,500 particularly straight and good Larch Firs.

At the Star Inn, Fordingbridge: 670 good Oak, 286 large Fir, 19 clean Ash, 19 very fine Beech, 4 Elm, and 4 Aspen Trees.

In the brick fields adjoining the road from Folkstone to Cherrington: 56 clamps of Bricks, containing about 3,000,000.

At Wivenhoe, near Colchester: a quantity of Oak, Ash, and Elm Timber, 50 Oak and Elm Pollards, and a lot of Elm Seconds.

ERRATUM.—In our statement last week of the Tenders for erecting a New Infirmary at the Lambeth Workhouse, we affixed the sum of 1,244*l.* against Mr. Wilson's name; it should have been 1,544*l.*

TO CORRESPONDENTS.

"H. L." (London) *will find the information he wishes, on cast-iron beams, in Hodgkinson's "Experimental Researches," forming Part II. to Tredgold's "Practical Essay on the Strength of Cast-iron."*

"G. C."—*We believe that Mr. B. Green has not published any work on skew bridges.*

"Z. A." *wishes to know in what year Carmarthen Market was built, and the name of the architect.*

"J. W." (York) *must pardon us for not replying. We will do so shortly.*

"T. T." (Ringwood).—*Jeffery's Marine Glue Works are at Limehouse. By addressing a letter the information may be obtained. Evidence is strong in its favour.*

"W." (Reading).—*Dr. Guy's Ventilator is described and illustrated*, p. 21, ante.

"Thomas Smith" (Bermondsey). — *We shall be glad to know the result of the last hearing. We are disposed to think the district surveyor has no right to interfere.* Bridges *are under special supervision.*

"T. O. M."—*If it be understood that the district surveyor will permit the front ground to be built on, and the proper steps be taken, party-walls may be raised.*

"Comus."—*A beginner cannot do better than obtain "The Art of Land Surveying," by John Quested. (Relfe and Fletcher, 17, Cornhill.)*

"T. L. C." *will find Rickman's "Attempt to Discriminate the Styles of Architecture," a very useful work. Ask for the last edition.*

"T. C." (Slough).— *To fasten the canvasses together in lining old pictures, equal quantities of cobbler's paste and glue, applied hot, may be used; a few drops of creozote should be added, to prevent vegetation.*

"Mr. G." (Chelsea).—*We regret there was not time to avail ourselves of the offer.—We shall be glad to receive additional information.*

"Truth" *shall be considered. The assertions it contains should be authenticated by the name of the writer.*

"W. H. T." *will see we have availed ourselves of his note.*

"A Reader of your Publication."—*We are unable to give the direction required. If our correspondent will favour us with his address, we will write to him on the other point.*

"Self-acting Water Closet."—*We will learn for various inquirers where this can be had.*

"Dr. L."—*We will write in a day or two.*

Received. —"H. J. L;" "H. Baines;" "A Shopkeeper."

ADVERTISEMENTS.

ROYAL ADELAIDE GALLERY.—NOVEL ENTERTAINMENT.—Atmospheric Railway daily, with explanatory lecture. The New Zealand Chief, Pahe a Range, will give a course of Lectures on the Manners and Customs of New Zealand, in the evenings of Monday, Wednesday, and Friday next. Mr. Russell continues to deliver his unequalled Lectures on Character, Tuesday, Thursday, and Saturday Evenings. Lectures on Science, &c., Daily, including Major Beniowski's Artificial Memory; Beale's Rotatory Steam-engine; Roilman's Locomotive Engine for ascending inclines on railways. Every Evening a grand Promenade Concert, supported by first-rate talent, both vocal and instrumental.

TO ARCHITECTS AND BUILDERS.



The PATENT ALBERT WEATHER-BAR for simplicity and effect supersedes any thing of the kind yet offered to the public. The expense varies from 18s. to 25s. Invented and manufactured by T. WILKINSON and Co., Ironmongers, 77, Regent-quadrant. T. W. also executes all kinds of Iron-works, Staircases, Warming by Hot-water, Fitting up Stoves and Ranges of all kinds; also Bell-hanging extensively executed. Estimates given.



By Her Majesty's Royal Letters Patent.

MOREWOOD and ROGER'S PATENT GALVANIZED TINNED METAL. — This article was at first sold under the name of Galvanised Tin Plates, but the Patentees finding that the public, in some instances, overlooking the word Tin, confounded the article with Galvanised Iron, and that the character of their metal has thereby sustained injury, are desirous of giving it a name so distinctive as to prevent such mistakes, and consequent disappointment to purchasers in future. They therefore respectfully request purchasers to inquire for MOREWOOD and ROGER'S PATENT GALVANIZED TINNED IRON. In order to enable the public readily and at first sight to distinguish between the two metals, it may be well to inform them, that Galvanised Iron has a plain zinc-like appearance, while M. and R.'s Patent Galvanized Tinned Iron has a smooth crystalline surface.

MOREWOOD and ROGER'S PATENT GALVANIZED TINNED IRON, Patronized by the Admiralty and the Honourable Board of Ordnance, being extensively used in her Majesty's Dock-yards, at the Tower, and elsewhere, for every variety of Roofing, and other purposes, where a strong, light, cheap, and durable material is required.

It has been found by experience that this article is beyond all comparison superior to zinc; possessing, as it does, all the advantages arising from the strength and firmness of iron, combined with perfect immunity from rust; whilst it is free from the very serious objection which applies to zinc, viz. its contraction and expansion, consequent upon every change of temperature, and from which circumstance leakage must of course result.

This material is not likely to be destroyed by fire, as is the case with zinc and lead, which melt and run down, thus freely admitting fresh air to the fire, and causing it to burn more fiercely. It is, therefore, obviously well adapted for all the purposes above-named, and most importantly so, when there is the possibility of fire. It is also peculiarly suitable for chimney-tops, gutters, spouting, and out-door work generally, possessing the strength of iron, without its liability to corrosion. It is by far the most economical metal roofing that can be obtained, in consequence of its strength, as it may be laid without boards, and upon the lightest rafters.

This mode of preserving metal from rust does not only apply to sheet-iron, but also to manufactured iron in any form, as bolts, nuts, hinges, nails, &c. &c.

For full Particulars apply to S. HOLLAND, 34, Gracechurch-street.

PATENT GALVANISED IRON, 100 PER CENT. STRONGER and from 200 to 300 PER CENT. CHEAPER than COPPER. The Patent Galvanised Iron Company are ready to Galvanise any Iron sent to their Works, either at Millwall, London; Phœnix Iron Works, West Bromwich; Lea Brook, Tipton, Staffordshire; or Broad-street, Birmingham, and to supply Roofing, Ship Sheathing, Fastenings, Chains, Bolts, Nails, Screws, Pumps, and the endless variety of articles to which Iron, not subject to rust, may be applied. The Patent Galvanized Iron is well adapted for Roofing, especially for Tropical Climates, being cheaper and more durable than Zinc, Lead, Tin, or any other material, including weight, strength, elegance, and durability; Sheathing Ships, being not more subject to clog by barnicles, sea-weed, or oxidation than any other Sheathing; Bolts, Chains, and all Iron Work about Ships, Boats, and Steam Vessels, Miner's Implements, Agricultural and Ornamental Fencing, Rick Covers, &c. The validity of the patent was contested in February last before Lord Chief Justice Tindal, when among others the following eminent gentlemen gave evidence: — Charles Barry, Esq., F.R.S., architect, "that he is roofing the new Houses of Parliament with the Patent Galvanised Iron, and is perfectly satisfied with it." Oliver Lang, Esq., master shipwright at Woolwich dock, on whose recommendation the Admiralty have ordered H.M. steamer Sphinx, about to be built by him, to be wholly bolted and fastened with Galvanised Iron. Captain Paulter, resident superintendent of the Trinity Board Establishment, "that it is employed by the Trinity Board for their buoys, &c., and found to be perfectly effective in protecting the iron from injury at sea, the buoys retaining their colour, a point never before attained." Captain Denison, Royal Engineer, superintendent of all buildings in Woolwich and Deptford dockyards, T. H. Brande, Esq., F.R.S., Professor of Chemistry, &c., George Frederick Young, Esq., of the firm of Curling, Young, and Co., all deposed in the strongest manner to the perfect efficacy of the Company's patent process for the preservation of iron from rust. Amongst other testimonials the following certificate has been received from Lloyd's surveyors.

(Copy.)

Lloyd's Register of British and Foreign Shipping,
2, White Lion Court, Cornhill, February 7, 1845.

This is to certify that the undersigned surveyors to this society did, at the request of Messrs. Mallus and Rawlinson, examine the Patent Galvanised Iron Sheathing upon the bottom of the Mary Stewart lying at Messrs. Curling, Young, and Co.'s Dry Dock, Limehouse, and lately returned from a voyage to the Island of Ichaboe, on the coast of Africa, and found it unbroken and perfect throughout the ship's bottom, and no appearance of corrosion, or oxide of iron upon its surface. The iron that had been exposed by puncturing the nail holes had become coated with zinc; the sheathing was nearly clean and free from marine gross and animalculæ. It appears to have answered very well during the before-mentioned voyage, and the ship has sailed without its being found necessary to do any repairs to it.

PETER COURTENAY, J. H. RICHIE, JAMES MARTIN, } Lloyd's Surveyors.

Agents — Liverpool, John Hamilton, Jun., Esq.; Plymouth, Fox, Sons, and Co.; Falmouth, G. C. and R. W. Fox and Co.; Bristol, Morgan M'Authur and Co.; Gloucester, Cook and Butt; Bremen, Widow J. Lang, Son, and Co.; Hamburgh, Higson, Brockman, and Co.; Venice, F. Zuchelli, Esq.; Antwerp, W. Turner, Jun., Esq.

TO BUILDERS AND CARPENTERS.

A Considerable saving will be effected in the purchase of IRONMONGERY, by applying at F. R. WILLIAMSON'S Wholesale Warehouse, No. 35, Chiswell-street, Finsbury-square, near Whitbread's Brewery.

Best Patent Cut Clasp.

3d.	4d.	6d.	8d.	10d.	20d.
5d.	6½d.	7½d.	11d.	1s. 4d.	2s. per 1000.

Best Sheet Floor Brads 14s. per cwt.

Best Town Glue 44s. per cwt. Do. Scotch 54s. per cwt.

Best Patent Sash Line.

1	2	3	4	5	6
4s. 3d.	5s.	6s. 6d.	7s. 6d.	10s.	12s. per gross.

Elliptic Stoves, 9d. per inch. Registers, 6d., 7d., 8d. per inch. Self-acting Kitchen Ranges with Oven and Back Boiler. Wrought Bars and Bright Fittings.

3 ft., 3l. 3s. 3 ft. 6 in., 3l. 12s. 6d. 4 ft., 4l.

Lists of Prices had on application at the Warehouse; if by letter prepaid, inclosing postage stamp.

R. HENLY & Co., WHOLESALE IRONMONGERS, and MANUFACTURERS of KITCHEN-RANGES, STOVES, &c., 196, Blackfriars-road, and 117, Union-street, Borough.

Strong Self-acting Kitchen-Ranges, with back Boiler and Oven, and Wrought Bars:—

3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
3l. 6s.	3l. 18s.	3l. 16s.	4l.	4l. 10s.

Henly's Patent Improved, with back Boiler and Wrought Iron Oven:—

3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
5l.	5l. 15s.	6l. 5s.	6l. 10s.	7l.

Best Register Stoves, at 7d., 8d., and 9d. per inch.
Do. Elliptic do., at 3½d., and 4d. do.

Manufacturer of WOLFASTON'S PATENT REGISTER STOVES, a certain cure for SMOKY CHIMNEYS, and effecting a great saving in fuel. To be seen in use daily.

Orders from the Country, accompanied with a remittance or reference, will meet with prompt attention.

GOOD AND CHEAP IRONMONGERY.

CARPENTERS, BUILDERS, CABINET MAKERS, SMITHS, &c., are invited to call at G. WARBURTON and Co.'s Ironmongery warehouse, 146, Tottenham Court-road, and they will by so doing effect a considerable saving in all articles of good general ironmongery.

G. WARBURTON and Co., as a sample of their prices, beg to quote a few as under, at the same time assuring their friends and the public generally that every article will be equally reasonable.

Best Patent Cut Clasp.

3d.	4d.	6d.	8d.	10d.	20d.
5d.	6½d.	7½d.	11d.	1s. 4d.	2s. per 1000.

Best Patent Sash Line.

No. 1	2	3	4	5	6
4s. 3d.	5s.	6s. 6d.	7s. 6d.	10s.	12s. per gross.

G. W. and Co. beg also to intimate that they are just adding Tools from the first manufacturer in Sheffield to their present stock.

Observe the address, G. WARBURTON and Co., wholesale and retail ironmongery warehouse, sign of "the Padlock," 146, Tottenham Court-road, ten doors from the New-road.

RAIN WATER PIPES, Heads, Shoes, and Elbows, Half-round and O G Gutters, Sash Weights, Railing Bars, Sink, and Stable Traps and Gratings, Air Bricks, Coal Plates, &c.; Gas and Water Pipes from ¼ in. to 12 in. in diameter, with Bends, Branches, Syphons, and Lamp Columns; also Hot-water Pipes, with all the usual connections. A large Stock of the above Castings at JONES'S Iron Bridge Wharf, and No. 6, Bankside, Southwark.

MANOR FOUNDRY, CHELSEA. Cast-Iron Girders, at 8s. 6d. per cwt.; Ditto Columns, at 9s. per cwt.; Ditto Railing Bars, at 9s. per cwt.; Ditto Balcony Panels, from 12s. to 18s. per cwt.; Ditto Sash Weights, 6s. 6d. per cwt.

Estimates given for Railings, Balconies, Verandahs, and every description of Cast and Wrought Ironwork, upon application to HAWORTH and Co.'s Ironfoundry, Manor-street, King's-road, Chelsea.

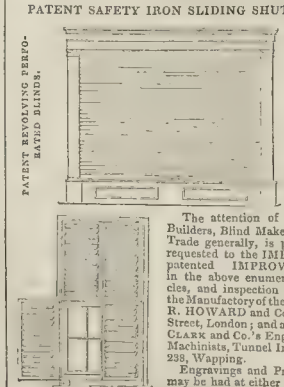
N.B.—These prices for cash only.

TO ARCHITECTS, BUILDERS, BRICKMAKERS &c., PUMPS of Superior CONSTRUCTION, bored perfectly true by improved machinery, in various plain and ornamental patterns for Conservatories, Squares, Market Places, Roads, Gardens, and for Liquid Manure. BRICKMAKERS' PUMPS, in Wrought and Cast-Iron, HYDRAULIC LIFT PUMPS, and ENGINES for Wells of any depth. SINGLE and DOUBLE PUMPS up to 12-inch bore, kept for Hire.

BENJ. FOWLER, 63, Dorset-street, Fleet-street.

IMPROVED PATENT CONVEX IRON REVOLVING SAFETY SHUTTERS.

PATENT SAFETY IRON SLIDING SHUTTERS.



The attention of Architects, Builders, Blind Makers, and the Trade generally, is particularly requested to the IMPORTANT patented IMPROVEMENTS in the above enumerated Articles, and inspection invited, at the Manufactory of the Patentees, R. HOWARD and Co., 115, Old Street, London; and at PATRICK CLARK and Co.'s Engineers and Machinists, Tunnel Iron Works, 238, Wapping.

Engravings and Prospectuses may be had at either address, or will be forwarded on application.

R. W. PIPES.

Messrs. NEILSON and MITCHELL beg to inform Builders that they have always on hand, at their premises, 15, Wharf-road, City-road, a large assortment of R. W. Pipes, Guttering, Sash-weights, &c., which they are disposing of at very low prices.

Castings of every description done to order.

BALLUSTERS.

IRON FIRE-PROOF SAFES.

BANKERS, MERCHANTS, and Others, are respectfully requested to inspect the new Patent Chemical Compound double filled Wrought Iron Fire-Proof Safes, with Tann's improved Patent Reliance Locks, which for security against fire or burglars, are far superior to any yet offered to the public. — To be seen and had of WM. BAILEY and SON, 71, Gracechurch-street.

PATENT WROUGHT NAILS.—These Nails are submitted to the Notice of Builders and Contractors as being superior to any others, and cheaper. They have the toughness of the best hand-made nails, with far greater uniformity of make. The flat-pointed Rose Nails are particularly recommended wherever oak or other hard wood is used; being perfectly chisel-pointed, they require no boring, and will drive into the hardest wood without splitting it, and their heads being very strong, do not fly off. The Patent Wrought Nails may be had of all Wholesale Ironmongers; and an ample stock of them is kept at the Warehouses of the Agents.

HIGGS and GEORGE, 179, BOROUGH, LONDON.

TO BUILDERS, CARPENTERS, &c.

WILLIAM YOUNG and Co., 194, Oxford-street, have made a reduction in IRONMONGERY. The following are their present prices for cash only:—4d. Patent Clasps, 6½d. per 1,000; 6d. ditto, 7½d. per 1,000; 10d. ditto, 1s. 4d. per 1,000; 20d. ditto, 2s. per 1,000; Lath Nails, 12s. 9d. per cwt.; 2-inch Rain Pipe, 1s. 3d. per yard; 2½-in., 1s. 5d. ditto; 3-inch, 1s. 8d. ditto; Sash Line, 6s. 6d. per dozen; Sash Weights, 7s. 9d. per cwt.; 2-inch Cast Butts, 1s. 1d. per dozen; 2½-inch ditto, 1s. 5d. per dozen; 3-inch, 2s. 1d. per dozen; 6-inch Rim Locks, 18s. per dozen; Mortice Locks, 36s. per dozen. Every other article same rate of prices.

PROSSER'S EXPERIMENTAL RAILWAY AND BURNETT'S PATENT.

THE attention of Railway Companies, Builders, and others, is respectfully called by the Proprietors of Sir William Burnett's Patent to the Wooden Rails laid down at Prosser's Experimental Railway on Wimbledon-common; part of which, having been prepared by their process, in addition to being effectually preserved from Dry Rot, will be found to exhibit all the characteristics of thoroughly seasoned timber, although only cut down in the month of May last, and prepared while in a perfectly green state. Hydraulic apparatus and Tanks. Millwall, Poplar, nearly opposite Greenwich; Offices, 63, King William-street, London-bridge.

SUSPENSION BRIDGES.

ANDREW SMITH'S PATENT GALVANISED WIRE ROPE and CHAIN SUSPENSION or PARABOLIC TENSION BRIDGES, are so constructed that the lateral oscillation and vibration (so destructive on the ordinary suspension principle) are entirely prevented by this improvement. For deep ravines or cuttings, the Parabolic Tension Bridge costs much less than those on the suspension principle—and, &c., being entirely dispensed with. Drawings and models may be seen, and all necessary information had, on application at the offices, 69, PRINCES STREET, LEICESTER SQUARE; WHITE LION COURT, CORNHILL; or MILLWALL, POPLAR.

CHUBB'S PATENT WROUGHT-IRON AND FIRE-PROOF SAFES AND DOORS.

C. CHUBB & SON have constantly on Sale a large stock of very superior Wrought Iron Fireproof Doors and Frames for strong rooms or closets, and Safes and Chests of all dimensions, and which from their arrangements in manufacturing they are enabled to sell on such terms as will meet the approval of Architects and Builders. The whole are fitted with the new Patent Detector Locks, throwing from three to ten bolts.

Caution. As several imitations of the above are offered for sale by different makers, Architects, Builders, and the Public are respectfully informed that no Ironmongers, Smiths, or Brokers are supplied with the above Doors or Safes; and that they can only be obtained direct from C. Chubb & Son, 57, St. Paul's Churchyard, London.

TO ARCHITECTS AND BUILDERS.

COLLINGE'S PATENT HINGES.—Sole Manufactory, 64, BRIDGE-ROAD, LAMBETH, where a great variety are always on view, for Church, Park, Coach-house, and all other Doors and Gates, of large or small dimensions, a gate of a ton in weight moving with these hinges as easily as a cricket; they are also admirably adapted for drawing-rooms, being highly ornamental, and folding-doors fitted with them may be removed and replaced in an instant. Rising and spring Hinges, also double-action Butts on the most improved principle, and very superior Fastenings for exterior Gates, at moderate prices. To be seen at Charles Collinge and Co.'s Patent Axletree, Sugar-mill, and Spherical-hinge Manufactory, 64, Bridge-road, Lambeth.

BUNNETT AND CORPE,
ENGINEERS,
26, LOMBARD STREET, LONDON,
AND AT THE WORKS, DEPTFORD,
Patentees and Sole Manufacturers of the
REVOLVING IRON SAFETY SHUTTERS.
METALLIC SASH-BARS, MOULDINGS, ETC., IN BRASS, ZINC, OR COPPER,
FOR
SHOP FRONTS, WINDOWS, SKYLIGHTS, &c.
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And all kinds of Metal Work executed to any Design.
Estimates given for Patent Iron Shutters, Metallic Shop Fronts, Sashes, &c., Glazed complete, with best Plate Glass, in any part of the kingdom.
METALS ROLLED OR DRAWN FOR THE TRADE.

The Builder.

No. CXXXVIII.

ATURDAY, SEPTEMBER 27, 1845.

EVERY architect in practice has cause to complain of the want of skilful and earnest operatives,—men who understand the trade they profess to practice, find pleare in the exercise of it, and are anxious to oduce good work. We have, before this, mmented on the decline apparent in many of e constructive arts, and shewed that it proeds from excessive competition, which inces the master to require a certain *quantity* work from a man without reference to its ality: he cannot afford to develope a man's ility, but demands the greatest amount of rk in the smallest space of time: "superior rk wont do; work that will pass is all that can hope to give;" and the natural result that our workmen, as a body, have gradually ost their cunning," and that the majority operatives now employed are incapable of ecuting work which is at all out of the mmon way. Our bricklayers and smiths ord the most striking example of this dene; the old enthusiasm, which still lingers, ough feeble, amongst other trades, especially th the masons, seems to have departed from em: they do their work as mere labourers, d have no pride in the result. There are, course, many clever exceptions; but we eak of the mass. Very glad should we be we could induce a different feeling on the bject, at all events in the minds of the *rising* eratives, and induce them to strive to excel, d to find their chief pleasure in the exercise d exhibition of their skill. The earnestness the ancient workers is figured in the followg curious passage from the "Apocrypha:"

"The smith sitting by the anvil, and considering the ironwork, the vapour of the fire steth his flesh, and he fighteth with the heat the furnace: the noise of the hammer and e anvil is ever in his ears, and his eyes look ll upon the pattern of the thing that he keth; he setteth his mind to finish his work, d watcheth to polish it perfectly."*

It has been justly observed that, there is thing so inconsiderable which may not come of importance when made an object of ious attention. An operative who applies intelligent mind resolutely in the practice his craft, elevates both the craft and himself, d will pass a much happier life than one who dges through his day's work without exement or feeling of interest.

To insure improvement in the constructive s, it is of importance to obtain for the able l ingenious artisan a better place in society n he now holds. The intellect required is ch greater than is wanted to form a very art shopman, for the disposal of goods from ind a counter,—yet in the opinion of the rld, the former holds a much inferior place he latter, and is excluded from society to ich the other would be admitted. This is as it should be, and we would anxiously st in bringing about a change of opinion in respect. As matters now stand, an intelli-t, well-informed youth has no inducement to ly himself to the practice of the constructive , as instead of gaining position by so doing, he will lose it, and the course is therefore left to men of less ability and lower grade.

We should be right glad to see all the master-builders following the good example set by a few of their body, and taking every means to increase the comforts, and raise the character, of the operatives in their employ. They would themselves find advantage in it, and we earnestly call upon them to commence the attempt forthwith.

To workmen we would say,—put your own shoulders to the wheel; become masters of your trade — artisans, not mere labourers — artists if you can, able to give a "because" for a "why,"—make your work your pleasure. An upright man who will do this cannot fail to rise, and better still, will pass a more useful and happier life, other things being equal, than one who has not pursued this course. Able workmen,—men with heads on their shoulders, are not plentiful, and are far two valuable to be disregarded. Notwithstanding an old writer says:—

"A cunning workman fine in cloister close may sit,
And carve and paint a thousand things, and use both art and wit;
Yet wanting world's renowne; may 'scape unsought or seene:
It is but Fame that outruns all, and gets the goale I weene;"

Such a workman may depend on securing remunerative employment, the good will and respect of his fellow citizens, and the applause of his own mind.

ST. MARY REDCLIFFE, BRISTOL.

THE restoration of this justly celebrated parish church is now to be commenced in earnest. Tenders for certain portions of the work were opened last week by the committee, and those of the following local tradesmen were accepted:—Wilcox and Sons for excavator, bricklayer, and mason's work; Griffiths for carpenter's work; Fears for plumber's work; Edbrookes for smith's work; and Parkers for glazing. The ground is to be lowered all round the church, and a system of drainage introduced; the chancel is to be new roofed; the east window, long since bricked up, is to be opened, and the external masonry of this end of the chancel with certain parts on either side from the bottom to the top, including some of the beautiful flying buttresses and pinnacles, is to be wholly renewed. We sincerely hope that the masons will now never leave the ground till the whole building is restored, and the finial affixed to the spire which is to crown the glory of this noble pile. Mr. A. B. Hope, M.P., suggests that a separate subscription for the tower and spire should be made, and has forwarded a donation in furtherance of it.

Over the altar screen of the church as some of our readers will remember, there are three large paintings by Hogarth, "The Ascension of Christ," "The three Marys at the Sepulchre," and "The High Priest and Servants Sealing the Tomb." Being quite out of place here, though very valuable as rare examples of the master in a different line of art from that which he generally pursued, it is to be hoped they will be purchased for some public institution, and the proceeds applied to restore the ancient altar-screen, now hidden by a *pseudo* classic composition, and to bring into the general view of the church the lady-chapel, seen through the Gothic panelling of the screen.

These pictures were put up in 1755, at an expense of 76*l.** It is worth remark that, if instead of expending this sum in a manner not consistent with the character of the church, the money had been invested and the interest allowed to accumulate, it would now amount to 50,000*l.*, or more than enough to restore to the whole church its original stability and beauty, and give to modern Bristol one of the most perfect and noble monuments in Europe.

This fact might be usefully reflected on by committees in the present day. A similar statement will perhaps be made fifty years hence (or less), when subscriptions are solicited to defray the cost of restoring the homogeneity of St. James's church, Piccadilly, by taking out and changing the stained-glass window which they are now about to erect there at an expense of a thousand or two pounds. Further, they will say, this was done by the men who called their grandfathers barbarians, for placing Italian fittings in Gothic churches, and spent enormous sums of money in correcting the mistake, and rendering their ancient buildings in some degree consistent! It would seem after all, that we are little wiser than our forefathers.

THE EVIDENCE OF ITALIAN INFLUENCE UPON ELIZABETHAN ART.

THE increased desire for the preservation of national antiquities must afford extreme gratification to all in whose pursuits the science of archæology takes part. The historian, and archæologist, and the lover of the picturesque, now represent a large section of the people, whose interests, and whose tastes, not less than those of the agriculturist, or the manufacturer, might fairly demand recognition, and aid from Government. That there is no national institution, by which the rapid course of decay and spoliation, may, at once, be put an end to, is in truth a national disgrace, and the occasion of losses irreparable, made manifest in the continuance of much uncertainty in points of social and political history. Works of art are the archives of a country, of which the annals of history are impressions; whilst as the "exponents of national character" and manners, they are the crystallizations of thought, and the silent teachers of instructive lessons.* If the remains of churches and monastic buildings are valuable, and interesting for the light they shed upon the religious element of the state; the examples of domestic architecture give the picture of that history, which of all others is supremely valuable, least understood, and most in need of such illustration,—the history of social life. Therefore it is deeply to be regretted, that the hand so often stretched out, successfully, for the preservation of a parish church, has been withheld from the less conspicuous, but not less important castle or manor-house.

It is not our intention to give a history of domestic architecture in England, though in its connection with political events, and with the economy of private life, it would afford a most extensive field for research, and illustration. But, there was one period in the history of England, of which, more than any other, we can say, that we feel the influence; an age, in which literature was in an extraordinary state of brilliancy,—the truly glorious period of English history; and at that epoch it will be interesting to examine into the influence of architecture, of literature, and politics, each upon the rest.

The time of Elizabeth is one, which, viewed in every aspect, stands boldly conspicuous. The resistance of liberty to foreign aggression, and to papal influence, was then most powerfully developed, and the country placed in a high position in the scale of European nations. Literature and art shed a halo round the court of the British Gloriana: Shakespeare, Jonson, Spenser, and Sidney were the great "not for this age, but for all time." The link between the chivalry, that had gone before, and the refinement, that was to succeed; the Elizabethan age was the creation of most, that, at this day, we contemplate with pride, as Englishmen, and with gratification, as lovers of literature and poetry. The state of the art of architecture of that day was singular, yet, in some respects, prosperous. The building of palaces was a passion, singularly prolific. The settled state, into which the kingdom came after years of bad government was a circumstance favourable to the display of genius, and to the appreciation of its works. At this juncture, it will be our object to consider what circumstances, in the state of art and literature, were mutually influential, and are explanatory of each other.

The earliest remains of English domestic

Ecclesiasticus, c. xxxviii. v. 27. Written about 200 years re our era.

* Hogarth received for them 52*5l.* The frames and fittings swallowed the remainder.

* *Vide* "Architecture—the Exponent of National Character," p. 433, *ante*.

architecture, were rather strongholds in time of war, than buildings, which represent the usual residences of the *people*. The most ancient of such fabrics, traceable in this island, are the circular towers raised upon a mound of earth—which was either natural, or artificial—with little provision for convenience, but ingeniously contrived for defence. Many of these remain in Scotland, and Conisborough Castle, Yorkshire, and Castleton Castle, Derbyshire, are examples in England. Both these were inclosed by a court or ballium, with a fortified entrance, as usual in Norman fortifications; though it has been thought, that these castles were erected at an earlier date. In the next stage of progress, the keep was relinquished, as a place of residence, except during actual siege; whilst more convenient apartments were constructed over the great gateway, which led to the inner ballium, or courtyard, as at Tonbridge, in the thirteenth century. Subsequent to this arrangement, were the Edwardian castles, of which Caernarvon and Conway, in Wales, are examples. In these, the keep was done away with, or rather expanded into a circuit wall, which contained the apartments, and was fortified with towers, at short distances. The next step was to the castle-palace, leaving us the older parts of Windsor, Alnwick, and Warwick. These belong to the fourteenth century, and shew the progressive desire for comfort and elegance, induced by the cessation of the baronial wars. The long slits, which, except in the upper story, had been the only windows, were often replaced with larger, and more splendid openings, as in the halls. Haddon Hall, Derbyshire, is an example of a castellated house of the fifteenth century, in which convenience was greatly considered; and which, though fortified in the gate-house, and other parts, was almost powerless to resist a protracted siege; though during the Parliamentary wars some of them were successfully defended. Succeeding these were the quadrangular houses of the time of Henry VII., in which the old form of buildings, surrounding a court, was still preserved, as indeed, in many parts of the country, it was till a very late period.*—In the fifteenth century, the arrangement of the house was of the most simple character. An entrance passage, with a hall on one side, a parlour beyond, and the kitchen and offices opposite, and an upper story of dormitories, such was the ordinary manor-house of this century, and the sixteenth. There were few articles of furniture, or other conveniences. Of less important habitations the records are very scanty, but leave no doubt as to the slight adjuncts to convenience.—Timber was the ordinary material for a very considerable period; the earliest houses being, each a huge frame, independent of walls, resembling the inverted hull of a ship, and forming, as it were, the skeleton of a Gothic hall. The principal beams, springing from the ground, curved, forming a Gothic arch overhead; and the intervals of these were filled up with horizontal planks. At a later period, the *hull* was raised on walls, the intervals of the woodwork being filled with stones, or plaster, and strengthened by braces. In the reign of Henry II. stone had sometimes been used, but probably merely loose rubble, cemented. Brick was introduced, early in the fourteenth century, probably from Flanders; but did not come into general use till the reign of Henry VI. During the reign of Edward IV. brick was much employed; but there are few buildings remaining of the fifteenth century. However, at Eton college, and some other places, are portions in brick;—it was most used in the eastern counties. In interiors, walls were commonly bare, without wainscot or plaster; though some great houses had hangings, subsequent to the time of Edward IV. Plate was uncommon, and all other conveniences were of small number. Larger structures than these were built by men of property, during the reigns of Henry VI. and Edward IV., but few are traceable much higher; and it would be difficult now to name a house—not castellated—older than the time of Henry VII.; though it is true that fragments of doors and windows are found, of earlier date.

* Hulme Hall, Manchester, was an example of a late half-timbered house, surrounding a court.

The accession of Elizabeth took place in 1558, and it was subsequent to this period, that a vast majority of the residences in England were erected. The style of building as we have seen, had regularly progressed, influenced, only in such features as we should expect from the usual adaptation, to circumstances, of material and convenience; being in fact the castellated, or domestic variation from the ecclesiastical architecture. But a new ingredient was now to alter the whole face of architecture; applied rather in the mansion than in the church, but producing a revolution, the effects of which have never been entirely got rid of. By what circumstances was this change occasioned?

Flanders had probably, considerable influence upon the style of architecture of Henry VIII.'s reign. Brick had been imported from that country, and Holbein was the architect of many important buildings. The connection of the two countries was intimate, and continued so under Elizabeth. Gardening, by which we may understand flower-gardening, was introduced from the Netherlands about 1509; the previous gardens in England, being formed of arbours, hedges, and trees. But, what most of all led to the change in taste, was the extinction of the old style of architecture by the Reformation. Its ecclesiastical semblance was done away with, during a period, in which no churches were erected. The art had small means of displaying itself, during the progress of calamities, which made the name of religion a pretext for massacre. Elizabeth was hailed as a deliverer, and the progress of society received a new impetus. Men looked to the future, rather than back to the forgotten past, and were in this state, best calculated to receive new impressions. The first half of Elizabeth's reign was too much occupied in the cares of Government, to find room for other matters; but that period over, the age commenced, of which no Englishman can ever think without pride, and admiration.

The influence of Italian architecture in England, was soon apparent in the numerous palaces, erected at this period. But, it was not only the influence of architecture, but also that of Italian literature, and manners, which accompanied, or rather created the first.—In Italy, during the *fifteenth* century, domestic architecture had not attained the elegance, which might have been expected from a people, usually so attentive to the refinements of life. In several towns, the houses were covered with thatch, so that fires were of common occurrence. But the change was not the less rapid, and complete. Costanzo, a Neapolitan historian, writing towards the close of the sixteenth century, remarks upon the change of manners, since the time of Joanna II., 150 years before. The chief families had expended all their wealth upon their retainers; and the house of Caracciolo, high steward to the queen, having fallen into very inferior hands, had to be enlarged, being insufficient for customary accommodation.* But there is no reason to doubt, that before the reign of Elizabeth, churches, and houses in Italy alike exhibited that splendour which is now the admiration of Europe, and could not fail then to make a lasting impression upon travellers, and would be imitated by them in their own countries, at least, wherever the national architecture, through any circumstances, had fallen into comparative disuse. But, it is also necessary to consider, whether other circumstances may not have exerted an influence upon the architecture of England, leading those who were about to build, to desire a style of architecture, reminding them of the literature, with which they had already become familiar.

The general spirit of the fifteenth century, was one of decided progress.† Education was cultivated, and academical foundations instituted in England. In Italy, the Italian language gained great elegance, and the Medici were the munificent patrons of art, and letters. Printing was invented; and architecture was never in a more prosperous condition. Albert Durer was born 1470, Holbein in 1498; in Italy, Michael Angelo in 1475, Giorgone in 1477, Titian in 1477, Raphäel in 1483, and Correggio in 1494. In the commencement of the sixteenth century, these remarkable me drew to Italy the eyes of Europe, and be fore that time, the peninsula is known to hav had direct influence, upon Gothic architectur in our own island. The love of travelling i the sixteenth century, the fame of Italy, c her poets, and the splendour of her art added to the eminence of the universitie of Bologna, Pisa, Padua, and Pavia, fille Italy with visitors. New colleges, designe and erected in a sumptuous style, atte the increasing love of letters and of ar Collections of antiquities were formed, an the study of numismatics became commo The obligation of a new prelate, to vis Rome, and the journeys to that city, of man of the clergy, in the hope of emolument a the seat of patronage, had contributed to th general knowledge of Italy. As early as th latter part of Henry VIII.'s reign, Sir Thoma Wyatt, and the Earl of Surrey, who had tra velled to Italy, greatly polished the previou poetry of the time, and Surrey was the firs who introduced blank verse. Henry VII had heard of the fame of Raphael and Titia and invited them to his kingdom. There wa little patronage of learning under Mary, an the universities were of small value; but th seeds of knowledge were preserved by a fe learned men; and Elizabeth, who spoke, o wrote several languages, by her own exampl succeeded in reviving the former importanc of the institutions. During the first half c Elizabeth's reign, there were few fine poet though that period was by no means wantin in indifferent ones. During the latter hal amatory poetry formed the greater portion o Italian writings. Tasso died in 1595. Th works of Wyatt, and Surrey were printe in 1557, and about this period, the manners c the English court underwent considerabl change. An increased love of pleasure, pre viously interfered with by the plots, and othe causes of trouble, which attended the earl part of Elizabeth's reign, was seconded, or in duced by the most brilliant display of wit, an imagination, that ever surrounded the thron of a monarch, tinged, withall, with affectatio and pedantry. "It was about this time," say Sir Walter Scott, "that 'the only rare poet o his time, the witty, comical, facetiously-quick and quickly-facetious John Lylly—he that sat at Apollo's table, and to whom Phœbus gave wreath of his own bays without snatching'*—he, in short, who wrote that singularly cox comical work called 'Euphues and hi England,' was in the very zenith of hi absurdity and reputation. The quaint, forced and unnatural style, which he introduced b his 'Anatomy of Wit' had a fashion, as rapi as it was momentary—all the court ladies wer his scholars, and to *parler Euphuisme*, was a necessary a qualification to a courtly gallant, s those of understanding how to use his rapie or to dance a measure."† But the influence c this writer was more potent, and of longe continuance, than above represented; and i the character of Sir Piercie Shafton, Sco has given somewhat of a caricature, of th manner of speaking. It had an influence, ove the court of Elizabeth, not more than ove public taste, and is frequently manifested i the literature of the age. Compliments wer expressed, in the form of hyperbole, and style, devoid of simplicity, became admired fc its assumed ingenuity, and is visible even i the writings of Sir Philip Sidney, though b him, it was removed.‡ This accomplished in dividual, whom Elizabeth styled the "jewel c her dominions," had an influence, not les than that of his predecessor, but one based o more solid foundations, and which was, there fore, permanent. His "Defence of Poesy was written 1581-6, and the "Countesse c Pembroke's Arcadia" appeared in 1590, afte the author's melancholy death. "Few charac ters, indeed," says a writer frequently referre to,§ "appear so well fitted to excite enthusia tic admiration as that of Sir Philip Sidne Uniting all the accomplishments which youth ful ardour and universality of talent coul acquire or bestow, delighting nations with th

* Hallam's, "State of Europe during the Middle Ages," 4to. 2 vols. 1818.
† Sharon Turner's History of England.

* "Such," says Scott, "and yet more extravaga are the compliments paid to this author by his edito Blount."
† "The Monastery," by Sir Walter Scott. Lilly Euphues is in two parts: first, "Euphues, the Anatomy Wit;" and second, "Euphues and his England."
‡ Hallam's "Introduction to the Literature of Euro in the 15th, 16th, and 17th Centuries." 3 vols., 2d editio 1843.
§ In the "Retrospective Review," vol. ii. 1820.

ried witchery of his powers, and courts with
e fascination of his address, leaving the
rned astonished with his proficiency, and
e ladies enraptured with his grace, and com-
unicating, wherever he went, the love and
irit of gladness—he was, and well deserved
be, the idol of the age he lived in. He
peared to be a good in which all nations
nsidered themselves to be interested—not
e partial and sole property and product of
e people, but an universal benefaction, given
d intended for all, and in the glory and
nour of which all had a right to be partakers.
s death, therefore, was lamented by every
urt he had visited; and, to do honour to his
emory, kings clad themselves in the habili-
nts of grief, and universities poured forth
ir tribute of academical sorrow."

The "Arcadia," immediately on its publica-
n, "was received with unbounded applause.
this, many causes contributed—the high re-
tation of the author, his rank, his bravery, his
fortunate and premature death, and the real
cellence of the work. The ladies were de-
ous of perusing what might be considered as
testament of so accomplished a courtier;
nobility regarded with eagerness the pro-
ction of him who was their model and pat-
n; and the scholars turned with respect to
words of one who was equally qualified to
ne in a college or a court. Thus the 'Ar-
lia' became the favourite promptuary and
t-book of the public: from it was taken the
guage of compliment and love: it gave a
ge of similitude to the colloquial and courtly
lect of the time, and from thence its influence
communicated to the lucubrations of the
t, the historian, and the divine."

'The conceits and quaintnesses of Sir Philip
ney's language had their origin from the
lian school." Spenser, who died in 1598,
was one, whose influence upon his own
e was great, and immediate. In his "Epi-
lamium," the English language seems, at
e to have acquired new power, and the ad-
ption of the "Faëry Queen" was unani-
us and enthusiastic. "It became," says a
ebrated critic, "the delight of every accom-
hed gentleman, the model of every poet,
solace of every scholar." The same age
played a remarkable fondness for music.
mer was translated by Chapman, and Tasso
Fairfax. But it was in the drama, that this
iod was most distinguished. The Italian
matic literature of the 16th century, accord-
to Mr. Hallam, was deeply imbued with
horrible; spectral apparitions, murder, and
elty were the ingredients; and the same
was eminent, in pastoral poetry. The in-
nce of Italian literature is strongly evident
Shakespeare, and the plots of several of his
ys were taken directly from the Italian.
e pedantry of the day indulged in quotations
n Italian, and classic authors. The know-
ge of one part of the world, of what was
ng on in another, was much more accurate
n we are in the habit of supposing; and it
much fostered by the correspondence,
ongst literary men and artists, of which so
by specimens are preserved.

uch, then, being the position of society, in
ners and in literature, art had readily, in-
d into it a similar Italian character. It
ed much of the Italian magnificence, in its
r terraces, and steps, and its gardens; these
e the striking features of the peninsular
e; and it was those features which neces-
ly dwelt most upon the recollection of the
eller,—for what he was unable to supply,
ould only recur to the almost disused ar-
ecture of his country; and the imitations
the orders were uncouth, and without
it. Grotesque forms, and curves without
ance; bunches of carrots for ornament,
windows, bearing an immense proportion
he size of the front, were the striking cha-
eristics of Elizabethan architecture. Where
an architects were employed, they seem to
been the worst, that could be selected, or
ave entirely forgotten the details of their
style.

he elegance and refinement, the Italian im-
s of the Elizabethan age, were but partially
cted in the architecture: the skill of the
ts of that day was insufficient to execute,
t their patrons contemplated. They suc-
ed in reflecting little more than that pe-
ic affectation, that love of the quaint and
singular, which was but one of its charac-
ties.

E. H.

ENGLISH AND FOREIGN GOTHIC ARCHITECTURE COMPARED.

BY SIR JOHN AUDREY.*

Mr. Rickman has attributed more pure simplicity and boldness of composition to Gothic architecture in England than elsewhere. My acquaintance with Continental models is (I regret to say) very slight; but I think I can see that he is right, and can point out one or two leading points in which our architecture is more pure, and one or two external circumstances which, though they could not create the genius or the taste, might leave them more free to work out the unadulterated result of their own principles. I do not speak of the Romanesque period, during which our Norman architects were probably, both in art and in time, behind their countrymen on the Continent; nor (on account of my own ignorance of the Flamboyant) of the latest period, when I must think that architecture, however increasingly subservient to use and luxury, after the day of Wykeham, was on the decline as an Æsthetic art. For the peculiar principles I only refer to the Master of Trinity, in whose observations on Rickman I shall strictly concur when, but not before, I have added to them, that it was himself who inspired with a living soul the nascent body produced by the patient and acute inductions of Rickman, and which has since advanced so far towards adolescence.

The favouring circumstances which strike me are, first, the comparative freedom from private war and local disorder, and, secondly, the comparative want of Roman works. Private war and local disorder would have far greater tendency than public, even though they were civil conflicts, to waste and destroy local monuments, and consequently, to cause that sense of insecurity, which will prevent their frequent and familiar construction: hence, to prevent the art from becoming inbred in the minds, and apparently indigenous in the soil of the country. One who twenty years ago had the early thin edition of Rickman in his pocket wherever he travelled, has a right to say that every little village church, which has been spared by time and churchwardens, proves such to be the case in England.

The same insecurity which would prevent the frequent construction, would thwart that construction when it took place. Protection would be necessary, even to the detriment of their architectural ends. This requires no proof, but I imagine it to be illustrated in passing along the high road through Herefordshire and Western Shropshire—border counties, where, I fancy, I see more than their proportion of rude and naked bulk in Early-English and Early-Decorated towers; but where, when the victories of Edward I. had given free scope to the arts of peace, I certainly observe more than I have myself been elsewhere used to of the prevalence of quiet and humble structures of the Decorated style.

It may be objected that the turbulent reign of Henry III. was that which produced the glory of our native art, the early English, so pre-eminently, if not quite peculiarly our own. The reign of Henry III. was turbulent; but not so much so as it appears to posterity, in whose eye its half century appears as a unit by the side of shorter reigns. Nor were its wars private, whatever human intermixture of private violence they may have involved. They were wars of public principle. A weak reign afforded the opportunity, whilst it succeeded to one whose united weakness and violence called forth the necessity of claiming that increased public liberty, for which the social improvement of the nation was ripening it. The age of Magna Charta is no less appropriately the age of early English art, than the matured excellence of decorations coincides with the settlement of our Parliamentary constitution under Edw. I.

The student of Hallam and Fortescue, the best concise expositors of our laws and liberties, and our consequent national greatness, will probably, with me, divide the actual production of our happier state of things between Norman prerogative and Saxon liberty—the superincumbent pressure of the crown having prevented the well-compacted social economy of the humbler frames from being broken up as elsewhere (if elsewhere it existed) by the all-pervading violence of the military tenants It being important to me to assume the fact, I may be excused in thus digressing to account for it, in order to make it credible to those impressed with a general idea of the lawlessness of that age.

The favourable effect of the absence of Roman works of art will be two-fold. The eye will be less distracted by a beauty depending not only on different but on antagonist principles; and the architect will not be tempted, or required by his employers to impair the free and pure development of his own style, by the use of materials (particularly old columns) too precious to be rejected, yet difficult to be adapted.

These two drawbacks have effectually prevented the formation in Italy (except, perhaps, at Naples) of a school, though there was long a fashion, of pointed Gothic architecture in that country. This is conclusively shewn by the splendid work of Gally Knight—the more conclusively, as it was not his object to draw the conclusion. I must not be considered as undervaluing, except in the single particular of the *purity* of Gothic art, the edifices of other countries. I can tolerate those who may consider the French or German, who make nearer approaches to purity than the Italians, as on the whole our superiors in great edifices; and even in Italy I can admire sometimes even more than my judgment can approve; and I may both approve and admire a work not Gothic, but *sui generis*. The matchless splendour of Milan pleases a cultivated taste the less because it is manifestly intended to be, what yet it is not, purely Gothic. That gem, the Capella della Spina, at Pisa, wants in its outlines the truthfulness of Gothic art; but he must be such a master of language as I am not, who can find words adequately, yet soberly, to extol the cathedral of Florence. It is neither classical, nor Romanesque, nor modern Roman, nor Gothic; but, with much of the breadth and expansion upon earth of the school founded on classic art, it carries the eye and the mind up to heaven, and onward towards the unseen, in the truest spirit of the romantic. We scarcely need be told that its wonderful cupola is the first, in order to look upon it as the most admirable of its kind which the country produced. Yet we must come home to Salisbury, Beverley, Westminster, Tintern, Lincoln, York, and Winchester. I place them in the chronological order of the style to which (of the many which most of them contain) I attribute in each the leading effect,—Early English pure—Early English, with all the later styles admirably harmonized to it—Early English, verging on Decorated—Early English, passing into Decorated, Decorated and Perpendicular.

I must not be supposed to be laying down rules without exceptions, that what I have been impressed with on the prevalent taste ought to be admitted by others to be so. I have not time, nor indeed materials to prove —perhaps I may be wrong, but if I am not, it is still a chance—whether their recollections of objects seen without any such idea having been suggested to them, will bear me out, or whether if my observations should be honoured with a place in their recollection, they will be confirmed by their future experience. In English Gothic we have scarcely any where but at Canterbury the column substituted for the pier. Now, in every one's eye and mind, whether he have expressed it in words or not, the pier is subordinate to the arch, but the column cannot be made subordinate to the intercolumniation. The column, where it exists, is always the thing dwelt upon, and the intercolumniation, be it arched or not, dwindles into the mere form which the column does not fill. This is contrary to the primary canon that Gothic is the architecture of interiors, in which the supporting parts are subordinate to the contained space.

In the eastern apse which our pointed architects scarcely ever constructed except at Westminster, or even adorned except at Tewkesbury, I am inclined to admit that where it does not lead to narrow and wire drawn proportions, our continental neighbours have an advantage over us; but in the long west window, so comparatively rare in the French west fronts, we have an immeasurable advantage—it makes our great front more one, more ascending, more indicative of the con-

* Read at the late Winchester Meeting.

tained nave than the window either circular or in which the circle is the prominent object.

Some of the most admired French fronts have also a great prevalence of horizontal lines carried through the two towers. Notre Dame is a known instance, as far as I recollect, Amiens, Abbeville, Troyes, Sens, and many others may be referred to, to shew the prevalence of the taste. I am by no means disposed to treat as a fault the almost Grecian ground plan of many of these buildings, but it certainly tends to produce a form in the profile of which horizontal lines shall be conspicuous. Now in the great breadth of the west front of York, though some may disapprove the low pitched roof, or others the general proportion, yet the lines of buttress and window preclude any such effect. Salisbury, though without towers, is in some degree open to it. Lincoln is worse than any French building, but the fault is in the Norman work.

In richness and depth of moulding, and in the progress of roof tracery, I believe that foreign buildings are oftener behind what would be suitable to the general advance of enrichment than English. Canterbury has much which I do not think English in character.

If a horizontal effect has been often directly given to French fronts, an opposite cause has in some admirable German buildings impaired the effect of the division into bays vertically divided. The office of the buttress with pinnacles not only to be the truthful index to the essential support of a Gothic building, but to carry up the eye in vertical lines, and to divide the structure to the eye according to its enclosed parts, as admirably arranged on the north aisle at Winchester, cannot be overrated. But such is its office, and if from its too great projective proximity, and want of set-off, the line of buttress form to the eye the outline of the building, as occurs in the glorious Cathedral of Cologne, it veils instead of exhibiting the form and character of the contained spaces.

The great height, and consequently relative narrowness, of the parts of this structure, has much tended to this effect; but where there is much flat wall often full of highly enriched parts, but still one wall with many enrichments instead of a series of bays grouped into one harmonizing whole. This often, with a narrow strip of window too insignificant in breadth to give individual character to the several bays, is, I believe, seen to prevail in the architecture of Nurenberg. It is more necessary to be guarded against, as it is the very fault into which many of our recent attempts have fallen. They have walls pierced with windows, they have sometimes three windows under one gable, which never can satisfy the eye, though it may not know the nature of the objection.

I must regard the ostentatious disproportion of the most celebrated steeples of Germany to the rest of the building as a fault. I can hardly regret that Ulm has never been carried up, yet who can object to Freyburg, completely as it overpowers the church.

Yet more questionable is the gorgeous open-work of Strasburg and others of these structures. A pinnacle, which is an excrescence, may be open, but not a leading member of the edifice itself, which ought to resist the weather and shoot off the rain; and there is a further objection where the tower is crowned with a spire — a spire, whose silent finger points to heaven, has that silence broken over by the beautiful addition of crockets. How much more by a surface broken up in all its parts. I believe in all these points the prevalent taste in English architecture has the advantage in purity. It is no part of my object to attempt any comparision in point of positive excellence.

Names of Streets.—A correspondent of the *Morning Herald* makes the following useful suggestion. When abroad I observed a practice, particularly at Liege, which, if adopted in our large towns, might, I think, be attended with beneficial results. It is simply to have the name of each street on one pane of glass, transparent, in the first lamp at each end of every street. It may be remembered what confusion there was last winter when the fogs set in, by people losing their way in the streets, and being misdirected by pickpockets and other designing persons.

DECORATIONS OF THE HOUSE OF LORDS.

Sir,—No one comes forward to release the Royal Commission from the dilemma in which your correspondents shew them to be placed. The Commissioners can alone extricate themselves by doing justice to the English decorators, and giving them a fair trial, as they appear to be doing with the painters and sculptors. And unless they do so they have only to choose upon which horn of this dilemma they are to be impaled; whether they will consent to be reproached with breach of faith to the decorators, or submit to have their power and influence set at nought, and their intentions frustrated.

The statements made in your columns by Mr. Pugin and Mr. Crace were ingeniously framed, so as to let it be inferred that Mr. Barry makes the designs of all the ornaments both for the carved and painted decorations; Mr. Pugin being his draughtsman for the carved work, and Mr. Crace for the painted work. Mr. John Crace's declaration, that he drew with his own hands the sketches of Mr. Barry, is calculated to excite some apprehension for the execution of the painted decorations amongst those who are conversant with Mr. Crace's powers of delineation; and though it is possible that Mr. Crace may have taken lessons in drawing lately, so that his performances may no longer elicit such shouts of laughter from his foreign artists as they used to do, still the difference between Pugin and Crace is rather too great for their performances to be on a level. If Mr. Barry finds it necessary to engage such valuable assistance as Mr. Pugin's for the carved work, where the feeling and skill of the carvers would supply some deficiency; how much more important is it to have the working drawings for the painters made by a masterly draughtsman.

Mr. Crace's statement, that "not a single foreigner is or has been engaged upon the decorations of the new House of Lords," is at variance with Mr. Pugin's observation in his letter to Mr. Herbert on the School of Design, that, in consequence of not finding English artists competent, he was obliged to send for decorators from abroad. And since it is part of Mr. Pugin's duty to engage the most skilful workmen, it is surprising that he should never have thought of those especially recommended by the Royal Commission. Mr. Barry professes to prefer practical men, and regrets that the Commission did not confine the competition to working artists; yet the first thing he does is to employ a dealer in decorations—telling Mr. Goodison that there is nothing worthy of his ability in the House of Lords!

The architect, of course, ought to have the control of the building, so far as regards the general character and effect of the decorations; but surely the details should be left to the decorative artists to invent. It is for the decorator to send in his designs, and for them to receive the architect's sanction; but there should be no need for the architect to design every scroll or ornament, nor do more than suggest to the decorator, and exercise a veto over his designs. An accomplished, practical decorative artist should be a clever designer, draughtsman, and painter; able to conceive the plan of a decoration and fill in the details, with a knowledge beforehand of the effect of the whole when completed. But *there is no such artist employed in the House of Lords.* It is all done by guess, bit by bit. There is no complete design settled before the work is begun, as there ought to be; but first, this notion is tried, then that, and then another.

The ceiling is moulded in compartments; and these are filled with decorations. Now, I have heard for a fact, that as many as forty different designs have been made for one compartment before the architect was satisfied; and then, when the work had been proceeded with, the effect proved disappointing, and there was a change from coloured figures to gold, or from diaper to plain grounds.

Then the ornaments, instead of being executed on the ceiling, are painted on strained linen, and stuck up afterwards! And this in a national work that is to last for ages! But that plan is most convenient for the jobbing patchwork that is being perpetrated; when a design for the compartments is settled, one is finished in colours, and a set of mechanics s employed to copy it from pounced outlin Their work will, of course, have all the tan timid, characterless servility of copyists afra to go beyond the tracing, and even to co up to the line. And this is the sort of wo that is to adorn the House of Lords!

But if the new Houses of Parliament are be made a *cento* of old Gothic patterns, wh is the promised encouragement for Briti talent? Why are not Messrs. Collman, Job stone, and Goodison—who are all designe though only the latter is a practical pain also—why are not these and other decorate competent to invent and execute, allowed opportunity of exercising their talent? Yo correspondent "Justice," speaks disparagin of Mr. Rogers as a carver, but I am perso ally acquainted with his talent as a design and his skill as a carver. I pride myself possessing a little specimen of his work t he executed for me more than twenty ye ago, that is equally beautiful for taste and ecution. Besides, Sir, we want directi minds as well as skilful hands in such a bui ing as this.

Since the Government has sanctioned very laudable scheme of making this buildi a monument of the present state of the arts the country, it behoves those in authority see that this purpose is accomplished; that the best talent the country possesses employed in contributing to it. This will done in the case of painters and sculpto why should it not be done in the instance decorators? The talent of Grinling Gibb was brought to light by Sir Christopher W in St. Paul's. Did that great architect fet the fertile fancy and consummate skill of famous carver in wood and stone? No, gave scope for the genius that he fostered a appreciated. Let us hope his example will followed in the Parliament Houses.

Truth.

LESS NOISE AND MORE SAFETY.

It is very desirable that guards should able to communicate with the driver of a tr while it is travelling. Practical men are w aware that cords, flags, or signal lights, never be depended upon, and even whist under existing circumstances are perfec useless for this purpose. The most practica plan is to reduce the noise of a train; i well known that while steam is blowing from a safety valve (which is nearly alw the case when an engine is running), engi drivers are quite unable on account of great noise thereof, to hear any other sou beyond those made by their engines. It been proposed instead of letting the surp steam escape from the valve directly into open air, that it be made to pass from valve through a gradually enlarged tube allowed to escape upwards through an ap ture of about the same diameter and height an engine chimney; this plan would cause steam to expand very considerably bef striking the external air, and would c sequently produce comparatively little noi were this method adopted, it is the opinion several practical men that engine-drivers wo then have no difficulty in hearing a guar whistle provided the guard was seated up one of the foremost carriages.

As respects the guards, the one placed n the end of a long train cannot at present m the front guard hear even a very power whistle, owing to the excessive noise of carriage wheels, but this difficulty may be viated by enclosing the sides of the wheels before mentioned in our pages, so as to c fine a quantity of sawdust in contact w their spokes; sawdust having the effect enabling them to roll without noise.

Competition for Laying-out Grou Richmond. — The Richmond vestry h awarded the premiums for laying out the l at Queen's-road, Richmond. The first Mr. Edward Sherrard Cole (in Mr. Mocat office), and the second to Mr. Gifford, of P lico. Several architects of standing w competitors.

University College, London. — classes for civil engineering and architect will be re-opened on Wednesday, the 15th next month.

HEALTH OF TOWNS' ASSOCIATION.

On Friday evening last, a lecture was delivered at Crosby Hall, Bishopsgate-street, under the sanction of this useful association, by Dr. Guy. The lecture occupied two hours, and was throughout listened to with marked attention by a large and highly respectable audience.

After a short explanation of the objects of the association, the lecturer proceeded to establish, one by one, the several positions put forth in its prospectus; and fortified them by quotations from the evidence laid before the Health-Commission. The waste of life in England and Wales, which was estimated at 50,000 a year, and was stated to be accompanied by about 750,000 cases of unnecessary illness—a similar waste of life in the metropolis of 10,000, with a quarter of a million cases of unnecessary illness:—The low average of life at death of the labouring class and of gentlemen, compared with the gentry inhabiting large towns, the striking but now familiar fact that the mortality increases with the density of the population; the filth and wretchedness in which the lower orders live corresponding to their low duration of life; the unhealthy condition of their houses and workshops, depending on want of water, drainage, and ventilation; the expense incurred by the public for unnecessary sickness and premature death; the burden imposed on the ratepayers by the diseases created by the neglect of these simple measures:—were the points which the lecturer discussed and illustrated. The lecture will probably be published by the association, when the public will be able to judge of the success with which its points were explained and advocated.

We subjoin the following extract, which we deem worthy of the attention of our readers. Speaking to fever, Dr. Guy says:—"It loves the banks of rivers, the borders of marshes, the edges of stagnant pools; it makes itself at home in the neighbourhood of cesspools, and in constructed drains, and takes especial delight in the incense of gully-holes. It has for its perfect horror of fresh air, soap, and whitewash; but when left to itself will linger for months amid scenes of filth and corruption, and when in its deadly embrace all human beings would have the same depraved taste, or are so unfortunate as to be thrown into its company. Typhus, the favourite child of *laissez-faire* (in plain English *let alone*) and bears the same relation to *filth*, as crime does to *ignorance*. Fortunately for us, it has kept the same house for a long time past, and has grown so familiar, that no one minds it. When the cholera paid us the favour to pay us a visit, we made no preparation for his reception. We turned out many an Augean stable, set the paviers to work in right earnest, whitewashed sundry houses, and shewed a wholesome respect for the threatened invader. He came at last, and he was too strong for us; he entered, and took up his quarters where we might expect to find him, on the banks of the Thames, in low marshy spots, in the crowded, unventilated, and ill-draind districts of large towns; and wherever we had either made no efforts to remove accumulated filth, or where the long neglect of years admitted of no immediate removal. I saw sundry cases of cholera myself, and they all occurred (they were the first in their neighbourhood) in a quarter of the town of Southwark, hopelessly sunk below the level of the surrounding district, and which set at defiance all attempts at drainage. Now, it is a strange example of the effect of fear, and the influence of names, that this formidable stranger should have produced such a sensation, and roused us for a time to much activity, and yet this domestic nuisance should be allowed to go on poisoning and killing year by year thousands of our fellows without setting a broom or a brush in motion.

"When the cholera was on his way to us, while he was among us, we were really up and stirring, and waging a not unsuccessful war against the causes of disease, but no sooner did he take his departure than we relapsed into our accustomed negligence. The Commissioners of Sewers laid down their rods, the scavengers walked away with their brooms in their hands; there was a sudden falling off in the consumption of soap and whitewash; the boards of health closed their books and their labours; the Government fell into its habitual state of calm repose; all things returned under the sleepy rule of *laisez-faire;* and filth, with its attendant train of disease, and misery, and crime, resumed his empire."

We must not omit to state the gratifying fact that there were present at the lecture several members of the "Metropolitan Working Classes Association for Improving the Public Health," of which we are happy to see that the Bishop of London has consented to be president. An abstract of their prospectus was read in the course of the lecture.

CHINGFORD CHURCH, ESSEX.

Sir,—Knowing your readiness at all times to give publicity to whatever may interest either the architect or antiquary, I venture to trouble you with the following note.

Strolling from Woodford the other day I came to the parish church of Chingford, and was agreeably surprised when, on entering the churchyard, it proved to be one of those venerable piles that some centuries back were to be found in most towns in this country. It cannot boast of great beauty in its design, but is valuable by reason of its great antiquity. It is situated on a slight eminence commanding a good view of the surrounding country, the scenery of which is very pretty, and much superior to what you generally see in Essex.

The church itself is covered with ivy, especially the tower, which is completely hidden from view, with the exception of the pole, on which a weathercock has been placed. I am very sorry to say that the church is in a very dilapidated and ruinous state; in fact, so much so, that if timely assistance is not given, it will, in the course of a short time, fall to pieces. Many of the windows are either broken or cracked, and pieces of board in some places are nailed across to supply the deficiency, and in others the vacancies are left uncared for, and through which the wind howls mournfully through the church. The remains of the reading-desk are just visible, and where the pulpit used to stand is now actually one mass of bricks and mortar, which have fallen from the wall. The roof is so dilapidated that the ivy has crept through, and is running down the cracks in the wall, and I dare say, in a very short time, will be seen to decorate what remains of the pews. I have seen many fine specimens of the ivy in different parts of England, but I never saw a finer than the one which is here. The state of repair of the tower, I could not, with any certainty, ascertain, as it is so overgrown with ivy as to be almost hidden; the part I could manage to get a glimpse of appeared to be pretty sound. The body of the church is beginning to decay, and the walls are cracking very fast. The small gallery is falling to pieces. The aisle (?) where the communion-table is, is by far in the best state of repair. Several large coats of arms and tablets are hung on the walls. Service has not been performed for some time past.

Stopping at a wayside inn, on my return, I entered into conversation on the subject with a person who was connected with the parish. When I lamented the state of the building, he very abruptly said that the parish had no money to throw away on such trifles, and that they had enough to do to support the poor. Finding words were of no avail, I very soon after left him. I am afraid from what he said the church may fall to pieces before they will render any assistance. H.

White-knights Estate, Reading.—We are glad to learn that the directors have already received applications for more than the whole number of shares, and, moreover, that building operations will go on immediately. The lodges are in progress, and some new roads are about to formed. The *Berkshire Chronicle*, speaking of this beautiful locality, says truly, that it "will afford to Reading a suburb of unrivalled attractions and value, and we see no reason why a residence there should not become quite as eagerly sought as at Cheltenham, Bath, and many other inland towns, which must ever want that most desirable advantage possessed by Reading—a close proximity to London, the great centre of wealth, pleasure, and business."

FRANCIS BAILY, F.R.S., &c., &c.

A PORTRAIT PAINTED BY T. PHILLIPS, R.A.; ENGRAVED BY T. LUPTON.

(Private Plate.)

The life and writings of this eminent astronomer and estimable man, as well as the origin of this portrait, are matters of history, as well as of deep interest to lovers of science, art, and philosophy. To Mr. Baily the British public, and indeed all Europe, are indebted for the formation and permanent establishment of the Royal Astronomical Society. Feeling this debt of gratitude, some of the most active and zealous members considered it due to him and to themselves to procure a good portrait of their friend, to be preserved in the meeting-room of the society. The late Mr. Phillips was selected to perform this pleasing and honourable task; and he produced a picture and a likeness, which, whilst it conveys a vivid record of the fine personal features of the individual, gives evidence to the casual spectator of an intellectual and thoughtful man. Never was the human face more faithfully depicted on canvas than in the present instance, for the picture seems to live and breathe, and even prepared to speak. As long as it be carefully preserved by its guardians, it will be viewed with melancholy pleasure by all the sincere friends of its once living prototype, and with admiration by all lovers of art. In this picture, and in others preserved in the meeting-room of the Royal Society, Phillips has left behind him proofs of his own professional qualifications as well as graphic memorials of men who have enlightened and adorned the hemisphere of science.* These pictures may fairly rank and compete with the many exquisite portraits by Vandyck and Reynolds.

The late Mr. Baily bequeathed a very handsome fortune, — nearly 100,000*l.*, — amongst his relatives and friends; one of whom, the Rev. Richard Sheepshanks, has most liberally and nobly applied his legacy to the production of the engraving now under our notice; and he has presented proof impressions of the plate to the intimate friends of the deceased astronomer, and to a few distinguished men. It is but justice to Mr. Lupton to remark, that he has reduced the picture, and translated it into black and white, with the utmost fidelity; and that the engraving is characterized throughout by skill and taste.

We are informed that two other legatees of Mr. Baily,—Sir John Herschel and Lieut. Stratford, the scientific author of the *Nautical Almanac*,—are about to have a bust of their late estimable friend executed in marble for the Astronomical Society. Sir John Herschel has written and published a very interesting memoir of the life of Mr. Baily.

COLOGNE CATHEDRAL.

When the Queen was in Germany her Majesty gave about 560*l.* to the fund for restoring this wonderful building. The committee, it is said, propose to return it, considering the sum too small. An English provincial paper objects to the donation, that it was hardly judicious or well principled; and says, "for the Protestant monarch of a Protestant nation to give so munificent a sum to a Popish cathedral does not seem to our comprehension altogether right." We are disposed to think the writer's comprehension must be very small.

THE ASPECT OF THE CATHEDRAL ON LEAVING COLOGNE.

Like a dismembered stone God thou appearest,
Knowing the course of ages will restore
The giant limb and front divine thou rearest,
As the great Titan proudly did of yore;
And even now is thy abasement o'er,
For man admits thy long-neglected right,
Resolving to endure the shame no more;—
Lo! where the weed had growth, the owl delight,
Again the chisel clinks with hundred-handed might.

J. Ellis.

New Reservoir at Highgate.—The New River Company are constructing, under the superintendence of Mr. W. S. Mylne, their engineer, a large reservoir upon Highgate-hill. Messrs. Mansfield and Sons are the contractors.

* Amongst the numerous novelties of the age, we should be glad to see a spacious *Gallery of British Worthies.*

STONE PORCH, GREAT CHATFIELD CHURCH, WILTS.



STONE PORCH AT GREAT CHATFIELD CHURCH, WILTS.

Several of the churches in Wiltshire, possess porches of a singularly picturesque character, quite unlike those which are to be found in other parts of England. These porches are of very late date, mostly of the periods of Henry VII. and VIII. In the first volume published by the Wiltshire Topographical Society the one at Grittleton church is given.

The porch at Great Chatfield church is about the time of Henry VII.; the church, dedicated to All Saints, is a small but, beautiful structure. It has been fully described and illustrated by Mr. T. L. Walker, who devotes no less than eight plates to it, in his little volume on "The Manor House and Church at Great Chatfield." To this work I recommend any of your readers to refer who may require the details of construction.

C. J. R.

THE CONIC SECTIONS

CONSIDERED IN REFERENCE TO THEIR PRACTICAL APPLICATIONS.

The *conic sections* being of considerable utility in the various departments of the *constructive arts*, it is a matter of the utmost importance to practical men that they should be familiar with the fundamental properties of these curves, and the methods by which they are generated or described; it is therefore proposed to give a brief exposition of the different sections, and to illustrate the method of applying them to various useful practical purposes.

Conic sections are usually defined to be "the figures formed by the mutual intersection of a cone and a plane," and according to the different positions which the cutting plane assumes, there are formed five figures or sections essentially distinct from one another; namely, a *triangle*, a *circle*, a *parabola*, an *ellipsis*, and a *hyperbola*; but because the triangle and the circle are ranked amongst the figures of elementary geometry, they are excluded from the conic system, and the remaining three only are strictly considered as *conic sections*. The manner of their formation by cutting the is as follows:—

When the cone is cut by a plane paral one of its sides, or when the cutting plan the side of the cone make equal angles wi base, the section is a *parabola*.

When the cutting plane passes obli through both sides of the cone, or wh meets the base produced in a less angle the side of the cone does, the section *ellipsis*.

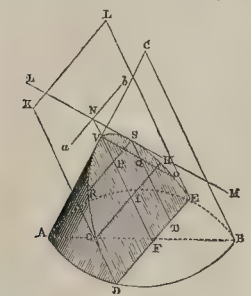
When the cutting plane makes a g angle with the base than the side of the makes, the section is a *hyperbola*; and the sides of the cone be produced beyo vertex, constituting an equal and an op cone, the intersecting plane being also nued to cut this cone, the section is an *op hyperbola*, and this, together with the fo are denominated *opposite sections*, or *op hyperbolas*.

These, therefore, are the curves that tute the conic system, and since they ar tinct in their nature, and furnish thei distinguishing characteristics, it will be venient, in the first place, to contemplate

separately, and afterwards to consider them in reference to their related properties, and as being derivable from the projections and development of the mutual intersections of cones with cones, cylinders with cylinders, and cylinders with cones, so beautifully exemplified in the *Septenary Theory* of Mr. Jopling.

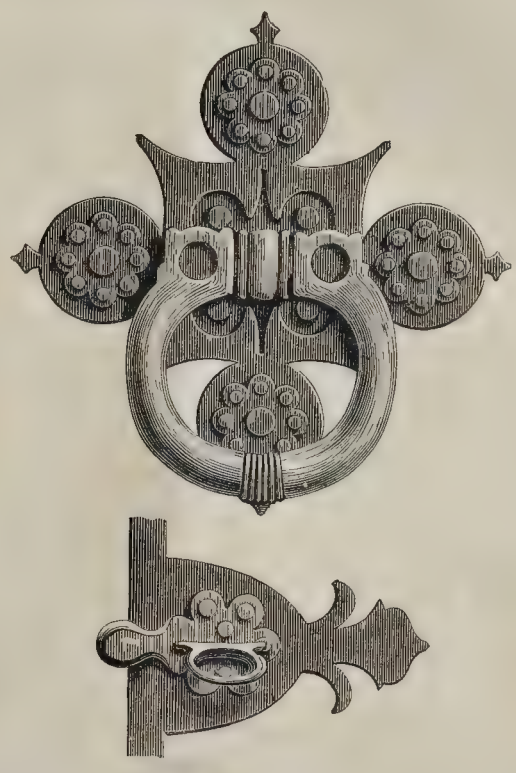
It is not, however, intended to discuss the whole of the properties peculiar to each of these curves, but only such as lead directly to some useful practical result, or the solution of some useful problem in the *constructive arts*, and in order that the subject may be rendered as plain and popular as possible, the several delineations will be illustrated by an example in numbers, and a rule drawn up in words by which it may be calculated. It will thus appear, that the system as at present contemplated, must be of considerable extent, but as all the results will tend to some useful purpose, it is hoped that the practical man will derive much advantage by a careful perusal of the papers as they severally appear, and for this end nothing is required, *á priori*, beyond a slight knowledge of the elements of Euclid and the rudiments of algebra. This being premised, we now proceed with the consideration of the parabola, that being the simplest in its principles and form of the three sections which constitute the system of conic geometry.

It has been stated above, that the section is a parabola when the cone is cut by a plane parallel to one of its sides; or, when the cutting plane and the side of the cone make equal angles with the base. To illustrate this, let A C B be a right cone of which C is the vertex, C A and C B opposite sides, and A B the diameter of its circular base A E B D; then if a plane D K L E be made to pass through the cone in a direction parallel to the side C B, the section D V E thereby produced is a parabola. The point V, where the cutting plane enters the side of the cone is the *vertex* of the parabola; the straight line D E, where the cutting plane intersects the base of the cone, is called the *base* of the parabola, and the straight line V F, which passes through the vertex V, and bisects the base in F, is called the *axis*. If through any point, I, in the axis V F a straight line, G H, be drawn, meeting the boundary of the section both ways in the points G and H, then G I is called an *ordinate*, and G H a *double ordinate*, to the axis V F; and V I the distance between the vertex at V and the ordinate, G H, is called an *abscissa*. If a third proportional be taken to the abscissa, V I, and ordinate G I, or to the abscissa V F, and ordinate D F, that third proportional is called the *parameter* of the axis V F; and if a point, P, be taken in the axis such that the ordinate P R, or P S, drawn through P, and parallel to the base D E, is equal to half the parameter of the axis, that point is called the *focus* or the *describing point*. If through the point S, or any other point in the periphery of the curve, a straight



line S T be drawn parallel to the axis V F, the line S T is called a *diameter*, in contradistinction to the principal diameter V F, which is always called the axis. If a straight line, L M, touch the curve in S, at the vertex of any diameter as S T, without cutting it, that line is called a *tangent* to the curve at the point S; and if through any point in the diameter S T, the straight line V O be drawn parallel to the tangent L M, and intersecting the diameter S T, in the point Q, the straight line V O, is a *double ordinate* to the diameter S T, and V Q, or O Q, an *ordinate*. If the axis F V be produced beyond the vertex, to meet the tangent L M, in the point N, P N, is called the *subtangent*; and if a perpendicular be drawn to the tangent L M, in the point of contact S, that line will also be perpendicular to the curve in the point S, and is called the *normal*. And finally, if V N be taken equal to V P, the distance between the focus P and the vertex V, and through N, a straight line, *a b*, be drawn parallel to the ordinate R S, the straight line, *a b*, is called the *directrix* of the curve, and serves for its description by means of points, or continued motion.

TUDOR IRONWORK.



FALL OF A ROOM AT THE PHILHARMONIC INSTITUTION, MANCHESTER.

Considerable alarm was created a few nights since at this institution during the performance. A loud crash was heard from behind the scenes and great shrieking, and noise of falling bodies. Immediately afterwards, Mr. Weston, the musical director of the institute, came forward, and explained that a plank or two had given way, and caused more alarm than danger. He subsequently stated that only one person was much hurt, but the nature of his injuries he had not learned. The *Manchester Guardian* says, "From an inspection of the place, we may state that the accident consisted in the giving way of the planks or rafters supporting a dressing-room, in which a great number of the male chorus were congregated taking refreshment. The weight being greater than the beams could support, they gave way, and fifty or sixty persons were at once precipitated to the stage, a fall of about 12 feet. It is really wonderful looking at the place, that an occurrence so alarming in appearance and in reality, should have been attended with so little serious injury. Only one person, so far as we could ascertain, was much hurt, and he was conveyed at once to the infirmary, to have his injuries examined.

TUDOR IRONWORK.

The annexed engravings form part of the illustration of Barrington Court, Somersetshire, given in our last number. The first represents the handle of the latch on the entrance door; the other, one of the turnbuckles on the iron casements. They are both drawn half the real size.

OPENING PUBLIC MONUMENTS.

The Dean of Winchester has given directions for the nave of the Cathedral to be thrown open to the public from nine till eleven in the morning, and from two to four in the afternoon. It is to be hoped no ill-conditioned verger, — no Winchester Tucker,—will be permitted to nullify this regulation.

We have observed with much pleasure that the Trustees of the Royal Institution, Edinburgh, have made arrangements by which a large, varied, and valuable collection of paintings, marbles, and bronzes are now thrown open twice a week for the gratuitous inspection of the public. This collection now contains the paintings bequeathed to the University by the late Sir James Erskine, of Torre, Bart., comprising specimens of the genius of the Carracci, Guido, Vandyke, Rembrandt, and other celebrated painters. The *Edinburgh Advertiser*, in making known this information, has the following remarks on the general question of gratuitous admission to works of art. "It is often said of this country that it provides little or no means of rational amusement and beneficial recreation for the working classes; that, in short, the principles of conservation and exclusion are too strictly applied to institutions which ought rightly to be open and accessible to all classes, and more particularly to that class which within themselves have little or no means of cultivating a taste for the sublime and beautiful, although it is admitted on all hands to be a most effectual

means of elevating their thoughts and habits. We hail with pleasure the facilities which the board of trustees have afforded, and trust that the boon will be eagerly embraced, and that the visitors will shew their grateful acknowledgments by in no way abusing the privileges so generously granted to them.

The *Hull Advertiser*, in an article on Mr. Joseph Hume, M.P., refers with just praise to his endeavours to obtain for the humbler classes free admission to our national monuments, with a view to enlarge their sympathies, purify their tastes, and exalt the standard of their moral feelings; and, we are delighted to add, with most gratifying success. Principally through the exertions of a society of which he is chairman, and which numbers amongst its members Lord Francis Egerton, Lord Lowther, Lord Worsley, Lord John Manners, Mr. Hutt, and others, many of the national edifices hitherto closed against the working classes, by reason of the fees charged for viewing them, are now either wholly or partially open for some days of the week free of any charge whatever. For instance, the British Museum is open free three days in every week; the National Gallery is free four days; St. Paul's and Westminster Abbey (except the chapels) are free every day; the Society of Arts is free five days; Hampton Court Palace six days; the Woolwich Models every day; the Norwich Cathedral an hour daily; the Bath and Wells Cathedral every day; the Durham Cathedral (except the chapel of the Nine Altars) every day; and the whole of the treasures of the Tower of London can now be inspected for one shilling, instead of eight times that sum. Liverpool admits its mechanics to its Botanical Garden two days in the week, free of expense; the Royal Botanical Garden of Edinburgh is open free to all applicants; and the Dublin Botanical Garden is accessible to the peasantry, free of charge, two days in every week. Mr. Hume urges that fifteen years' experience has satisfied him that the people, when admitted free to cathedrals, museums, and gardens, uniformly conduct themselves with the greatest propriety; and that the effect upon them, mentally and morally, is of the most gratifying description. They acquire habits of personal neatness in dress, politer forms of speech and deportment, a greater love of order, and a general desire to extend the boundaries of whatever knowledge they may possess. The more imperfect their own acquirements may appear, the more eager are they to obtain a better education for their children.

JOTTINGS ABOUT RAILWAYS.

A NEW project has been started during the past week, having for its object the supply of city and West-end accommodation to passengers arriving in London by the existing railways, as well as by several projected lines when finished. The plan contemplates the erection of an esplanade on the site now occupied by the coffer dam in front of the New Houses of Parliament: we copy the following relating thereto from the prospectus:—"It appears that some who have not sufficiently studied the matter think that it is impossible to pass before the New Houses of Parliament without eliciting the opposition of the several branches of the legislature. No objection can be more futile. On the contrary, when the project is fully developed by the plans and sections, the support of both Houses may be confidently calculated upon. It will give to the building a grand esplanade of 70 feet in width in front of the towers, and 100 feet in the centre, instead of a narrow inclosed slip 30 feet wide, confined between the two projecting towers, to which the public can have no access. Here is a façade, the grandest, for its extent and beauty, in the world, elaborately sculptured by artists of the first ability, at an enormous expense, which, if the present terrace be not widened, will be lost to public observation, inasmuch as the only place from which a sight can be obtained will be from the centre of the river, where the beautifully finished carving cannot be appreciated. To accomplish this object it is proposed to carry out an esplanade on the site now occupied by the coffer dam. The esplanade will be on the same level as the present terrace, and below this terrace the railway will be inclosed in a tunnel 14 feet in height, made perfectly watertight below, and lighted in front by openings above the water level. This tunnel will, of course, be out of sight, and there will be no noise or smoke to indicate the passing of the train; in fact, no member of either House will be aware of the progress of the carriages. In the same manner the Marquis of Westminster's property may be passed, the top forming a grand terrace, 70 feet wide, next the river, which cannot be otherwise than a great desideratum to the property. As to the wharf property, that will also be greatly improved. It is not proposed to interfere with the waterway at all. The railway will be some distance from the present frontages, and carried upon arches of from 60 to 100 feet span. It is only necessary to add that all these great objects may be accomplished without taking down ten buildings, either dwelling-houses or warehouses." The project has been named the Surrey Grand Junction Railway, and the capital required is 500,000*l.*——Mr. Hudson has promised that any antiquities discovered in constructing the Newcastle and Berwick Railway shall be presented to the Society of Antiquaries, Newcastle.——The local papers of the West report that Mr. Frederick Ricketts, chairman of the Bristol and Exeter Railway, has within a very recent period added not less than 160,000*l.* to the balance at his bankers.——At a meeting of the Grand Junction Railway Company, held a few days since, when the directors proposed to endow the new church at Crewe with 60*l.* or 80*l.* a year, the meeting carried unanimously the motion "that the directors be empowered to endow the church with such a sum as should be satisfactory to the bishop in order to its consecration, and also that they pay the clergyman to be appointed such a further annual sum, so that he receive not less than 200*l.* per annum." The *Railway Chronicle*, in commenting on this exemplary and munificent proceeding, well observes:—This liberal act is one among many signs—the testimonials to Stephenson, Hudson, Saunders, and others—which seem to foretell that great, noble and national deeds and works, incidental only to railways, will come out of railways; such works as may chance to compete with our ancient cathedrals. Railways are the corporations of our time, which have the most real life and energy in them, and, like the corporations of olden time, will do noble deeds. Though their first object is professedly a selfish one, the selfishness very soon ceases to be paramount, and becomes associated with larger and nobler objects.——The Tunbridge Wells line, a new tributary to the traffic of the South-Eastern Railway, of about five miles in length, was opened last week. At present the line extends only to the temporary station at Jackwood Spring. The permanent station will be in the centre of the town, and will be approached by a tunnel 800 yards long. The works are heavy. There have been half-a-million of yards of earthwork chiefly in rock. An elegant viaduct, 254 yards in length, with 30 arches, carries the line over Powder-mill valley. The line is a curiosity in railway construction, from the fact of its having been commenced twelve months before the Act was obtained, and of its being completed within a few weeks from receiving the royal imprimatur. It is a double line; has cost, including land, 100,000*l.*, and the extension to Tunbridge Wells will be 80,000*l.* more. Mr. Hoof is the contractor, and Mr. Barlow, son of the Professor, has the credit of having carried through the engineering department in a satisfactory manner.——The greatest novelty in railway literature is a pamphlet entitled "New System of Locomotion, without Tunnels, Bridges, Rails, Steam, and Accidents, by Thomas Parkin." The *Times* having ventured to treat the *New System* as a hoax, the author, full of conscious innocence, has referred for the contrary, "to all the periodicals of London and Paris, as well as to all the ambassadors in Paris, and fifty mayors in France."——A special general meeting of the Regents' Canal Company is called, to take into consideration a proposal which has been made to this company, for the purchase of the canal property, with a view to the construction of a railway on the same line.——There have been lately some narrow escapes owing to the doors of railway carriages flying open when leaned against, in consequence of defects in the locks which fasten them. In the carriages on the Hague and Rotterdam railway this is entirely prevented by very simple means. In addition to the usual lock, each door is provided with a stout bolt or lever, working on a joint, which, when the door is closed, drops into a socket attached to the door-facing. This simple apparatus provides an almost certain preventative against accidents from the cause we have mentioned, and ought to be adopted on all railways.——The model of a very simple but ingenious contrivance for the purpose of enabling the guards of a train to communicate instantly with the engine driver, in case of any danger being perceived, was exhibited on Saturday evening last, at the Bristol terminus of the Bristol and Birmingham line, by its inventor, Mr. J. K. Williams, the superintendent of the line. The machine consists of a large box having on its top a sonorous bell, which is struck like the bell of a clock. Within this box is a piece of clock-work, precisely similar to that of an alarum, and a red lamp for foggy weather or night; and from the box, which is intended to be affixed to the nearest carriage to the engine, ropes proceed over the roofs of the various carriages to the guard's box, who, upon perceiving any signal of danger or obstruction on the lines, has only to pull the cord, and the large bell is instantly rung, and the red lamp shewn, if at night: or a large board with the word "stop" upon it flies up.——The electric telegraph is now being laid down on the Grand Junction Railway, from Liverpool to Birmingham, and to Manchester and Cheshire; and we understand, that, under certain restrictions, the telegraph will be made available for commercial purposes.——A terminus for her Majesty's special use has just been finished at Gosport, and was used for the first time by the ministers proceeding to Osborne House, to form a cabinet council on Saturday last. The cost is under 8,000*l.* Such an outlay is very loyal generosity on the part of the South-Western.——The eminent benefits which Mr. Hudson, by his energy and talents, has conferred upon the public in regard to railway matters were not likely to remain unacknowledged and unrewarded. The committee appointed for carrying out the proposed testimonial to that gentleman, have announced, that in pursuance of resolutions passed at meetings recently held of the Midland, York, and North Midland, Newcastle, and Darlington, and Great Newcastle and Berwick Companies, that they have determined that the best mode of offering a suitable testimonial to Mr. Hudson, in acknowledgment of his services to the public and the railway world, is to raise a fund by individual subscription, rather than by grants of money from the public stock of the companies. Nearly 5,000*l.* has already been subscribed amongst forty of the shareholders, subscribing 100*l.* each, and three of them 200*l.*, namely—Sir John Lowther, Bart., M.P., Mr. Alexander Dunlop, Largs, and Mr. Graham Hutchinson.

WORKS IN THE PROVINCES.

LANSDOWNE Tower, near Bath, designed and executed under the superintendence of the late William Beckford, Esq., is to be disposed of by auction, early in November next.——During the progress of the restorations now going on in Romsey Abbey Church, it was found necessary to remove a few feet, a large slab of Purbeck stone, measuring nearly 12 feet in length. It was supposed to cover some relic of antiquity, and was found, on raising it, to have formed the massive cover of a stone coffin, containing the skeleton of a priest, in a state of remarkable preservation, considering it to have been a deposit of the early part of the 13th century.—— The ceremony of laying the first stone of a new church at Zeals, in the parish of Mere, Wilts, took place on Thursday, the 11th instant. It is to be dedicated to St. Martin. The design is by Messrs. Scott and Moffatt.——A stained-glass window has recently been put in the chancel of Newtontoney Church. The design was by a neighbouring clergyman, the subject being the calling of St. Andrew, in whose name the church was consecrated. The work was executed by Messrs. Ward and Nixon, with the exception of the principal figures, which were painted by the Dowager Lady Malet, of Wilbury House, who is the munificent donor of the whole.——The contract for the additions to and alterations in the convict gaol at Spring-

field, Essex, was signed last week, by Mr. Winsland, of London, and Tuesday next is fixed upon to break ground. The commencement of operations will be the erection of the apartments for females and debtors, and the chaplain's and governor's houses.——The *Edinburgh Advertiser* states that the Provost of Kirkwall lately received a letter from the Duke of Sutherland, intimating that Sir Robert Peel had agreed, on the part of the government, to grant a sum of money for putting the ancient and venerable Cathedral of St. Magnus in a state of efficient repair.——The *Scottish Railway Gazette* says that some of the railway companies contemplate the purchase of the College of Glasgow for the formation of a general terminus, for which purpose the locality is well adapted.——The parish church of Tarrant Gunville, rebuilding under the direction of Mr. Wyatt, the diocesan architect, is nearly completed, and will very shortly be consecrated by the Bishop of Salisbury.——The new church at Wilton, near Salisbury, built at the sole expense of the Hon. Sydney Herbert, and to which we have more than once drawn attention, is to be consecrated on the 9th proximo, by the Bishop of Salisbury.——Lady Emma Pennant has not only contributed handsomely towards the rebuilding of the old church at Whitford, near Holywell, but undertaken to build a new aisle at her own expense.——Cottingham Church, situate in the East Riding of Yorkshire has recently undergone very extensive alterations and improvements. Three hundred additional sittings have been provided.——Among the many improvements that have of late been effected in the port of Hull, may be mentioned the graving dock of Messrs. Edward Gibson and Son, situate on the garrison side of the town. The works have been carried out on a liberal principle, and the space so much extended, both in length and breadth, and depth of water, as to insure the commodious reception of the largest ships navigating the Humber, whether under canvas or impelled by steam.——A correspondent of the *Hull Packet* has revived the project, which has more or less slumbered since 1843, of erecting an additional bridge across the river Hull. He says, every one who has frequent occasion to cross the Old Dock or North Bridge, must be fully aware that an additional bridge is now much wanted, and its formation will soon be indispensable to accommodate the additional traffic of the east dock with the proposed railway terminus on its quay.——Much activity prevails at the present time in strengthening the fortifications and defences of Portsmouth Harbour. The improvements at Blackhouse Fort are also rapidly progressing, a large number of men being now employed under contract for that work. The fort is being made into a two-tier battery of fifty guns. At the northern part of Blockhouse Point a new battery or circular fort is being formed, which will flank the entrance of the harbour. Between this new battery and the Blockhouse Fort a new barrack is in course of construction.——The restoration of the ancient church of St. Mary de Crypt, Gloucester, is nearly completed. This interesting specimen of ecclesiastical architecture contains several examples of the earlier styles. The Norman doorway at the west entrance, and the Early-English window in the south-east aisle, are deserving of especial notice.——A few days since the workmen employed in excavating for the new branch railway which is intended to run from the Stratford station of the Eastern Counties line to the mouth of the river Lea, near Blackwall, lighted upon some curious and interesting remains connected with the Benedictine monastery. About 2 feet below the surface a sort of chamber presented itself, of an oblong shape, rounded at one end and square at the other, about 12 feet long, 8 feet wide, and 5 feet in depth. The outer wall, which is of strong masonry, is about 6 inches thick. Within that is a layer of cement, which is again lined with thin red tiles of peculiarly close texture. It is clear that this chamber, which, when whole, must have been a very handsome one, was intended as a lavatory, for which purpose a well, that was discovered within two or three feet of it, furnished an abundant supply of water. A few yards lower down towards the Thames the workmen broke into an archway very strongly built, somewhat after the Danish manner, (?) which has given rise to much conjecture.

SUBARCUATION AND WILLIAM OF WYKEHAM.

At the recent meeting of the Archæological Institute at Winchester,* the following interesting letter, addressed by Dr. Ingram to Dr. Williams, Warden of New College, was read, but seems to have escaped the London reporters:—

"Monday, Sept. 8.

"My dear Warden,—I thank you much for your kind letter received yesterday. * * You flatter me too much by supposing my presence at Winchester to be of much importance, though I am placed in the Architectural Section. It is now nearly half a century since I used to pace the gorgeous aisles of Winchester Cathedral, and make the Church of St. Cross the object of my almost daily walks. Since that time I have been gratified to find how universal almost has become the correct taste and knowledge, as well as admiration, of medieval architecture; and there cannot be a better school for it than the various portions of Winchester Cathedral, the churches of St. Cross, Romsey, &c. The gradations and transitions of the art are numerous, but easily traced; from the plain crypt of St. Ethelwold under the presbytery of the cathedral, and the Norman transept of Walkelyn, to the splendid works of Edyngton, Wykeham, Beaufort, Fox, and Langton. The members of the Architectural Section should particularly notice and examine the manner in which William of Wykeham carried on the work which his immediate predecessor, Edyngton, had begun at the west end of the nave. A difference is observable not only in the windows, but in the mouldings and tracery of the panel work below in the interior. Perhaps a few sketches in detail of the respective works of these two prelates might be interesting and useful, as tending to illustrate the progress and advancement of architectural taste and science, during the long and brilliant reign of Edward the Third, under the auspices of such patrons as these; the one the King's Treasurer, and the other, constituted by letters patent, Surveyor of the King's Works. The large church which Bishop Edyngton erected from the foundation in his own native place, in Wiltshire, from which he derives his name, is well worthy of the attention of the archæological antiquary and the artist; some details of which, at least, might be considered as not unconnected with the examination of his other works at Winchester. In the same manner, if the various works of William of Wykeham, executed at Adderbury, King's Sutton, Oxford, Bishop's Waltham, and Winchester, were placed in juxta-position with each other, it would be found that he began with the Decorated, and ended with the Perpendicular, according to the nomenclature of the late Mr. Rickman. There is one point which deserves particular attention in the late architecture of William of Wykeham. No other architect before his time so well understood, and practically applied, the principle of subarcuation; that is the mode of constructing two inferior and subordinate arches under the third or main arch. They both seem to rise naturally from the middle stem, or principal mullion in the centre of the window, diverging at a certain point with an easy sweep or curve, so as to form two independent arches, filled with corresponding tracery, and serving to strengthen, at the same time that they adorn, the master arch that contains them. This principle, which is so obviously predominant in all large windows, was not unknown at an earlier period, and was practised to the latest; but the arches were often lost in the intersection or crossing of the mullions; and sometimes, as in the windows of the clerestory of St. Mary's, at Oxford, the diverging point is so unscientifically chosen, as to produce the worst possible effect. The best examples of this principle of construction, therefore, I have no hesitation in ascribing to the superior taste and skill of William of Wykeham; and of those examples, perhaps, no better can be found than in the windows of New College Chapel. I call this the principle of subarcuation; and the arches themselves, in the memorials of Oxford, I ventured to call *subarches;* but I observed some writers since confounding them with the *soffits* of arches. As the subject, therefore, appears to be new, if any thing in architecture can be so, I have submitted it now to the consideration of the architectural section of our society.—I remain, my dear Warden, yours truly, in haste, J. Ingram.

* See pp. 442—446 *ante*.

WESTMINSTER COURT OF SEWERS.

On Friday, the 19th instant, a meeting of the commissioners took place at the Court House, in Greek-street, Soho, when a great deal of mere routine business was transacted.

Mr. J. Ponsford having petitioned the court to allow him to build 840 feet of 24-inch barrel drain in the old line of the Bayswater stream, and the following letter on the nuisance caused by the diversion of the sewer having been read:—

"62, Moorgate-street, 4th Sept., 1845.

Sir,—Mr. Kerr, of Kensington Gardens Terrace, has consulted with us on the subject of the nuisance to which he and his neighbours have been subjected in consquence of the arrangement made by the Commissioners of Sewers in turning the course of the rivulet which ran at the back of his house; and as the inconvenience is so great, that he is scarcely able to live in the house, it becomes necessary that the commissioners should take the necessary means for removing the annoyance complained of; or if they fail to do so, we shall be compelled to adopt such steps for compelling them as our counsel may advise.

When Mr. Kerr took the house he was subjected to no such inconvenience, which we understand it is admitted has been produced by the act of the commissioners; and if this be so, we are sure that so respectable a body will lose no time in taking the proper steps to remove it.

Had the present summer been as hot as usual, it is frightful to imagine what might have been the consequence; but having now formally called your attention to the subject, we are sure that it will be removed.

We are, Sir, your obedient Servants,

Simpson and Cobbe."

The Court refused to grant Mr. Ponsford's petition, but allowed the permission for a length of third size sewer, instead of the barrel drain. The only other question of importance during the day was No. 6 in the business paper, "To consider the steps to be taken for new contracts for the works."

Mr. Leslie moved and Mr. Robert Gunter seconded a motion, in nearly the same words which we have before given, that all works exceeding 50*l.* be carefully prepared for by estimates, plans, and specifications, and subsequently advertised for in the daily papers and in this journal.

An amendment was moved by Mr. William Leverton Donaldson, and seconded by Mr. Gutch, "That the present system of contracting for works be pursued." For the amendment, three:—Messrs. Frederick Crace, W. L. Donaldson, and Gutch. Against the amendment, ten:—Messrs. Baylis, Cantwell, Clowser, Fuller, J. Gunter, R. Gunter, Leslie, Marriott, Unwin, and Wood. The original motion was then carried by twelve to one. The court adjourned to Friday, the 3rd October.

Plymouth Breakwater.—We understand that the attention of the Board of Admiralty has been again directed to the important question as to whether or not Plymouth Sound has lessened in depth of water by reason of the construction of the breakwater. It will be recollected that about four years since accurate soundings were taken throughout the Sound, and the result marked upon a chart constructed for the purpose. During the present week similar soundings have been again commenced, and we doubt not, that when complete the result will prove of the most satisfactory description. It is intended that the bottom of the Sound shall be examined with the aid of the diving-bell, and arrangements are now making for that purpose. Connected with these proceedings Mr. James Walker, the engineer, arrived here on Thursday.—*Plymouth Times.*

Failure of Wood Paving in the Strand.—The authorities of St. Clements Danes have advertized for sale as fire-wood about 500 yards of wood paving, now laid down between the top of Arundel-street and Norfolk-street, and intend to replace the same with stone as before.

THE LIVERPOOL ASSIZE COURTS.

On Saturday we took a hasty glance at the interior of this noble pile of buildings, and found that the work continues still to make a very slow progress. The sound of the hammer and chisel is to be heard at every angle; and we have no doubt, from what we saw and learned on our visits, although the walls are bare, and the building itself is neither roofed nor floored, that a very considerable portion of the preparatory part of the workmanship has been accomplished. The twenty-four granite columns which are to adorn St. George's-hall have arrived from Aberdeen, and the inauguration of the first of them into its position will take place to-day. The columns will have an extremely grand and imposing effect, the granite being of the richest vein we ever before had the opportunity of inspecting. The only other columns in the kingdom which bear any comparison to them are the four in the British Museum in London. There the columns are each hewn from the one block, and present to the eye of a beholder a very elegant appearance. Here, in order to save expense, each column will consist of five or six different pieces, and the joinings must necessarily detract to some extent from the general effect. Still, viewed from either end of the magnificent hall, which will be 199 feet in length, the grandeur and massiveness of the sight will be unequalled. The columns for the front entrance are also nearly completed, and so are the sixteen Corinthian capitals. The capitals are from the design of Mr. S. C. Kelsey, of London, who has been superintending their execution; and some idea of their massiveness will be gathered from the fact that each of the circular ones weighs 9 tons, and each of the square ones 11 tons. Many of the internal embellishments, though not yet fixed in their respective places, are either completed or in a state of great forwardness; and we may add, as a proof that Mr. Elmes, the architect, is availing himself of the present fine weather, that he has at present 170 workmen daily employed. There appears to be very little difference of opinion, however, on this important point,—that it will take from two to three years, at the very least, to finish the building. But, however distant the period of its completion may be, it will, when finished, be such an ornament to Liverpool as no other town in the kingdom can boast of possessing. Its extreme length will be 498 feet. The length of the hall, as we have said, will be 199 feet; its width 72 feet 9 inches; its height 87 feet 6 inches. The length of the courts will be 59 feet 9 inches; their width 50 feet 6 inches; their height about 30 feet. The concert-room will be 70 feet square by about 40 feet high.—*Liverpool Albion.*

PIRACY OF PAPER STAINER'S DESIGNS.

On Saturday, a case of some interest occurred at Guildhall, shewing that the expensive proceedings in the Court of Chancery, by way of injunction, may be dispensed with in very many cases by the summary method before a magistrate. In most cases of injunction in the Court of Chancery, to restrain piracies of designs and inventions, the object of the parties is usually publicity, or, in other words a grand style of advertisement. Now the same end can be obtained at a much less expense in the following manner:—

Mr. Denton, a paper-stainer, in Leadenhall-street, was summoned before Aldermen Kelly and Moon to answer an information, filed on behalf of Mr. Boswell, a paper-stainer, in Dublin, for selling a fraudulent imitation of a registered design for paper-hangings, the property of Mr. Boswell.

Mr. Clarkson attended to support the information, and Mr. Pelham appeared for defendant. Mr. Clarkson stated the nature of the provisions of the Act respecting the registration of certain original designs, and that Mr. Boswell registered a new pattern for paper-hangings on the 8th of February, 1843. After some time he found his pattern had been copied by a London manufacturer, and was being sold in Dublin. He proceeded against that person and obtained a conviction; and he gave notice to the defendent to desist from manufacturing it. The defendent wrote back a letter, in which he said he could prove that the pattern had been copied from a Parisian manufacturer, and was not original, or if it was, that it had been published before it was registered, and therefore was not entitled to registration.

Mr. Alderman Moon asked if this was not properly a question for the Court of Chancery? Mr. Clarkson said he was sure the alderman was, like himself, one of the last persons who would advise anybody to get into Chancery who could possibly keep out of it. The very object of the law was to give a small tradesman a speedy relief at a small expense, in cases of piracy upon some invention or improvement he had registered.

Evidence was then adduced to prove that the defendant had printed and sold paper exactly corresponding in design with the design registered by the complainant; after which Mr. Alderman Kelly and Mr. Alderman Moon consulted together, and pronounced the defendant's paper a fraudulent imitation of Mr. Boswell's, and fined the defendant 5*l.*

Mr. Denton promised he would sell no more of the paper.

Correspondence.

WORKS IN THE TOWER OF LONDON.

Sir,—Permit me to correct one or two trifling inaccuracies in your account of the works at the Tower, in your last number. Under ordinary circumstances they may not be of much importance, but as you have been particular in giving inches, the statement in some measure partakes of the appearance of an official one; it is therefore, I think desirable that the correction should be made. The length in front and at the back is as you state 288 feet and 271 feet 8 inches respectively. The width of the main building is 57 feet 6 inches, but at the flanks it extends to 65 feet 8 inches. The extreme width in the centre including the projections of the towers is 82 feet 9 inches. The size of the principal rooms is 28 feet 25 inches. The total cost is estimated at little more than 30,000*l.* instead of 50,000*l.*

I regret to say, the other works contemplated in the Tower do not include the restoration of the White Tower, which is at present, as you justly observe, a disgraceful monument of ignorance and want of taste.—I am, Sir, &c.,

G. R. Brock, Royal Engineer Department.
11, James-street, Buckingham-gate,
22nd Sept. 1845.

STEAM FROM COMBUSTION OF GAS.

Sir,—I am teased to death every winter with a nuisance, the cause of which I dare say some of your intelligent readers may be able to point out, and tell me how to remedy. As soon as, or at least very soon after, the gases are lighted, the windows of my shop are covered with damp. It is in vain for me to put any thing tempting into them, for no one can see what is there, and the article itself gets spoiled by the condensed steam. If you could suggest some remedy, you would greatly oblige,

Sept. 17, 1845. A Shopkeeper.

Rochester Cathedral.—One who has lately been staying at Rochester says, the roof of the nave has been stained, and the side aisles have been newly roofed. The increased darkness of the roof (the effect of staining) will throw out to a greater degree than formerly the magnificent Norman architecture of this portion of the cathedral, the massive columns and arches of which, supporting an elegant ambulatory, are, I believe, unequalled in antiquity by those of any other cathedral in England. The nave and western transept are also being repaved with stone; the old red tiles, which were so great a disfigurement, having been taken up. The choir, too, which is an excellent specimen of pure Early-English architecture (built in the thirteenth century), is undergoing great alteration, the fronts of the pews, as far up as the pulpit and bishop's throne, which were formerly stained deal, and quite plain, having been removed, and carved Gothic panelling being introduced in their stead. Four additional pews are also erected.

Miscellanea.

Antiquities in Exeter.—Mr. Anning's, 173, Fore-street (late Alderman Phillips'), which boasts of a date as long ago as 1584, being in a ruinous condition, has lately been taken down, and will shortly be rebuilt on a modern and more improved plan, adapted to modern commercial industry, and pursuits of business. It reminded the visitor forcibly of the old ancestral mansions of by-gone centuries, and of the poet Gray's lively tale of "windows that excluded the light, and passages that lead to nothing," being so full of closets, corridors, passages, and peep-holes, that without a guide to thread the labyrinth, the stranger might be lost in the mazes. In one of the parlours was an escutcheon, in plaster, bearing the armorial of Martin of Exeter; argent two bars gules, the initials T. M. below. On the other a shield, three dolphins naiant, crest a squirrel seiant, proper, below M.M.* In digging under this house, as in other parts contiguous, remains of Roman occupation presented themselves. — *Western Luminary.*

Paris.—The *Journal des Debats* announces that three members of the municipality of Paris, the chief of the prefecture, and architect, and an inspector of market-places, have started for London, for the purpose of gathering hints for the new grand market in Paris. After having visited our principal provincial towns, they propose to carry on their inquiries in Holland and even in Berlin.—The ancient cathedral of St. Denis, near Paris, is about to receive a new roof of iron, lined with plates of copper, which has cost 400,000 francs. The repairs of this building, which were begun by Napoleon, are now nearly completed.

Bricklayers' Work in Tunnels.—We reprint the following from a communication by Mr. Simms to the *Railway Chronicle*:—The average time taken to turn twelve feet leading lengths at Blechingley tunnel, four bricklayers and seven labourers being employed, was as follows:—

	Days.
Time occupied in the construction of the invert and side walls	1·88
Time occupied in setting the centre, and turning the arch	2·42
Total time occupied in constructing a leading length	4.30

St. Margaret's Church, Westminster.—The doubt which has existed for a long time as to whether this church was to be pulled down or repaired, is at last dispelled by the vestry-clerk publicly recommending the families or friends of persons having monuments in the church, who are desirous to protect them from any injury likely to happen during the approaching repairs, to apply to Mr. Gritten, architect.

The Royal Exchange Gates.—Workmen have been employed during the past week in fixing the permanent gates at the north entrance of the Exchange, facing Bartholomew-lane. They are made of wrought iron, the decorations being in cast iron. In the centre of the gates on either side, are the arms of the City of London and of the Mercers' Company, with the cipher of Sir Thomas Gresham, T. G., very ingeniously introduced. In the ornamental heads of the gates, the rose, thistle, and shamrock appear entwined.

Architects in Ireland—At a meeting last week of the Royal Irish Architectural Institution, an address was voted to the Marquis of Clanricarde, the president, and chairman of the day, and a resolution passed expressive of a desire for some modification of the Board of Works, so as to admit of a fair participation by the architects of the metropolis and Ireland generally in the construction of public buildings.

* History of England, Appendix to the reign of James I.

* This proves, most probably, the house to have been built by Thomas Martin, mayor, 1581, who was the third son of Richard Martin, by his second wife, Margaret, daughter of William Hurst. He married first Alice, daughter of Blackall, then Margaret Hill. The date of the house thus was three years prior to the execution of Mary Queen of Scots, and four previous to the defeat of the Spanish Armada. It was one of the old edifices of timber frame, possibly, with projecting fronts on large brackets, and bay windows, and it had a peculiarity once common in the mercantile houses of Bristol at that period—viz., a groined apartment, with corbel heads and nodes curiously carved, on the groined floor, used to stow away goods, and at times for convivial purposes. But, in this instance, there was another groined chamber also above, on the second floor.

AIDS FOR BUILDING PARSONAGES.—By the Act (1 & 2 Victoria, cap. 106) entitled, "an Act to abridge the holding of benefices in plurality, and to make better provision for the residence of the clergy," the bishop, on avoidance of benefice not having fit house of residence, is authorised to raise money to build one, by mortgage of glebe, &c., for thirty-five years. By the same Act, the governors of Queen Anne's bounty are authorised to lend money for the same purpose, *i. e.* a clergyman wishing to build, is permitted to borrow (of the governors) three years' income (or *four* with permission of the diocesan), at four per cent. to be repaid *by the living* in thirty years, by a sum diminishing every year. Of this Act, which extends to 133 sections, thirteen are occupied with this subject.

Tenders.

For St. Marks Church, St. John's Wood, as delivered on Saturday last; Mr. C. Norris, architect:—

Cuthell	£8,494
Grimsdell	8,607
Burton	8,616
Kelk	8,660
Winsland	8,708
Jay	8,773
Hicks	8,894
King	9,633

NOTICES OF CONTRACTS.

We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the execution of Works on the Dundalk and Enniskillen railway, being a distance of ten miles.

For the execution of works on the Manchester South Junction and Altringham Railway, in two parts: 1, being a distance of 1¼ mile; 2, being a distance of 7¾ miles.

For the execution of Works on the Manchester and Birmingham Railway in 2 parts. 1. The Ashton Branch, being a distance of about 4¾ miles. The Macclesfield branch, being a distance of about 30 chains, including a tunnel of 330 yards in length.

For supplying the Leeds and Thirsk Railway Company with 100,000 Railway Sleepers.

For the execution of works on the East Lancashire Railway, viz., the Accrington Contract, being a distance of about 8 miles.

For the execution of that portion of the Newcastle and Berwick Railway, extending from Fetherton to Tweedmouth, being a distance of about 53 miles. To be let in four contracts.

For the execution of the Works between Shipley and Keighley for the Leeds and Bradford Railway Extension. They include the Fencing, Earthwork, and Masonry, roads and permanent way. In length about 7½ miles.

For the supply of 5,000 Tons of Malleable Iron Rails, and 1,000 Tons of Cast-iron Chairs, to the Huddersfield and Manchester Railway and Canal Company.

For the supply of 1,700 Tons of Wrought-iron Rails; 2,000 Tons of best Yellow Pine Timber, and 21,000 Beech Sleepers; 100 Sets of Wrought-iron Wheels, to the Cork and Bandon Railway Company.

For the execution of the Works, in two divisions, for the Dublin and Belfast Junction Railway. The first division being a distance of 8 miles and about 4 yards; the second division being a distance of 5 miles and about 1,453 yards.

For the supply of about 4,000 Tons of Rails for the Edinburgh and Northern Railway.

For the supply of about 1,000 Tons of Railway Chain for the Edinburgh and Northern Railway.

For the rebuilding the Eastern Wall of the chancel of the parish Church of Belton, in the Isle of Wholme.

For the erection of several fourth-rate Cottages in the neighbourhood of London.

For the supply of 60,000 Memel or Red Pine Spars, and 120,000 of Larch, Scotch Fir, or Deal, according to specification, for the Dublin and East Junction Railway.

For the execution of the Richmond Branch of the Great North of England Railway.

For repairing the Footways of the Streets and other Places within the liberty of the Bishop of Winchester, Manor of Southwark on the Clink, for one, two, or three years.

For the execution of Works on the Syston and Peterborough Railway, in 2 parts: part 1 being a distance of about 9½ miles; part 2 being a distance of about 12 miles.

For certain Glazier's Work, to be done at the Workhouse of the Whitechapel Union.

For supplying the Liverpool and Bury Railway Company with Sleepers, conformable to specifications.

For supplying the Parish of Christ Church, Surrey, with Guernsey Granite of the best quality, and broken to a two-inch ring.

For the execution of works on the Leeds, Dewsbury, and Manchester Railway, viz., the Churwell Contract, being a distance of about 2½ miles.

For the execution of a portion of the Edinburgh and Northern Railway, being a distance of about 8 miles; to be estimated for in two lots.

For supplying the Eastern Union Railway Company with 8 First Class, 12 Second Class, and 8 Third Class Carriages; to run on six wheels, the gauge being 4 feet 8½ inches.

For the Erection of Stone Booking-offices for Sheffield and Manchester Railway Company.

For supplying 15,000 Sleepers of Larch, 7 feet 6 inches long, and 7 feet 3½ inches at the 7 feet end; to be delivered at the Menai Bridge small-head, within the next four months.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At Heytesbury, Wilts: about 4,000 feet of 1-inch and ¾-inch Oak Boards; 1,200 of 1-inch, 1¼-inch, and 1½-inch Oak Quarter Board; from 2,000 to 3,000 feet of Elm, Ash and other Board of various thickness; 900 feet of 2, 3 and 4-inch Oak Plank; 3,000 feet of Oak, Ash, and Elm Quarter and Plank, from 2½ to 4-inches thick.

In the brick fields adjoining the road from Folkstone to Cherrington: 56 clamps of Bricks, containing about 3,000,000.

At Bedminster; 20,000 feet of prime, well-seasoned Oak Plank, varying from 2 in. to 4 in. thick; a few logs of Cedar and Pine, &c.

At 57, Worship-street, Shoreditch; 3,000 feet of very fine Spanish Mahogany Boards; 6,000 feet of Spanish Mahogany, in Planks, Boards, and Squares; 3,000 feet of fine Wainscot; a quantity of Rosewood, Bird's-eye Maple, &c.

TO CORRESPONDENTS.

"H. M'Cormac, M.D.," *next week; we offer thanks.*

"Mr. P." *will see we have availed ourselves of his communication.*

"A. M."—*We will look to the papers sent. Our correspondent should have forwarded his letter to us direct, not through the columns of another journal. In reply to our correspondent's second letter, we shall be glad to receive information.*

"Tyro," (Bristol). — *We advise him to get "Tredgold's Carpentry," or Peter Nicholson's volumes on the same subject, and copy the diagrams.*

"Self-Acting Water Closet."—*In reply to a number of correspondents, Mr. Sistenson, corner of Sumner-street, Southwark-bridge-road, is manufacturing the closet under the inventor's directions.*

"Apprentice," (Norfolk).—*Nos. 2 and 3 of* THE BUILDER *are out of print.* "*The Manual of Writing and Printing Characters*" *would be very useful to a person employed in the way mentioned. The work on ornaments mentioned is not first-rate, but it is cheap, and may be usefully consulted.*

"Levelling, &c."—*A young man, whose time is engaged in the day, wishes to know where he can be taught the theory of levelling and surveying, use of instruments, &c.*

"Bishop."—*A correspondent inquires for a person of this name, who gave attention to warming and ventilating rooms.*

"Dr. L." *postponed till next week by accident.*

"C. B." (Wood-carving).—*Every architect's clerk who makes a drawing from his employer's sketches has as much right to claim public acknowledgment of his share in the work, when completed, as* "C. B." *seems to have in the case mentioned. What works has* "C. B." *produced of himself? Will he let us see them?*

"C. H." (Shepherd's Bush).—*York Minster stands on much more ground than Westminster Abbey Church. The area covered by the former may be roughly stated at 86,000 square feet; by the latter, including chapels, 67,000. The Chapter-house, cloisters, &c., are not included in either case.*

"Juvenis."—*There is no circulating architectural library. We wish there was. Students at the Institute of Architects have access to a good library, open all day, and three evenings in the week.*

Received: "The Rev. J. F.;" "W. H." (Bermondsey); "Σ.;" "J. L." (Bond-street); "An Observer;" "A Non Parishioner;" "Double Entry Elucidated," by B. F. Foster (Souter and Law, Fleet-street).

ADVERTISEMENTS.

ROYAL ADELAIDE GALLERY.—NOVEL ENTERTAINMENT.—Atmospheric Railway daily, with explanatory lecture. The New Zealand Chief, Pahe a Range, will give a course of Lectures on the Manners and Customs of New Zealand, in the evenings of Monday, Wednesday, and Friday next. Mr. Russell continues to deliver his unequalled Lectures on Character, Tuesday, Thursday, and Saturday Evenings. Lectures on Science, &c., Daily, including Major Beniowski's Artificial Memory; Beale's Rotatory Steam-engine; Kollman's Locomotive Engine for ascending inclines on railways. Every Evening a grand Promenade Concert, supported by first-rate talent, both vocal and instrumental.

A MAGNIFICENT, EXTENSIVE, and UNIQUE COLLECTION of TROPICAL FRUITS, modelled by Mons. Grimaud during his long Residence in the Isle of France, is just deposited at the ROYAL POLYTECHNIC INSTITUTION. The ATMOSPHERIC RAILWAY is lectured upon by Professor Bachhoffner, and exhibited Daily, and in the Evenings. A NEW AMERICAN INVENTION, COLEMAN'S PATENT LOCOMOTIVE ENGINE for ascending and descending inclined planes on Railways without the aid of stationary power. SWIMMING and DIVING ILLUSTRATED by the Son of Capt. Stevens, the celebrated teacher of Swimming, on Mondays, Wednesdays, and Fridays, at Two o'Clock, and on the Evenings of Tuesdays and Thursdays, at half-past Eight o'clock. The other Exhibitions, &c., as usual.—Admission, One Shilling; Schools, half-price.

SNOXELL'S PATENT REVOLVING WOOD SHUTTERS.

WM. SNOXELL, 96, Regent-street, and 131, Chancery-lane. These Shutters combine Economy with perfect Security, having the edges sheathed with iron; the cost little more than common shutters, and of such simple construction, that the largest establishments can be opened or closed in a few moments with the greatest possible ease without the use of machinery. One great advantage over all other revolving shutters consists in their being made without metal hinges, consequently cannot rust or get out of order.—Highly satisfactory references of their utility can be given to establishments where they are now in use.

WINDOW BLINDS, ORNAMENTAL WIRE-WORK, FLOWER-POT STANDS, &c.

To Architects, Builders, Contractors, Upholders, and others.

M. H. BUSBY, NEW VENETIAN HOUSE, 7 and 8, Anderson's Buildings, City Road, London, Manufacturer of every Description of Window Blinds on the most approved principles, namely, the Spanish, Oriental, Florentine, Louvre, and Venetian Sun Shades, for the exterior; and Venetian Dwarf, Metallic Gauze, Perforated Zinc Blinds, Transparent, Landscape, and Holland Blinds on Springs, Patent and Common Rollers for the Interior; Blinds for Shop Fronts, Plain and Ornamental, on the most Improved plans. Old Blinds Altered, Renovated, and Refixed. A variety of Flower-pot Stands always Ready. Rustic, Portable, and other Garden Seats and Stools; Wire-work for every purpose useful and ornamental. Venetian Blinds for Exportation.

E. G.'s TRACING-PAPER.—It is warranted to take Ink, Oil, or Water colour, and is sold by Mr. T. HORNE, Seal Engraver, 2, Thanet-place, Temple Bar, at the following cash prices:—

THIN TRACING-PAPER.

60 by 40, at 14*l.* 0s. per Ream, or 15s. 0d. per Quire.
40 by 30, at 7*l.* 0s. ,, 7s. 6d. ,,
30 by 20, at 3*l.* 15s. ,, 4s. 0d. ,,

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N.B.—Every sheet is stamped with the Initials of the Manufacturer.

This beautiful and unequalled article is allowed to be the cheapest and most useful Paper hitherto introduced to the public, as will be best proved by a trial.

TO CONTRACTORS, RAILWAY DIRECTORS, ARCHITECTS, SURVEYORS, &c.

HUNT'S IMPROVED PATENT URINAL, for Railway Stations, Hospitals, Public Offices, &c., wholly free from metal, and thereby any deposit of ammonia is wholly prevented, and consequent taunting of the atmosphere. It is more sightly and much more economical than any article yet introduced for its intended purpose. References given to public offices, where it may be seen fixed. "It is admirably adapted for its purpose, and cannot fail to be extensively adopted in railway stations and other places. Water is admitted through small holes all round the rim, whereby it is cleansed. It is superior to any thing of the kind yet seen, and deserves to be generally known."—*The Builder.*

Wholesale Depôt, Queen's-row, Pimlico.

VARNISH.—It has long been a desideratum amongst the consumers of Varnish to obtain a good and genuine article; brilliancy, facility of drying, hardness, and durability are the qualifications necessary, but these are seldom if ever found united. The experience of a life-time devoted exclusively to the manufacture of this article, the great and important discoveries of modern chemistry, and the daily improvements in machinery, have enabled Messrs. George and Thomas Wallis to produce Varnishes (both oil and spirit) unrivalled in every respect, and they confidently recommend them to the trade, as deserving of notice both in price and quality.

Builders, Coachmakers, Painters, and others may depend on being supplied with a genuine and unadulterated article. Fine Oil Varnish, from 10s. per gallon; best White Spirit Varnish, 21s. ditto; Best Spirit French Polish, 20s. ditto; White Lead, Oil, Turps, and Colours of every description at the very lowest prices.—WALLIS'S Varnish, Japan, and Colour Manufactory, 64, Long-acre, one door from Bow-street. Established 1750.

WALLIS'S PATENT LIQUID WOOD KNOTTING.—This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; a boy can use it as well and effectually as the best workmen: it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20s. per gallon.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

Agent for Liverpool, Mr. WYLIE, 56, Gloster-street; ditto for Manchester, Mr. J. THOMPSON, Back King-street; ditto for Chester, Mr. J. HARRISON, Linen Hall-street.

ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architecture and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

MARTIN'S PATENT CEMENT.
TO ARCHITECTS, BUILDERS, AND PAINTERS IN FRESCO.

STEVENS and SON, PATENTEES and SOLE MANUFACTURERS, beg respectfully to announce that this beautiful Cement has now arrived at a degree of excellence far surpassing their most sanguine expectations. For all internal work it possesses a great superiority over every article hitherto in use; it is now being used extensively by Government in the British Museum and other public buildings. IT DOES NOT THROW OUT ANY SALT, but presents a beautifully plain and perfect surface, which may be painted upon dry work within four days without peeling. It is equally applicable for walls or lath, for mouldings, architraves, skirting, or flooring; and is admitted to form the best ground for fresco painting, having been used for many of the prize frescos lately exhibiting in Westminster Hall. It will bear an intense heat without cracking, and for hardness, durability, and economy, cannot be equalled.

186, DRURY-LANE, LONDON.

Agent for Liverpool and Manchester, Mr. R. Part, 11, Atherton's-buildings, Dale-street, Liverpool.

KEENE'S PATENT MARBLE CEMENT.—The Patentees of this composition beg to refer to the British Museum, the Royal Exchange, the new works at Bethlem Hospital, Greenwich Hospital, and the Coliseum in the Regent's-park, as buildings finished or in progress, in which Keene's Cement has been used as an internal stucco. Its superiority to common plastering consists in its extreme hardness, and the rapidity with which it dries, which qualities fit it to receive paint or other finishing sooner than other water Cement.

When employed for skirtings, architrave, and other mouldings, in place of wood, it checks dry-rot, is impervious to vermin, prevents the spread of fire, and is more economical in its application than the material for which it thus becomes the substitute.

Confirmation of these statements is to be found in the almost universal adoption of Keene's Cement for Skirting and Hall flooring in the new houses on the Hyde Park Estate, where its application is to be seen to the fullest advantage.

In Liverpool and Manchester, Keene's Cement has in several cases been used for the covering of the fire-proof warehouse floors, where its lightness and hardness give it the preference over tiles and flagging, which are much heavier, and necessarily leave the floor intersected with numerous joints, whilst Keene's Cement is laid down in one unbroken surface.

The high polish and marble-like hardness of which this Cement is susceptible render it the most suitable material for the manufacture of Scagliola.

Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

Depôt in Liverpool, 36, Seel-street; James Woods, Agent.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application to MANN and CO., SOLE AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London; of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOUR STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the suction, thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, produceable by no other Paint whatever. It is cheap in its application,—and may be used by any Painter, in any climate, even in the most exposed Marine situations.

NOTICE TO INVENTORS.

OFFICE FOR PATENTS OF INVENTIONS and REGISTRATIONS of DESIGNS, 14, Lincoln's-inn-fields.—The printed INSTRUCTIONS gratis, and every information upon the subject of PROTECTION for INVENTIONS, either by Letters Patent or the Design Acts, may be had by applying personally, or by letter, prepaid, to Mr. ALEXANDER PRINCE, at the office, 14, Lincoln's-inn-fields.

PATENT OFFICE, 5, CHANCERY-LANE, NEAR FLEET-STREET.

INVENTORS requiring protection by LETTERS PATENT should apply direct to the PATENT OFFICE, as above, where Patents can be speedily procured for the United Kingdom, &c., and by which a great saving of expense will be effected. CAVEATS are entered at this office, fee 1*l.* 1*s.* DESIGNS of all kinds are REGISTERED. Apply at the PATENT OFFICE, 5, Chancery-lane, near Fleet-street.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1845. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

HIP TILES to suit slate roofs in colour; Ridges, with plain or rebated joints, roll tops, and vertical ornaments; drains, many sizes, with plain or socket joints; paving in squares, hexagons, octagons, &c., different colours; roofing, in Grecian or Italian styles, other devices also, or plain; conduits, which do not injure pure water; fire-bricks and tiles; clinkers, and out-door paving; sundry wall-coping, garden-borders, chimney-tops; also tubular and other flues of peculiar material. No agent, but a depôt at 22, WHITEFRIARS-STREET, FLEET-STREET, LONDON, under Mr. PEAKE'S personal care, to supply genuine TERRO-METALLIC goods at fair prices as per quality; also, additional Stock at No. 4 Wharf, Maclesfield-street, South, City Basin.

The TILERIES, TUNSTALL, STAFFORDSHIRE, are near the centre of England, whence boats are sent direct to any inland place; or to the Mersey for the coasts, the colonies, and elsewhere.

TO SURVEYORS, CIVIL ENGINEERS, &c.

HENRY POPE, Wholesale Stationer, 22, Bridge-row, Watling-street, solicits the attention of the Profession to his Metallic Levelling and Surveying Field Books, made of the best metallic paper with Patent Pencil, the superior style of which is obtaining for them general use. Drawings Mounted, and Tracing Papers, also Stationery of every description. The Ordnance Maps supplied, and Mathematical Instruments obtained at the Makers' Prices.

CAEN STONE.

LUARD and BEEDHAM have a quantity of the above stone, of the best quality, direct from their Quarries at Allemange, which may be inspected at the Norway Sufferance Wharf, Greenwich.—Further particulars at Mr. G. GATES', 18, SOUTHWARK-SQUARE, SOUTHWARK.

BATH STONE.

T. E. WELLER, of STEEL-YARD WHARF (late Drewe's), begs to inform Stone Merchants, Contractors, &c., that he can supply them with best FARLEIGH-DOWN STONE on lower terms than ever before offered.—Depôt for immediate supplies, DRUCE'S WHARF, Chelsea.

PIMLICO MARBLE AND STONE WORKS, BELGRAVE WHARF, PIMLICO-ROAD.

SAMUEL CUNDY begs to inform Architects, &c., that every description of Stone, Marble, and Granite work is executed at the cheapest possible rate.

Estimates given for Mason's Work in all its branches.

Gothic Work, Tombs, Monuments, &c.

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A large collection of Designs for Mural and other Monuments.

CHIMNEY PIECES from Twelve Shillings upwards.

Depôt for CAEN STONE, &c.

MARBLE CHIMNEY-PIECES.

THE WESTMINSTER MARBLE COMPANY embrace the opportunity of announcing to Builders and the Public generally, that they have made considerable reductions in their prices of Marble Chimney-pieces, and solicit an inspection of their extensive stock, now on view at their Show-rooms.

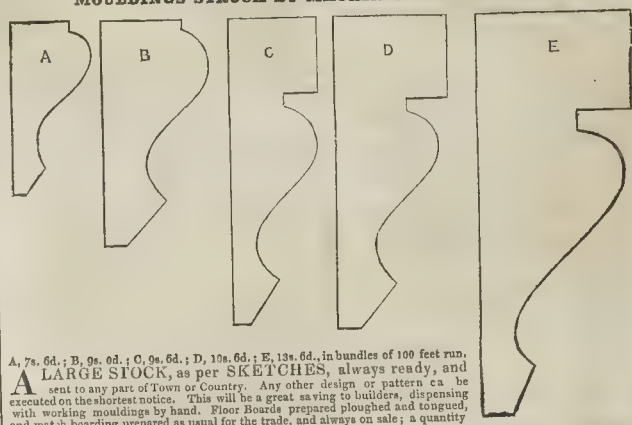
A neat Vein-marble Chimney-piece 1*l.* 15*s.*

Builders are respectfully informed that great savings may be effected by purchasing at this Establishment, and all orders will be executed from material of the best quality and workmanship.

N.B. Be particular in the address—

THE WESTMINSTER MARBLE COMPANY,
EAST-STREET, MILLBANK.

MOULDINGS STRUCK BY MACHINERY ALWAYS ON SALE.



A, 7*s.* 6*d.*; B, 9*s.* 0*d.*; C, 9*s.* 6*d.*; D, 10*s.* 6*d.*; E, 13*s.* 6*d.*, in bundles of 100 feet run.

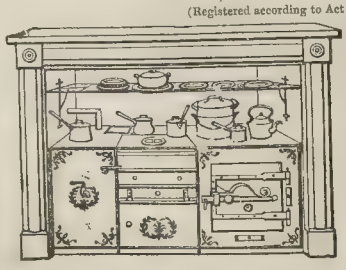
A LARGE STOCK, as per SKETCHES, always ready, and sent to any part of Town or Country. Any other design or pattern can be executed on the shortest notice. This will be a great saving to builders, dispensing with working mouldings by hand. Floor Boards prepared ploughed and tongued, and match boarding prepared as usual for the trade, and always on sale; a quantity of prepared floor-boards well seasoned.

Any information by applying to W. SMITH, at the factory, 12, Wharf-road City-road, or by letter, will meet with immediate attention.

IMPORTANT TO BUILDERS, ARCHITECTS, LICENSED VICTUALLERS, COFFEE AND EATING-HOUSE PROPRIETORS, PRIVATE FAMILIES, &c. &c.

WARR AND CO.'S IMPROVED COOKING APPARATUS.

(Registered according to Act of Parliament, No. 206.)



This improved cooking apparatus consists of—A HOT PLATE, which will keep boiling as many kettles and saucepans as will stand upon it. A capacious wrought iron OVEN, which is converted into a ROASTER by opening its valves. The oven contains, besides the usual moveable shelves, a SLIDING RACK, having hooks for the suspension of the things to be roasted, and a WATER DRIPPING-PAN, to preserve the gravy, &c., from being burned; A WROUGHT-IRON BOILER, which can be fitted with pipes for supplying steamers, heating-baths, entrance-halls, offices, or other rooms; a FIRE-PLATE of small dimensions, yet from its peculiar construction and the arrangement of its flues, is fully capable of performing all its requirements; a LARGER FIRE-PLATE WITH A MOVEABLE CHEEK is substituted for the ordinary one, where it is wanted to roast before the fire. An ASHES PIT on the level of the floor, shut from view by a door, with ashes pan; a PLATE-WARMER over the hot plate; an IRON DOOR opening into the chimney to regulate the draught, and to take the smoke when the cooking apparatus is converted into a common open fire, which is effected by opening the cover over the fire, and turning back the door in front of it behind the ashes pit door. In the construction of this cooking apparatus, every exertion has been made to combine the advantages of those materials as are best adapted to its various parts, in order to render it useful, a durable, and elegant piece of furniture. It is simple, requiring the least possible amount of skill in its management; it is economic, doing a great quantity of work with a little fuel; it is efficient, having every requisite, and performing its operations with the utmost expedition; it is cleanly, burning its own smoke, and making no dust; it is equally applicable on as small as to large establishments—to the cottage as to the palace; and may be seen in operation, by applying at the FINSBURY PANTECHNICON, CITY ROAD, next Bunhill Fields Burial-ground, and at Mr. Lawton's, 6, Sheppert place, New North-road, London; where terms and other particulars may be obtained.

G. SHILLIBEER and Co., Agents.

The Builder.

No. CXXXIX.

ATURDAY, OCTOBER 4, 1845.

EW street-fronts are now raised, either in London or the provinces, without an attempt to render them in some degree ornamental, and it is undeniable that the ect of our streets is considerably improved. ll the new thoroughfares recently opened, s have been bestowed, if not always suc- fully, to produce elevations novel and sing, shewing a regard for the beautiful as as the useful. A hundred years ago age said in his poem "Of public spirit in ard to public works :"—*

ho' no proud gates, with China's taught to vie, agnificently useless strike the eye;
Useless, where rocks a surer barrier lend,
here seas encircle, and where fleets defend)
hat tho' no arch of triumph is assigned
o laurell'd pride, whose sword has thinned man- kind;
no' no vast wall extends from coast to coast,
o pyramid aspires sublimely lost;
et the safe road through rocks shall winding tend,
nd the firm causeway o'er the clays ascend:
o! ample streets, Lo! ample squares invite,
he salutary gale, that breathes delight;
o! structures mark the charitable soil
or casual ill; maimed valour; feeble toil :"—

ince then, although a dark period inter- ed, our streets have been getting wider, squares *more* ample, our roads and ways roved to an extent at that time not dreamt and withal there has been a growing desire ombine ornament with utility in the houses the commonalty, and improve appear- e without lessening convenience.

'he fears expressed by Pope to Lord Bur- ton were not wholly vain when he said :—

et shall, my Lord, your just and noble rules
ll half the land with imitating fools;
'ho random drawings from your sheets shall take,
nd of one beauty, many blunders make.
oad some vain church with old theatric state,
urn arcs of triumph to a garden gate;
everse your ornaments and hang them all
n some patch'd dog-hole ek'd with ends of wall,
hen clap four slices of pilaster on't,
hat, laced with bits of rustic, makes a front."

What Pope feared, did really take place, this recipe to make an elevation, under ious disguises, was followed until it sed to have effect. The public, how- r, having become accustomed to external rnment, looked to have it, and con- ed efforts have since been made to rove street architecture. If we compare new squares and crescents in the neigh- rhood of Hyde-park, Pimlico, and Bromp- , for example, with the "Paragons," &c., hirty or forty years ago, we shall be com- ed to acknowledge that a considerable rovement has taken place. Colman, in his ccentricities," has some lines on suburban hitecture, under the title of "London rality," which recur to us so strongly, and so accurate, that, in our present quoting od, we cannot refrain from giving them. says :—

tretching, round England's chief Emporium, far,
No rage for Building quench'd by raging War,)
What would be Villas, rang'd in dapper pride,
Usurp the fields, and choke the highway side!

Printed for R. Dodsley at Tulley's Head in Pall-Mall, , 1737.

Peace to each swain, who rural rapture owns,
As soon as past a toll, or off the stones!
Whose joy, if buildings solid bliss bestow,
Cannot, for miles, an interruption know:
Save when a gap, of some half dozen feet,
Just breaks the continuity of street;
Where the prig Architect, with style in view,
Has dol'd his houses forth, in two by two;
And rear'd a Row upon the plan, no doubt,
Of old men's jaws, with every third tooth out.
Or where, still greater lengths of taste to go,
He warps his tenements into a bow;
Nails a scant canvas, propt on slight deal sticks,
Nick-nam'd Veranda, to the first floor bricks;
Before the whole, in one snug segment drawn;
Claps half a rood of turf he calls a lawn;
Then chuckling at his lath-and-plaster bubble,
Dubs it the Crescent,—and the rents are double."

We hope before long to commence a series of notices of the new parts, and to follow out the foregoing brief remarks.

We have lately received communications from several correspondents on the want of attention generally manifested at this moment to classic architecture,—gothic architecture engrossing it wholly. The most recent of them, who signs himself "A constant reader and admirer," says:—

"Can you inform me whether there is any publication giving plates and descriptions of the works of Sir John Vanbrugh? Surely the architect of Blenheim is as well deserving of paper and printing as many whose works are in the hands of all architects. We have a 'Glossary of Architecture' (so called), which is simply a collection of Gothic details; but we have no work giving in an equally accessible form the beauties of Italian architecture, as exemplified not only in the works of artists in Italy, but also in those of the master minds of our own country, such as Jones, Wren, Vanbrugh, Burlington, &c. Without intending to deny the beauty and merit of Gothic architecture, I cannot but regret that so little pains should be taken to popularize the other *and purer styles*. The mania just now is for Gothic architecture only; and this may be (and doubtless is) greatly owing to the circumstance, that the only books on architecture which are sufficiently cheap, and sufficiently brief, to suit the means and time of the general reader, are on that style. The consequence is that as he knows nothing of any other styles, he is glad to assume that there is nothing worth knowing therein."

We cannot shut our eyes to the fact, as stated, that little or no attention is paid at this time by writers, investigators, or students in England, to any style but Gothic; and are disposed to think, notwithstanding the great admiration with which we regard the works of the middle ages, and our conviction of the great superiority of gothic architecture for ecclesiastical purposes over all others, that harm will be done by pursuing this course.

In reply to our correspondent's very pertinent inquiry as to Vanbrugh's works, we are ashamed to say there is no book which adequately illustrates them.* Vanbrugh was ill-appreciated, and most unjustly treated by his contemporaries. Walpole's strictures on him, unjust, and reprehensible as they were, passed current for some time. Judge:—

"What Pope said of his comedies," wrote Walpole, "is much more applicable to his buildings:

How Van wants grace!

Grace! He wanted eyes, he wanted all ideas of proportion, convenience, propriety. He undertook vast designs, and composed heaps of littleness. The style of no age, no country, appears in his works; he broke through all rule, and compensated for it by no imagination. He seems to have hollowed quarries, rather than to have built houses; and should his edifices, as they seem formed to do, outlast all record, what architecture will posterity think was that of their ancestors? The laughers, his contemporaries, said, having been confined in the bastile, he had drawn his notions of buildings from that fortified dungeon. That a single man should have been capricious, should have wanted taste, is not extraordinary. That he should have been selected to raise a palace, built at the public expense for the hero of his country, surprises one. Whose thought it was to load every avenue to that palace with inscriptions, I do not know; altogether, they form an edition of the Acts of Parliament, in stone. However partial the court was to Vanbrugh, every body was not so blind to his defects. Swift ridiculed both his own diminutive house at Whitehall, and the stupendous pile at Blenheim; of the first he says:

At length they in the rubbish spy
A thing resembling a goose pie.

And of the other;

That if his grace were not more skill'd in
The art of battering walls than building,
We might expect to see next year
A mouse-trap man chief engineer."

Vanbrugh was himself a wit, made many enemies, and was further attacked from party feeling. Pope, amongst other things, said, in allusion to his works,

"Lo! what huge heaps of bitterness around,
The whole a laboured quarry above ground."

Abuse in rhyme lasts a long time. Posterity, however, view his works differently, and almost unanimously assent to the opinion of him expressed by Reynolds in one of his discourses:—"he had originality of invention, he understood light and shadow, and had great skill in composition." Vanbrugh composed like a painter and produced most artist-like effects. His style was his own, and displays consummate knowledge of perspective, and the power of producing picturesque outline, combined with the regularity and elegance of Italian architecture. There are few works of the same class that excite a longer succession of new ideas (a great test of excellence) than Blenheim and Castle Howard; and it certainly is extraordinary, that there are not good and accessible illustrations of them, for the use of the student and the admiration of the professor.

* There is a work consisting of sixteen large engravings, by Vandergucht, Rigaud, and Baron (may be had of Weale), to illustrate Blenheim and Stowe, "with costume, &c." of the time.

NEW WORKS AT WINDSOR AND ETON.

RESTORATIONS are going on gradually at St. George's chapel. The open-work parapet, which is at present *of compo*, is to be reinstated in stone; Pratt's carving machine is to be employed on it. By the way, Hollar's print of the chapel (1663) shews every one of the pinnacles surmounted by a vane; these should be restored. Additional stained-glass windows have been recently inserted in the north and south aisles. Henry VIII.'s gateway opposite the chapel is under repair, and the Salisbury Tower is being rebuilt. Locke and Nesham are the contractors. Caen stone is used. A new sewer has been constructed in Windsor by the Government; the course of it is, from Frogmore to Sheet-street, and thence to the cavalry and infantry barracks, with a branch to the castle. It was proposed at first to construct a more extensive line, and that the town should contribute a portion of the cost. At a public meeting, however, which was called on the occasion, the inhabitants unwisely, as it seems to us, refused to co-operate in the matter.

At Eton College great alterations have been made. The noted long dormitory has been divided into separate apartments, and extensive ranges of chambers built in Werton's yard, so as to afford a separate sleeping room to each scholar. The new rooms are all heated by hot water. An apartment has been built to serve as a library for the use of the pupils, and is a handsome room with a large stained-glass window by Willement containing the arms of Her Majesty, the Prince, the Duke of Newcastle, the College, &c. The fittings are of deal,—they should have been of oak. Mr. Shaw is the architect, Mr. Burton the contractor. The selected drawings for the restoration of the chapel are exhibited with the

view of inducing subscriptions. The design does not present any remarkable features. If the rejected designs had fewer points of value than this, they must have been very indifferent affairs indeed. According to the proposed new arrangement, the organ is to be placed in an apartment on the north side of the building near the east end. The chapel is to be vaulted with stone and the body of it filled with stalls and other sittings.

The old church at Upton, near here, remains in the same deplorable and disgraceful state as it was when we described it.* A sum of money, however, has been promised in the way of subscription, so that we may hope before long to hear of some steps being taken to restore it.

THE NEW COURTS OF LAW.

The report of the select committee appointed to consider the expediency of erecting a building in the neighbourhood of the inns of courts of law, in lieu of the present courts adjoining Westminster Hall, together with the minutes of evidence, is now before us, but from press of matter we can only allude to it briefly at this moment, and must return to it next week. The witnesses examined were Mr. Barry, Mr. R. L. Jones, Mr. William Cadogan, Mr. J. Parkinson, and Mr. R. Maugham. The chief point in it is, the recommendation by Mr. Barry of a site that might be obtained by the clearance of a low neighbourhood between the Strand and Carey-street, a little to the east of St. Clement's Church, and which he justly considers, would of itself, irrespective of the future appropriation of the site, be a great public improvement. The area contemplated would be 700 feet from east to west, and 480 feet from north to south; bounded on the north by Carey-street, on the east by Chancery-lane, on the south by the Strand and Fleet-street, and on the west by Clement's-lane and Plough-court. The actual cost of the site, deducting ground-rents which might be obtained from part of the space let for chambers, is estimated at 258,224*l.*

* See p. 409, *ante*.

BATHS AND WASH-HOUSES IN ST. PANCRAS.

The committee of the society for establishing these baths and wash-houses have, during the past week, invited inspection of the works in progress. An excellent site has been obtained, both as to extent and situation, consisting of the greater part of the vacant ground at the base of the reservoir of the New River Company, in the Hampstead-road. The directors have generously let the ground at a nominal rent, and offered the necessary supply of water, without charge for the first six months of the society's operations, and afterwards at the lowest possible cost. The space of ground to be occupied is about 7,000 square feet. The entrance is in George-street, leading from the New-road to the Hampstead-road. It is intended to provide thirty single baths (twenty for men, and ten for women), five vapour baths, and two large plunging baths. In the washing department there will be sixty-four washing-tubs, with coppers for boiling such articles as may require it, a drying-room, ironing-board, and irons. To a poor man or woman the charge for a separate cold bath, containing sixty gallons of water, will be one penny, and for a similar bath, warm, two pence. Fresh water and a clean towel will be supplied to each bather. A few higher priced baths, differing only in having more expensive fittings, are to be provided. The use of a double washing-tub, with an ample supply of hot and cold water, of the coppers, drying-room, and ironing apparatus, will be allowed at the rate of one penny for three hours.

The subscriptions amount to about 600*l.*, and it is estimated that an additional sum of 300*l.* will enable the committee to bring a part of the establishment into immediate use. Among the contributors we notice 100*l.* from Lord Southampton, a similar amount from the Commissioners of Woods and Forests, 50*l.* from the Duke of Bedford, and numerous other sums, varying from 25*l.* to ten shillings each.

Railway Balances. — The *Morning Herald* states that Messrs. Masterman and Co., the bankers, have had a million sterling of railway deposits lodged in their hands for some time past.

CARL HEIDELOFF AND GERMAN ARCHITETURE.

The *Art-Union* journal of the pre month contains, amongst other valuable m ter, an interesting notice of Professor H deloff's most recent work, "The Arch tural Ornaments of the Middle Ages, in Byzantine and Gothic Styles,"* illustrate a number of engravings made from the w By the liberality of the excellent conducto the journal in question, we are enabled to these specimens of German Gothic ornan before our readers; and to close the desc tion of them with a biographical notice of professor.

Fig. 1 (on p. 472) is a Byzantine ornam over a church gate at Neissen, in Saxony, apparently of the eleventh century. It is companied by a frieze painted in fresco, from the same interior—that of the Monast of the Holy Rood. Ornaments of this k are very rare in Germany on account of th destruction from frequent coating.

Fig. 2 is a keystone ornament in a va in St. Sebald's, Nuremberg, representing cross and the triangle, mystically combined

Fig. 3 is a fragment of a decorated sh of the period of the Hohenstaufen, found the ruins of the cloisters of the Monastery Reinhardsbrunn, in Thuringia, three leag from Gotha. It is in the Byzantine style, are generally the ornaments of this monaste

Fig. 4 is a fragment of a frieze, 8 inc high, in a beautiful chapel attached to monastic church of Alpirspach, upon the K zig, built by the Hohenzollern family, member of which presided over this house first abbot. This curious ornament is a re of early German Art.

Fig. 5 is a relief decoration on the outsi of the Murrhard Cemetery church. Its ric ness reminds us of the acroteries of ancie balustres. The relief is about 2¼ inches, a shews the bold and elegant style of t thirteenth century. It is skilfully executed grey sandstone, and served to fill the ar above a doorway now destroyed.

* Published by Hering and Remington, Regent-street

BYZANTINE AND GOTHIC ORNAMENTS FROM GERMANY.

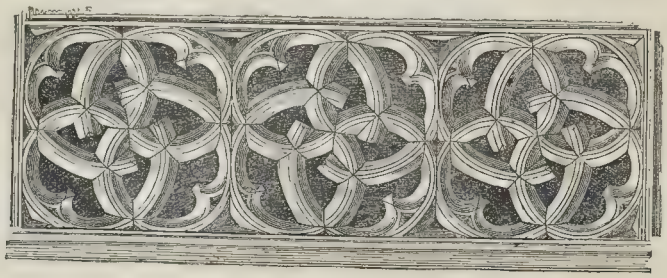


Fig. 11.

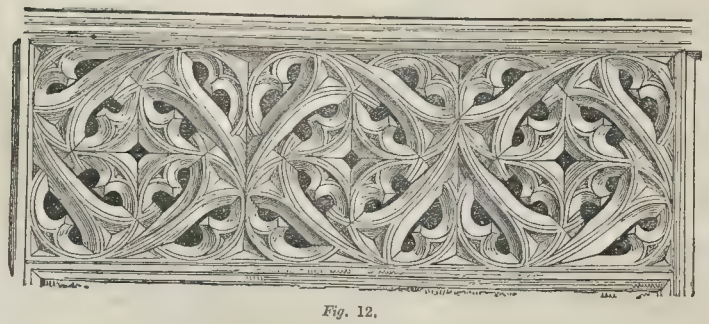


Fig. 12.

ig. 6 is one of a series taken from the tment called the Saloon of Rosettes in the ent Castle of Coburg. These ornaments, ch are of the fourteenth century, have been oved and replaced by others—new, but in gn exactly like the earlier ones.

ig. 7 is a fragment of beautiful pierced ge from the oratory of Count Eberhard, Vurtemburg, in the ancient church of St. hand at Urach, before he removed to Stutt-lt in consequence of the treaty of Mün-en. It is of the finest oak, and one of the t beautiful relics of these times. This ne-like oratory was constructed by order Count Eberhard four years after his return n Palestine, in 1472.

ig. 8 is a fragment of a stone gallery in monastic church of Blaubeuern. It is in German-Gothic style, and accompanies ments from the celebrated tomb of St. ald, after a drawing by Veit Voss, in the ession of the author, which serves to illus-e the character of this celebrated artist, and hew his participation in the execution of Sebald's sepulchre.

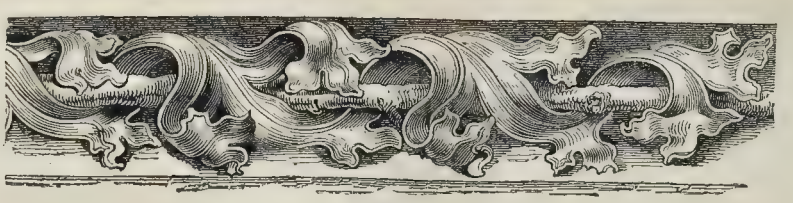
he ornaments represented by figs. 9 and are copied exactly from a kind of gallery, he house of Herr Welbinger, member of town council of Nuremberg.

igs. 11 and 12 are the ornaments of a bal-y in front of the house of Herr Gesserl, at remberg. Although it is not in the plan he work to admit designs subsequent to 0—because since that time the relics are o means comparable to those of a date an-dent—yet it had been impossible to have epted the works of Albert Dürer, by whose d these designs have been shewn to be cuted.

t is a common observation, that adversity ie foster-mother of excellence; and the pro-o is most strikingly exemplified in the life n artist, when a prolonged struggle against onent circumstances tends only to support natural powers of genius with an energy mind which rises superior to misfortune. the list of the illustrious men who have ieved eminence in spite of difficulties may added the name of Carl Heideloff. He was n at Stuttgardt, on the 2nd of February, 9, being descended from an ancient German nily, the members of which quitted, in 1714, kingdom of Hanover, and settled in En-nd. His father, Victor Heideloff, who was ucated as an artist in the same institution ich reckoned among its pupils Schiller, vier, and other eminent men, succeeded, on return from making the tour of France and ly, to a professorship of painting in the same y. The subject of our notice became a student his celebrated school, and remained so until deplored dissolution. In addition to the valu-e precepts of his father, he enjoyed also the truction of Atzel Thouret, the architect— sculptor Scheffauer—the celebrated Dan-cker—the engraver Gotthard Müller—of nis Keim—and the painter Von Seele.

But Heideloff was naturally gifted with a ep love of mediæval art, which, being fos-ed by the study of history and archæology, s cherished by him in direct opposition to evailing tastes;—he thus acquired a strong ersion to the styles of his masters, who, for e most part, eschewed all patriotic allusion— orifying in their works the character of other tions. All his efforts were exerted with a ew to contribute to the honour of the genuine t of his own country; and he was sustained the hope of raising it to consideration, even a time when German mediæval art was terly neglected, and even ridiculed. En-usiastic in the prosecution of his views, the ung architect began his career by frequent-g, much against the will of his parents, the cient churches, monasteries, and abbeys of ld Wurtemburg—a country rich in relics of is kind—and visited successively all that had long been left unexplored. The results of ese expeditions were a series of drawings, a style perfectly new in the ateliers of his asters. When Germany was convulsed by e wars of the French Revolution, the arts that country necessarily suffered, and con-nued to be cultivated only by those who were fortunate as to secure to themselves an un-olested retreat. Heideloff was at this time sied in collecting all kinds of old pictures, ood-cuts, carvings, and antiquities, which ere then held in little estimation. He thus became possessed of specimens of German art which fully described the chivalrous and religious feeling of the middle ages, and, at the same time, acquired a store of information which qualified him to take a distinguished part in the efforts of those who had resolved upon the restoration of German art; and it has long been acknowledged that Heideloff is one of the most famous champions in the cause of the rights of ancient German art. His exertions have won for him the illustrious title of restorer of the art of his country; and the many sacred edifices which have been confided to him for restoration proclaim the honour of the man who has thus raised himself to distinction as the vindicator of the early art of Germany, which had been trampled upon by foreign invaders, and repudiated by a native fashion which prevails in art as in all else. In accordance with the usual routine, he visited Rome and Paris; but nothing that he saw at either place could in anywise shake his resolution of devoting himself to the style which he had embraced with such fervour. Dannecker spoke of him in such terms, that his father despaired of ever seeing his son acquire even the name of an artist. But calamity is sometimes the first step to prosperity; and so it was in the case of Heideloff, for his father having suffered injury to his eyesight, insomuch as to incapacitate him from the exercise of his profession, he relinquished to his son and to Herr Keim his appointment as decorator of the royal theatre of Stuttgardt. And now it was that an opportunity was presented of shewing talent of a kind very different from that assigned to him by Dannecker. This branch of the profession requiring a perfect knowledge of history and antiquity, the young artist entered upon a field which had been lying fallow for centuries; but, with the invaluable stores of which he had made himself perfectly acquainted, so that never before were the dramas of Schiller, Goethe, and other celebrated authors brought forward with such effect. Heideloff, in addition to the reputation which this employment procured for him, had also opportunities of displaying his superior powers on the occasion of the many festivals at which Frederick I., King of Wurtemburg, entertained his numerous illustrious guests. In grand ideal composition he was inexhaustible—each successive essay declared his deep learning in matters of German antiquity, and for the execution of these designs he was amply provided with all necessary means. Although abundantly occupied in this way, he was nevertheless not diverted from frequently visiting the ancient architectural monuments of his country; and he indulged the more in these wanderings as they enabled him to enforce upon the avaricious and ignorant desecrators of sacred remains, a due respect for the beautiful of past ages, and to rescue from destruction many valuable relics which are now regarded as among the most precious in the country. But by such efforts he raised against himself a host of enemies—the most influential of whom, Dannecker, on the death of his blind parent, deprived him of his occupation and means of existence—a barbarous injustice which Heideloff endured with equanimity and forbearance; and, utterly heedless of all that was said and done against him, he sought the best opportunities of again raising the spirit of German architecture, and at the same time of basing its theory on a solid foundation. But his native land was not fitted for his purpose—of this he was at length convinced—the spirit of the Hohenstaufen had departed, or existed only in the records of the past; and —so persecuted, ridiculed, and deprived of all succour—he quitted his native land, shook the dust from his feet on its boundaries, and proceeded to Wiesbaden to consult his friend the architect Zais; and went thence to Mayence, for the purpose of studying the interesting works of art and architectural monuments of that place. This was in the year 1814, when the then reigning Duke Ernest of Saxe Coburg came to Mayence, as commander of the 8th Corps of the Grand Army. This great patron of art, on his visit to the cathedral, met Heideloff there in the act of drawing portions of the edifice; and, having at once seen the powers of the artist, he requested his portfolio for a few days for inspection, the result of which was an invitation to Heideloff to settle at Coburg; the prince, at the same time, expressing a wish to have about him an artist who had turned his attention to the neglected styles of early German Art. Great as was the joy of Heideloff, it was less on his own account than on that of his beloved art; thus was he urged onward in his studies with increased energy. It was not until the year 1816 that he could avail himself of his new appointment, as his engagement with his friend Zais did not expire until that time. This delay was the more disagreeable to the duke, as the erection of his summer residence, Rosenau, had been commenced, and now waited only for the skill and knowledge of the architect whom the duke had selected for its completion. Heideloff remained five years in the service of the duke, yielding at the end of that period his appointment to a French architect of the name of Regnier, who had succeeded in introducing the French style of architecture in opposition to that of Germany. Heideloff, therefore, quitted Coburg in 1821, and proceeded to Nuremberg, which abounds with splendid monuments of mediæval art. He there established a private institution for the cultivation of ancient German Gothic architecture; but his endeavours were not favourably met, either in the capital or in the city in which he had settled, until after the accession of Louis I. to the Bavarian throne, when a glorious era of old German art commenced, not only in Bavaria but throughout all Germany. Such a prince could not consign to neglect such an artist; his first act of patronage was the appointment of Heideloff as curator and restorer of the ancient monuments of the city of Nuremberg; and the enthusiastic zeal with which he discharged the duties of this office fully justified the confidence of the king. He was indefatigable in exploring the most interesting historical facts and data referring at all to the erection of the monuments, and published the results of his researches in a work entitled "Alt Deutsches Musterbuch oder die Baudenkmale Nürnbergs" (Old German Model-book: or, the Architectural Monuments of Nuremberg), of which Campe, at Nuremberg, was the publisher. With characteristic ardour he entered upon the task of restoring relics, in which he displayed such skill and accuracy of style that the restored portions cannot be distinguished from the ancient works; on which account the restoration of Bamberg Cathedral was intrusted to him, as also that of the ancient Imperial Castle of Nuremberg. The former work he conducted for three years; but at the end of that time he was supplanted by architects of higher pretensions, who terminated the work in a manner to display their utter ignorance of the proper style of the structure. Notwithstanding the many difficulties with which he had to contend, Heideloff persevered in the exaltation of that style of architecture to which he had so early devoted himself; and it was some gratification to him to see that already, of the numerous rulers of Germany, many acknowledged German art; for among the promoters of his views were—the King of Bavaria, the late Duke Ernest of Saxe Coburg, the Duke of Saxe Coburg, the Duke of Saxe Meiningen, the King of Wurtemburg, and Count William of Wurtemburg. Of his public buildings, either as restorations or wholly constructed by him, may be mentioned:—the Castle of Reinhardsbrunn, in Saxony; the Castle of Hohenlandsberg, in the same kingdom; and also a church at Sonnenburg. He has produced drawings for many projected edifices, in which his superior talent is sufficiently manifest. One of these, his design for the Church of St. Nicholas, at Hamburg, is of extraordinary power; as also is another for the Roman Catholic Church at Leipzig, which is to be executed by him. With these may be mentioned his drawings for the erection of a palace at Cintra, for the King of Portugal. Of his restorations, those in Wurtemburg are the most remarkable:—as the Church of the Holy Rood, at Rottweil, in the Black Forest; a portion of the Cathedral of Stuttgardt; and several other churches—those of Schöneich, Mergelstetten, Heidenheim; the beautiful and highly picturesque Rock Castle of Lichtenstein, a perfect example of the old German. At Nuremberg he has restored the Churches of St. Sebald, St. Laurence, St. Giles, the Holy Spirit, the Holy Virgin; and many restorations of private residences—for Nuremberg is celebrated for the number which it contains of houses of this style of architecture.

BYZANTINE AND GOTHIC ORNAMENTS FROM GERMANY.



Figs. 7.



Fig. 9.



Fig. 6.



Fig. 5.

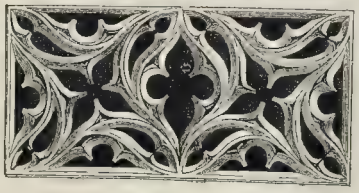


Fig. 8.



Fig. 4.



Fig. 10.

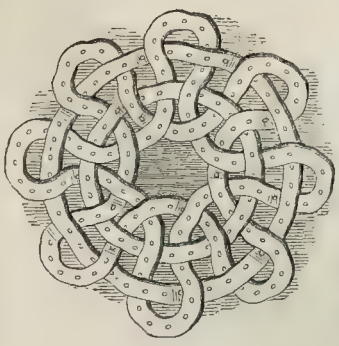


Fig. 1.

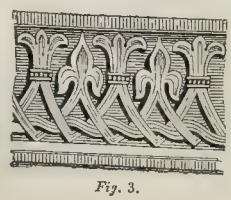


Fig. 3.



Fig. 2.

SUPPLEMENT.

Continued from p. 472.

HABITATIONS FOR THE WORKING CLASSES.

SIR,—The miserable accommodation, with some exceptions, the lot of the great majority of the working classes, induces me to submit for insertion in your valuable journal a few considerations on the subject.

There can be no doubt from the abundant evidence brought forward, that disease and death to an immense extent ensue from the filthy state of the houses of the poor, their defective accommodation, want of sewerage and ventilation.

Sir, if dirt in the atmosphere were visible, or could be rendered visible, as it is on our persons, our garments, and in our dwellings, it would astonish and appal the most apathetic. No one, not even the most degraded human being, willingly or knowingly, eats or drinks ordures, but ordures of the worst, most offensive and dangerous description, are continually inhaled into the lungs, when we respire impure, because unrenewed air. The physical constitution of the atmosphere, commonly only permits *colourless* substances to be drawn up into it. Such are the poisonous effluvia of small-pox, scarlet fever, typhous fever, and other infectious diseases. These effluvia are colourless, but irrespective of these, there are many other sorts, animal, vegetable, and mineral, alike destructive of life or of health, at all times circling in ill-renewed air, and more especially in the dwellings of the working-classes.

By means of a different and superior description of houses, all this might, in a great measure be prevented. It is not necessary to erect expensive dwellings, but they should be clean, light, cheerful, and with an invariable provision for the renewal of air. I hope to shew that houses of this superior description could be built, and yet afford an excellent return to those who might embark their capital therein. And I will add, that, while every scope should be given to individual humanity and enlightenment, it is the duty of the legislature to see that no more dens are erected, and that those which are unfit for human occupation, should be pulled down and reconstructed.

In towns, the necessity of the case, with the paucity and dearness of ground, will always render it necessary to construct dwelling on the top of dwelling, otherwise floor on the top of floor. In the country the case is different, and houses may be built according to the convenience and inclination of those concerned. I do not, however, think it is too much to say that throughout Great Britain and Ireland, the vast majority of human abodes are only fit to be pulled down.

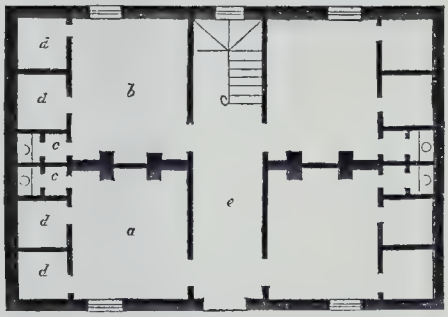
In crowded localities it might be expedient to have flat roofs, covered with asphaltum or otherwise. Bordered with a cornice and railing or balustrade, or even a simple brick wall, they would prove rather ornamental than otherwise. The inclosed space would make a tolerable substitute for a playground, safe from the contamination and casualties of the streets, and in vastly purer air. It would also be easy to establish school-rooms and reading-rooms in a comparatively salubrious locality.

Houses for the working-classes should be of a substantial, permanent character, with Memel or iron joists, and walls impervious to moisture. The stairs and landings should be of stone, the balustrades iron, with a painted iron rail. After every consideration, I think it would be preferable to have iron joists and flagged or tiled floors, with the ground-floor somewhat elevated, of asphaltum. It would render the houses fire-proof, like those we observe in Paris, and further serve as a preventive of vermin. The loss accruing from the latter in the houses of the poor is very great.

Neat and cheap window-frames of iron are now to be had of any dimensions, made to open in part, and with comparatively small panes, so as to save expense in breakage. The large portions of the window and door-posts, also the chimney-pieces, should be of stone or some hard composition. The apartments I would have not less than ten feet high. Less than this would not be enough, more would be perhaps superfluous. Each living room, as the late ingenious Mr. Loudon used to term it, I would supply with a neat cooking range, with boiler, oven, and hot hearth, all kept up from the same fire. If the oven could be constructed of fire-brick it would perhaps be desirable. I have seen excellent and economical cooking-stoves in the Netherlands, but they are not perhaps adapted to the usages of these countries. Below the fire-place I would have a tray to pull out, and each fire-place should be supplied with an iron fender. Above every boiler there should be a cold-water cock, supplied by a cistern in one of the upper corners of the apartment, or communicating with a cistern common to the whole range of dwellings. The loss of time, comfort, and even health, particularly during cold, wet weather, in having to send for water, sets very heavily on poor families. Over or beside the fire-place I would have one gas jet, and I would also light up the common passages, say till ten or eleven o'clock, when the gas might be turned off. Over the fire-place also, I think a hot chamber might be constructed large enough to admit a clothes' horse.

The important matter of ventilation would be thoroughly secured by having at the period of the construction of the houses, flues built into the walls contiguous to the chimney-flue. The heat of the latter would create an effective draught through the former, and night and day the apartments would be thoroughly ventilated, better even than are the houses of the opulent, and that too, without any further care on the part of the occupants. It would probably be expedient to have a sliding valve, so as to regulate the amount of the draught. As for the outlet of the flues, I would have it within the passage between the coved ceiling and the roof, but if the roof were flat, air-conduits, with proper openings, might be left near the eaves or the chimney-stacks. The ventilating flues of all the apartments would open in the same direction, and the ventilation would be perfect. This mode of ventilation is in part that adopted by Mr. Walker. If his mode of heating could also be followed up, the process would be perfect.

In towns, the houses might be from two to four stories high. The latter elevation would be comparatively cheaper in the erection. For the same reason, if there was a suitable look out behind, I would have the houses double, extending backward, as well as laterally, as thus:—



If, however, the locality would not permit this, another arrangement would have to be adopted. The front elevation if of four stories, would be about 40 feet, allowing the basement floor to be a foot or so above ground. Four families would be accommodated on each floor. The arrangement is an 8 feet wide hall, (*e*) which would give plenty of air and scope to the inhabitants. Four doors opening from the hall and the landing-places on each floor, give access to four living rooms, (*a b*) one to each family, 12 feet by 14. From these rooms open two sleeping-closets (*d*) 5½ feet by 6, large enough to accommodate each, an iron bedstead 3 feet 6 inches broad, by 6 feet long, affording room for a chair, and a few pegs for clothes. There is also a third, or water-closet, (*c*) 3 feet by 6, to which there is access by two doors, the first enclosing a kind of vestibule, useful for mops, pails, brushes. A shaft communicating with the ventilating flue, should open from the top of the water-closet, by means of which and the addition of the double door no foul odours could escape, a consummation not always realized even in the best houses. The draught should be conveyed off, by means of iron tubes, to the main sewer. The contiguity of the water-closets of the different living apartments to each other, would render one main iron tube available for four distinct water-closets.

I cannot but think that this arrangement of the water-closets would be very desirable. Foul smells would be completely avoided, dirty slops would be rejected, while the convenience and decency as regards women and children, as well as invalids, would be obvious. Some, indeed, might condemn it, but surely on insufficient grounds. As it is, the limited existing houses of the poor are continually used, to say nothing of cases of illness, to satisfy the wants of nature in, to the great deterioration of the air and discomfort of the inmates. For men, indeed, I would establish public necessaries, sufficiently numerous to accommodate every locality.

The partitions between the living-rooms and sleeping-closets I would have six feet six inches high, except between the closets themselves, where I would continue the partition to the ceiling. By this arrangement, the air of the sleeping-closets would be equally well ventilated with that of the living-room itself, while they would be sufficiently lighted up and warmed. Arrangements of no mean importance as regards health and comfort.

The partitions should be of brick, or some other fire-proof material, and in the corner of each apartment, I would have a stone bunker or box, for containing fuel. Spaces might be further left in the walls for shelves, for which slate would form a good and enduring material. The water that supplied the kitchen range might be derived from the same cistern that supplied the water-closets, or the rain-water might be accumulated in separate cisterns for the use of the latter. These cisterns, of course, would be supplied with overflow pipes. Each house, or block of houses, should be further provided with a lightning rod, which, according to the latest improvements, should communicate laterally with each mass of iron in the building.

I think the preceding details as regards habitations for the working-classes will be sufficient to illustrate my meaning. They would answer, I conceive, pretty well for most large towns. At the same time, if the principle were approved of, it would be open to any one to modify or improve upon it at pleasure. It will probably be conceded that the habitations here described would prove very much superior to the ordinary abodes of the working classes in any part of the three kingdoms. They would be at once warm, well-ventilated, comfortable, and convenient. The dimensions which I have stated are the smallest that could be given or economy dictate. If such buildings were undertaken, the dimensions and proportions might be conformable to the ideas of the projector. It strikes me that those which I have mentioned, would answer as well as any, and prove most suitable for families in humble circumstances.

The shelves, kitchen-ranges, iron-bedsteads, gas-fittings, should be fixtures, and it would further be desirable that a paid and responsible person appointed by the landlord, should see after the cleansing (daily) of halls and stairs, the lighting of passages, the safe keeping of the houses generally, the closing of outer doors at proper hours, the daily delivery of ashes and refuse, and the collection of the rents weekly *in advance*. All rates, taxes,

repairs, chimney-sweeping, gas, and water charges should be liquidated by the landlord or proprietary, and added to the rent. Fire-proof houses would not require insurance.

It is conceived, that houses such as these might be let on remunerative terms by landlords, or companies undertaking their construction, and bearing the charges which I have above enumerated, and yet at rents as low or lower than what is now charged for dwellings miserably insufficient. They would be handsome as to their exteriors, and admit of every decency and propriety as regards the interior.

I am, Sir, &c.,

HENRY M'CORMAC, M.D.

Belfast, Sept. 15.

SUGGESTIONS FOR THE IMPROVEMENT OF SEWERS.

BY JOHN PHILLIPS.

"Devouring pestilence hangs in our air."—Rich. II.

THE healthful condition of every population is dependant, in a very great measure, upon good and efficient sewerage, and from the manner in which this question is being taken up, as well as from the publicity which has already been given to it, I consider it behoves every one who is acquainted with the subject to give attention to its improvement and amelioration. Therefore, taking this view of the case, and believing that many great and glaring evils require speedy and effectual remedy, I am induced to offer the following observations and propositions relative thereto.

During the last century science and art have made more than rapid strides, and almost every subject has received great and important improvements; but it is manifest that the "science of sewerage" (certainly with some exceptions) is nearly in the same unimproved, drawling, and backward state that it was a century ago. It is presumed, therefore, that it can be no less the desire of the proper authorities to adopt, than it is the duty of *persons* to suggest improvements; and I hope and trust that the time is not far distant when good, sound, and practical suggestions, having for their object the general improvement of sewers will receive that due and proper consideration, from whatever source those propositions may emanate, that its nature, magnitude, and importance demands.

It has long been a subject of grievous complaint, and justly so too, that filthy and malignant streams of air are continually emanating from the gully-holes in the streets. Now, the cause of much of the stench and effluvia from sewers is owing to their extremely large sizes, the inefficiency of their form, and the sluggishness of their falls. For the quantity of water which is usually discharged into them, is so very small when compared with their magnitude, that it becomes extended and spread over a wide surface; and the height of the streams being, therefore, very diminutive, their motions are generally so feeble and slow, that they have not sufficient velocity and power to raise up and carry off the soil, consequently the matter becomes deposited upon their channels; and, as it decomposes, it generates foul and malignant gases, which, by escaping through the untrapped gullies and private drains into the streets and houses, contaminate the surrounding atmosphere with nauseous and pestilential impurities.

It is extremely desirable that this great and growing nuisance should be prevented if possible. Many methods have at various times been suggested accordingly, some of which are certainly very ingenious, but it would appear that they more or less bear the impress of impracticability. Streams of air must be continually allowed to pass into and out of the sewers, in order to keep them properly and efficiently ventilated; and this can only be done by direct communications or passages being made between the sewers and the atmosphere. And in consequence of proper means never having been devised for the purpose of preventing the effluvia from escaping, and at the same time maintaining the circulation of air, without the facilities afforded by the gullies and private drains, the authorities under whose care the sewers have been placed, have always had a strong aversion to the system of trapping.

But in this case, as in numerous others, prevention is a great deal better than the cure for it, and if means were adopted to prevent deposits from accumulating in sewers, the stench then, even if most of the communicating adits were left open, would be nothing compared to what it now is; and surely whenever a sewer is found to retain the matter discharged into it, one would suppose that steps would be immediately taken to impart sufficient velocity and power to the water, so that it might be able to carry off the matter, and thus prevent a recurrence of deposits and accumulations for the future.

I am not aware if it be generally known that streams of running water communicate to the air immediately contiguous to them motions which run in the same direction as the streams. That this is the case may be proved by holding a blaze of light, or any fine light substance, just above the surface of any stream. Now, if sewers were properly arranged, so that water could be continually flowing through them, much of the foul air that is produced by the decomposition of the matter would be carried off with the running water; and, therefore, it would in some measure assist their ventilation.

There are two modes which present themselves to my mind as being the best adapted for the purpose of keeping the sewers free from deposits and accumulations of matter.

The first is the well known process of damming back the water flowing down the sewer, until it accumulates to a considerable height, and then suddenly letting it off, the impetus and force of the descending stream carrying away with it all the substances discharged into the sewer, and with which it comes in contact. This method of cleansing the sewers is now, and has been for some time, in *successful* operation in the Holborn and Finsbury Commission of Sewers, and is found to be, as I understand, and which I am satisfied must be the case, from the great power and scouring action of the water thus obtained, not only a more effectual, but also a much cheaper way of removing and carrying off the deposited matter, than the ordinary dirty and antiquated method of raising it to the carriage-ways, and then carting it away, with all its attendant annoyances.

Now the old sewers, and many of the new ones also, cannot by any possibility keep themselves clean and free from deposits with the present quantity of water which is discharged into them, in consequence of their extremely large sizes, the injudicious form of their bottoms, and their inadequate falls, as before referred to; for when one of them is cleansed, the matter which is immediately afterwards discharged into it becomes deposited upon the bed (its wide, expanded border causing the liquid mass to spread), and the sewer again becomes in a short time wholly inefficient for the purpose of removing and carrying off the soil. The matter again accumulates until the private drains are prevented from acting, when the soil has again to be lifted to the carriage-ways, and this process of cleansing and recleansing must ever be continued so long as this form of sewer exists, and remains unimproved. From the filthy condition in which very many of these sewers now are, the means which *have been proved* to be highly efficacious for the purpose of keeping them clean, ought not I think to be longer delayed; and I feel assured that were the authorities *fully acquainted* with the condition of the sewers under their jurisdiction, there being whole districts where sewers are more or less choked with decomposed matter, not another day would be lost without taking advantage of so simple and ready a method of improvement.

It must, however, be admitted that the method of flushing the sewers is only an expedient to be resorted to when the sewers cannot be kept clean by the simple means of proper construction and efficient fall; I would, therefore, beg to suggest another distinct method of proceeding, which, in the end, will prevent the matter discharged into the sewers from becoming deposited upon their channels. I propose that all the secondary, or collateral sewers, those which branch out of the main lines, as also those which communicate with and discharge their contents into these secondary lines, should be *strictly examined and properly surveyed;* the relative levels throughout each of these collateral districts should also be carefully taken and laid down with a view to an improvement of their falls, and whenever improvement can be obtained, either by a re-arrangement of them so as to discharge into each other by different directions if found possible, or by their present course, it should be effected by taking out (where found practicable, and this would arise in nine cases out of ten), the present wide and flat bottoms, and putting in others of a narrow, elliptical shape, at a lower level, or at a higher, as found requisite, and at proper inclinations previously determined on; and where the old sewers are found in a bad or dilapidated condition, the interior of them should be strongly and entirely cased with good sound brickwork, taking out the old bottoms as before mentioned, and cutting away half a brick in thickness on each side, making the form of the casing either that of an egg with the narrow end downwards; or with a semicircular bottom having upright sides and a semicircular arched crown; contracting the widths of the sewers by making the brickwork one brick thick at the sides and bottoms, and half brick thick at the crowns, the whole being properly underpinned and soundly executed with good hard stocks and hydraulic mortar, whose ingredients should be well compounded; and their junctions should be formed with a quadrant, whose radius should be as long as found convenient. It should be distinctly understood that no more work should be commenced until the sizes and falls of all the sewers have been determined on, and re-arranged according to a regularly graduated scale, commencing at the lowest point of each collateral district, and following them up from time to time, either with new bottoms or casing, as they might require, until the whole of the sewers in each particular level were completed; they would then keep themselves clean, and be in a state of completeness and efficiency without either flushing or cleansing, the whole expenses of which would be saved: and I have no hesitation in saying that until either this be set about and done, or they be entirely rebuilt, there are very many lines which will never be any other than elongated and filthy reservoirs or cesspools, the matter in which will be continually contaminating the atmosphere with its deleterious products. These great evils require immediate reparation, which should not be done piecemeal, but upon a well organized system of arrangement; and if the matter be taken up, as I trust it will, the cost of putting the whole of the badly formed sewers into a state of comparative efficiency could be ascertained without great difficulty.

The practical operations of this mode of execution can be effected in a most expeditious and simple manner by the following process:—Shafts should be sunk over the sewers (say at from two to three hundred feet apart) or the present ones used where found; a gang of workmen would then commence digging out the old bottom, or cutting away the half brick at each of the side walls up to the springing of the upper arch, the rubbish being taken a head up the nearest shaft; and thus the work could be prepared ready for the bricklayers, who would put in the new work as fast as the men beyond got it ready for them; the materials should be let down from the shaft next behind, and thus the two operations would not interfere with each other. Of the practicability of this proceeding there can be no doubt, and were it adopted it would be a vast saving of expense, besides, it could be done with more despatch than the ordinary process of opening the streets and blocking up the carriage ways to the prevention of the business of the public.

Now, in order to prevent the stench and effluvia, which under the present system must necessarily rise through the gullies and drains where these are untrapped, it is desirable to purify the air in the sewers themselves before it is allowed to escape into the streets, by disengaging from it, if possible, all the impure compounds with which it is charged. And of all the propositions which have yet been put forth for that purpose, I believe the following will be found to be not only the most effectual, but the most practicable also; and if I can succeed in shewing that it is so, I should think there will be no difficulty in obtaining sanction to an experiment for the purpose of testing its efficiency.

Decomposing substances emit foul gases, which, mixing with the atmosphere, contami-

nate it with filthy rancorous products. Now, when pure clean water is made to shower upon or over those substances, it throws down, condenses, or disengages from the atmosphere the effluvia and stinking odours as they rise; and this is remarkably evinced during the time rain is falling, where there are lay-stalls, or where filth has been deposited, for the air at such places being loaded with foul odours, the showers or drops of water, as they fall, free the atmosphere of the deleterious and nauseous compounds, making the air feel quite fresh.

In the first place, *all* the drains and gulleys should be effectually trapped, and the gulleys should be made entirely of cast-iron, with a strong moveable grating fitting in at the top of each of them, for the purpose of cleansing it out, having also a deep wide box at bottom, with a nozel formed at the outer side opposite the pavement for the water to flow through, and that side descending in the box to about one and a half or two inches below the bottom of the nozel, which should fit into a good strong Stourbridge clay pipe leading directly to the sewer, in the wall of which the pipe should have a circular elbow for the purpose of discharging the water in the direction of the stream flowing down the sewer. The discharging ends of the drains should also be made in the same manner; their *traps* being placed in convenient and accessible situations, and always under special supervision, as, indeed, all drains ought to be, in the same manner as the sewers are.

Now, after all the gulleys and drains had been properly trapped, shafts should be formed over the sewers, about three or four feet long, and the same width as the sewers, and in such situations as found most convenient. These shafts should be made to taper regularly upwards to about twelve inches wide and twenty-four inches long at top, on which a good strong, deep, cast-iron grating should be fixed, level with the carriage-way; or these shafts could be made of sufficient size to admit a man to descend and ascend through them, small stirrup irons being fixed in the brickwork. In the longitudinal sides of the shaft, and just above the top of the crown of the sewer, I would have fixed, flush with the walls, two small cast-iron cisterns, one at each side; they should be about a foot high, two inches wide inside, and the same length as the shaft at this part. From the water-main in the street a small pipe should be laid, communicating with the cisterns, the front faces of which should be perforated with one or more tiers of very small holes, about one-tenth of an inch diameter, inclining in an upward direction.

Now, it is obvious that the cool fluid, while flowing into the cisterns from the water main, would pass through the perforations in small streams or jets, and as they descend would strike the opposite sides of the sewer just above the crown of the arch, and the sewer at this part should be built with good, hard, sound, and durable stocks, laid, and rendered inside with nearly all cement. These jets would appear from above like a series of thin bars, or a grating of water lying across the shaft, and they should be arranged so that there be from a quarter to half-an-inch space between each of them. These little streams of pure cold water would detach from the currents of air as they issued upwards from the sewer, the effluvia and foul gases with which they would be loaded, and thus the air escaping into the streets would be nearly purified of its deleterious contents by this simple process. From the jets being exceedingly small, the consumption of water at each shaft would be very little, and it would answer a further purpose of keeping the sewers free from deposits of matter; the water mains should always be charged, as probably in a few years they will be. Several modifications of this system present themselves, which experiment and practice would rectify.

(To be continued.)

BATHS FOR THE WORKING CLASSES IN EDINBURGH.—A correspondent sends us the following statement: — "Some thousand pounds were some time ago subscribed for the above purpose, ground was purchased, and the foundation-stone laid with great ceremony. The ground has now been sold, and all idea of the baths abandoned."—*Scotsman.*—[We should be glad to learn the cause of this proceeding.]

FOREIGN ARCHITECTURAL INTELLIGENCE.

The "Archæological Society"—of Rome. This seems a year of epidemics with this sort of societies. That of Rome has been, of late, in a state bordering on disruption. The secretary, *P. C. Visconti*, had first become embroiled in a lawsuit, on account of some share transactions for the acquisition of antiquities, and another antiquary of distinction, Mr. Achilles Genarelli, had received orders to decide thereon. As the judicial press of Rome is not under censorship, Mr. G. seasoned his dictum with some unpleasant phrases—as, indeed, every one perceived, that Mr. Visconti has placed himself in such a position, that he must be dis-placed from the secretaryship. And then came a general medley, in which the president, cardinals, Prince Borghese, etc., are concerned—the details of which, however, cannot interest our readers.

The Dome of St. Peter.—While the old basilica of St. Paul on the *Ostia* road, which had been burnt down some years ago, is daily progressing in its restoration towards pristine beauty and grandeur—the signs of decay and deterioration in St. Peter's are becoming more visible and obvious. It is known, that in succession ten iron rings of the weight of 120,000lbs. had to be employed, to keep together the huge cupola, which exhibited several cracks. Of late, it has also come to light, that the *lanternino*, under the ball of the cross, supported by thirty-two double columns and ornamented by sixteen candelabra — erected by dint of the gold of Spanish America, is full of fissures. It is impossible to think, that lightning has caused this disaster, as this part of the building has been already protected by several conductors under Pius VII. It is rather to be supposed, that the weakening of the supporting columns of the cupola, which have been excavated by staircases and places for the reception of holy relics, has mainly brought on this damage. Several hundreds of hands have been of late employed, to chain and fetter together the lanternino, and thus to prevent, if possible, a further spreading of the cracking.

Influence of State's-protection on Art in France.—The assistance which arts receive from Government in France is spreading its beneficial effects throughout the whole social fabric; collections increase, monuments are restored, amateurs afford occupation, and encouragement to every talent. The liberality of the legislature is first to be adverted to. The secretary of state of the public *culte* has an annual item of one million and a half of francs for the preservation of churches, but last session two millions more were destined for the restoration of Notre Dame at Paris, and 600,000 francs for the building of a vestry, a small Gothic building, which has to be erected aside the old church. When Notre Dame was last viewed by a commission, it appeared that nothing had been done to it for the last two hundred years but to paste over the fissures and crevices with paper. The chambers also vote every year 600,000 francs for "*the preservation of historical monuments*," of whatever kind or period they be. Last session however, the ministry had obtained two millions and a half for building a new front to the church of St. Ouen at Rouen, for restoring the chateau of Blois, and the ancient amphitheatre of Arles. Aside these great restorations, minor ones are equally attended to, and the churches of St. Germain l'Auxerois, St. Mery, and St. Germain, will receive large embellishments of paintings.

The grand discoveries of Mr. Botta, at Nineveh, have been assigned by the king to the galleries of the Louvre, and on this occasion, the whole ground-floor adjoining the square, where Marochetti's statue of the Duke of Orleans is to be placed—has been laid out for a *Greek* museum, containing the sculptures of Sardes and Magnesia; an *Egyptian*, containing the monuments collected by Drovetti, and never before exhibited; to which the *Assyrian*, containing Botta's collection is to be added. The *ateliers* of the artists are becoming peopled by a crowd of well-instructed, zealous men. Many are employed by the Duke de Luynes, who has the great saloon of his château near Versailles, called Dampierre, painted by Mr. Ingrés. The latest work ordered by his Grace is a correct imitation of the statue of Minerva of Phidias as it stood in the Parthenon. It will be executed by Mr. Linart in ivory and metal, and a model of clay is finished according to the description of Pausanias and the researches of M. de Luynes. It will be seven feet high.

The Queen's Subscription towards the Rebuilding of the Cathedral of Cologne.—Although the misconception which exists, it seems, on the Rhine, on this head, is very palpable, a few words may be said to set the matter at rest. A sovereign of Great Britain is *not* absolute, but restricted by constitutional laws and enactments—amongst which a *fixed* civil list is the most prominent. If we come to know, that the income of the King of Bavaria is *one-fifth* of the whole *revenue* of the realm—his Bavarian Majesty may certainly appear at times proportionally liberal. In Austria and Russia there is not even the shadow of a regulation in this respect, and the *sign manual* of the autocrat may call forth millions from out of the caves of the treasury. Moreover, most of the Continental monarchs do a *little* business in the public funds, and there is not an Austrian archduke dying who does not leave twenty millions of florins, or thereabouts. *All* this is *not* the case here. The income of an English sovereign is fixed, while their liberality has to extend over an empire where *the sun never sets.* The subscription of her Majesty the Queen, therefore, was such as it *could* have been, and as it *ought* to have been. Absolute monarchs give orders on their treasury, her Majesty gave out of her own pocket. *Sapienti sat.*

J. L.

BALLE KHAL SUSPENSION BRIDGE.

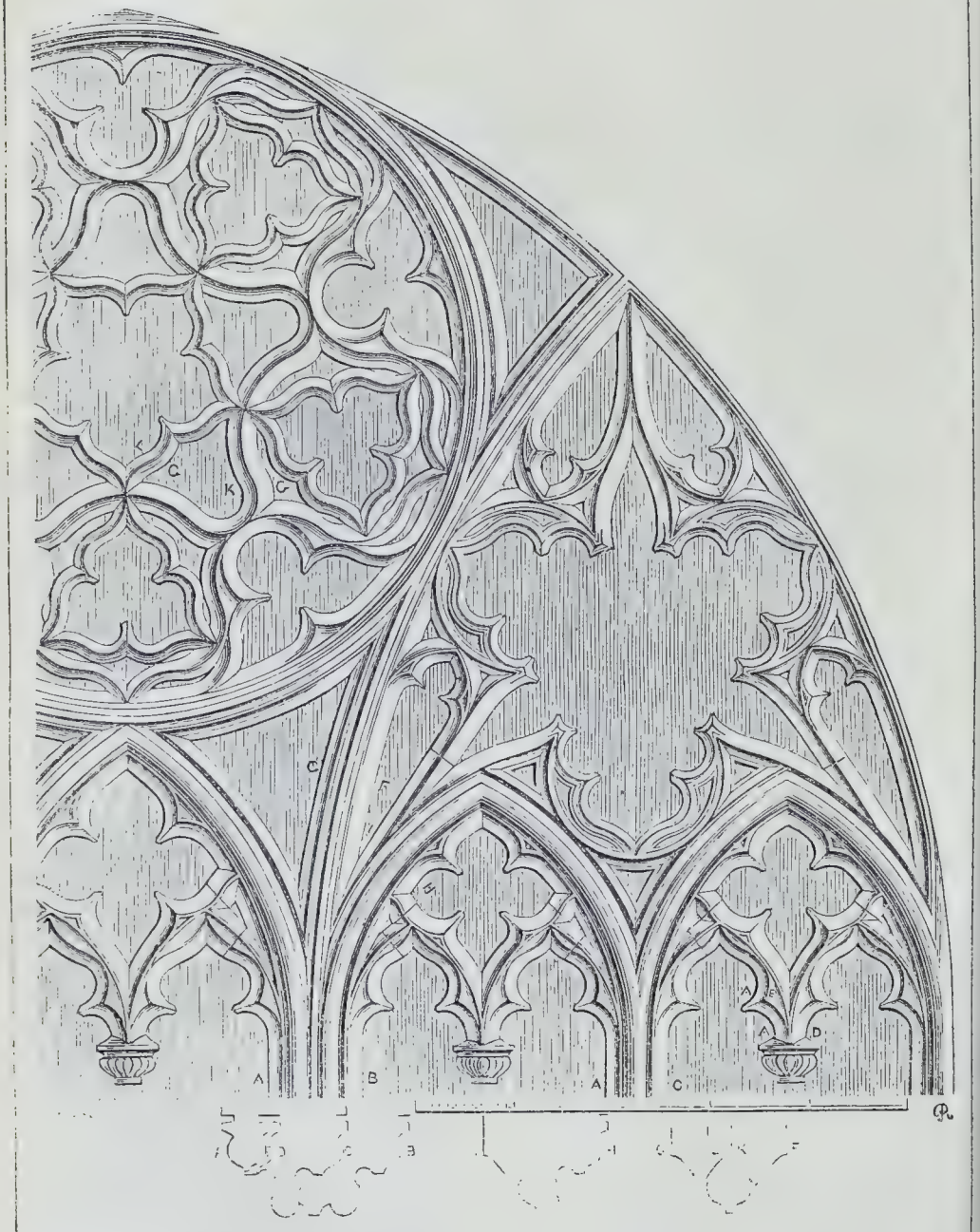
In our impression of the 30th of Augsut, we announced the fall of this bridge, which had just been erected about four miles from Calcutta. It consisted of a single curve of 250 feet span, with 18 feet of platform. The height of the points of suspension above the plank level, which was equal to the deflection of the chain, was 26 feet or $\frac{1}{9.17}$ the chord line nearly. The angle of suspension was therefore about 19° 51′. The platform was supported by two main chains, one on each side of the bridge, composed of links of round bar iron 1 3-eighths inch in diameter, and 10 feet long. There were 15 of these links resting on the towers at each point of suspension, and from thence at each joint the number was lessened one link till at the centre the sectional area of the chain was reduced to 2 bars 1-eighth inch in diameter. The oblique suspending rods depended from the chain at each joint in pairs, they were a quarter of an inch in diameter, and the angles at which they were attached to the platform varied from 67° 42′ to 16°, becoming more and more acute as they approached nearer the centre of the bridge. There were three pairs of these suspending rods at each point of suspension, which supported 23 feet of the roadway at each end of the bridge, taking the weight thereof immediately to the tower link without affecting the curve of the chains. Thus $250 - 23 \times 2 = 204$ feet = the length of platform supported by the chains. Those who desire further information on the subject will do well to consult the *Mechanics' Magazine*, for October 19, 1844, which contains a detailed account illustrated by plans, sections, and elevations.

NEW BUILDINGS, LONDON DOCKS. — A substantial range of tea warehouses has been recently completed at the west end of the docks by Messrs. W. Cubitt and Co. They are 300 feet in length, 100 feet wide, and 68 feet high, and capable of stowing and working 120,000 chests of tea. There are five floors rising one above another; the roof of each is supported by strong cast-iron pillars, and each floor is divided into four rooms, well-lighted, and divided by thick walls and double iron doors, rendering the whole completely fire-proof. The vaults below the tea warehouses are appropriated for the reception of wines.

THE NAPOLEON COLUMN AT BOULOGNE.—The Napoleon column at Boulogne has just been terminated; the first stone was laid by Marshal Soult on the 9th November, 1804.

PRICE OF LARCH WOOD.—The Duke of Montrose, last week, sold eight thousand fine larch trees, from his growing timber, at the rate of 1s. 3d. per foot.

WINDOW,—ST. ANSELM'S CHAPEL, CANTERBURY CATHEDRAL.



THE WINDOW AT ST. ANSELM'S CHAPEL, CANTERBURY CATHEDRAL.

The sketch of this fine window, engraved above, was made during the visit last year of the Archæological Association at Canterbury; it was done upon the suggestion of Professor Willis, who was at the time employed in examining the cathedral, and in drawing up the very valuable and interesting account of it, which he has since published. A small elevation of the head of the window complete is given in his book,—from which the following particulars respecting it are extracted:—

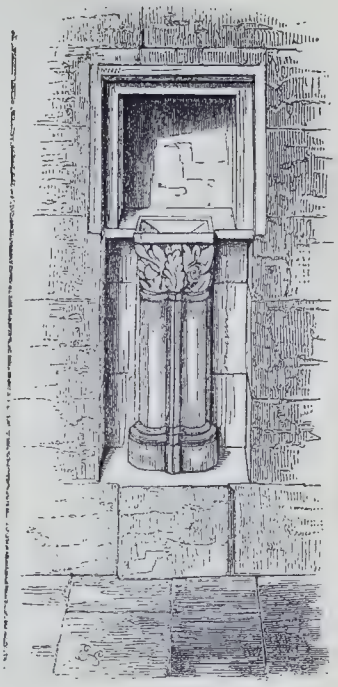
"In Anselm's Chapel, the original window of the south wall has been taken out and replaced by a very large and elaborate window of five lights, which is remarkable for its well-preserved history; this is contained in the following document, printed by Battely, from the archives:—

'Memorandum, that in the year 1336 there was made a new window in Christ Church, Canterbury, that is to say in the chapel of the

PISCINÆ.



From Haddenham Church, Buckinghamshire.



From Aylesbury Church, Buckinghamshire.

Apostles, Saints Peter and Paul, upon which there were expended the sums following:—

	£.	s.	d.
Imprimis, for the workmanship only, or labour of the masons	21	17	9
Item, for the taking down of the wall where the window was placed.. ..	0	16	9
— for lime and gravel	1	0	0
— for 20 cwt. of iron bought for the said window	4	4	0
— for the labour of the smith ..	3	5	4
— for Caen stone bought for the same..	5	0	0
— for glass and the labour of the glaziers	6	13	4
Total	42	17	2

The sum of 8*l.* 13*s.* 4*d.* was given by certain friends for the said window, and the remainder of the money was furnished by the prior."

This prior was Henry de Estria, and the peculiar management of the heads of the lights, with their pendent bosses, Professor Willis remarks, may be compared with the similar bosses of his choir door (of which he gives representations).

The interior of this tracery is in very good preservation, with the exception of the pendent bosses and the stones whence they were suspended, which have totally disappeared. The outside of the window is, however, in a very bad condition for the purpose of the antiquary; for, apparently on account of the decayed state of its surface, the tracery has undergone the process of splitting, namely, the whole of the outer part has been pared down to the glass, and fresh worked in Portland stone; Portland stone mullions, or *monials* as they are more properly called, have also been supplied; and as this repair was executed at a period when this class of architecture was ill-understood, the mouldings are very badly wrought, which, in conjunction with the colour of the Portland stone, has given the window a most ungenuine air. However, the interior is as good as ever it was, and it is on account of its date, as well as for its beauty, a most valuable example.

There are some peculiarities in the manner of distributing the mouldings of this window which are shewn in the figures. The heads of the lights are worked with different mouldings from those of the tracery above, and the increased size and the importance of the two central monials are given, not by an additional layer or order of mouldings, as usual, but by separating the other mouldings."

In Professor Willis' print the mouldings are given reduced from the outlines made by the cymagraph, a small instrument invented by the professor, which causes a steel point, running over the mouldings, to move a pencil point, and give their form with unerring accuracy on paper. This instrument was brought before the Institute of British Architects, and described by the professor himself a year or two since.

It may be added that the print of the window presented above is a portion of the head only, for the great advantage of giving it to a larger scale. The section of the mouldings is as nearly like those made by the cymagraph as can very well be. The window is one of the most beautiful examples in England, and it evidently attracted great admiration at the time it was executed, as several decorated windows in the churches for many miles round Canterbury are plainly designed in imitation of it.

C. J. R.

THE ORIGIN AND USE OF PISCINÆ:

WITH ILLUSTRATIONS OF THOSE AT HADDENHAM, AND AYLESBURY CHURCHES.

PISCINA, from the Latin "piscis," a fish, was anciently a fish-pond. The same word had other applications; a place where cattle were watered, and a large basin for swimming in, either in the open air, or in the baths, being likewise so denominated. The term has also been applied to the basin, near the court of Solomon's temple, in which cattle were washed previous to the sacrifice; and Mr. Britton (Dictionary of the Architecture and Archæology of the Middle Ages), says, that the basin, which contained the water in a baptistry, was also formerly called a piscina. In later times, it was synonymous with "lavacrum," and, in one of the senses of that word, with "sacrarium." There is much confusion in the old nomenclature of Gothic architecture, and we frequently find the same name, applied to objects of even opposite uses; and "lavatory," "fenestella," "font," and "water-drain," have each been used for "piscina." The last is now usually applied to the niche, or receptacle, on the south side of the altar in Gothic churches, in which the priest washed his hands, or emptied any consecrated waste, as, for example, the water in which the chalice had been rinsed. The usual position was between the sedilia and the east wall; but is sometimes in the east wall itself. Three chantry piscinæ, at Aylesbury, are in eastern walls. Occasionally, it is in the north wall, as at Ditchelling, Sussex, and Castor, Northamptonshire. As every altar required a piscina, we *often* find several in the same church, and, frequently, when all trace of the original altar has disappeared. The most ancient piscinæ, as at Salisbury and Lincoln cathedrals, had, according to Mr. Pugin, two basins, one for the ablutions of the hands, and the other for the rinsings of the chalice; and when the rubric, for receiving the ablutions of the chalice by the priest, became generally observed, the second basin was disused, the later piscinæ having one basin only. However, it is remarkable, that there are early examples with one basin. In some churches, there is no piscina, nor any appearance of there having been one; the substitute in such cases was a hole in the pavement, at the south side of the altar; which is ordered in an ancient MS. of Injunctions for the diocese of Lincoln, preserved in the Bodleian library; but no such hole has yet been discovered. It is difficult to conceive, how the piscina could ever have been *suspended*, as allowed in the ordinance of an ancient synod, quoted by Fosbroke ("Encyclopædia of Antiquities," vol. i, p. 96), where it is called "a font for washing the hands of the officiating priests, which may be either pensile, *or affixed* to the wall, and furnish water." Is it likely, that the word font refers to another vessel, in which the hands were

washed, the *carrying off* of water, rather than the supply, being the object in the piscina, the bowl of which, indeed, is hardly large enough for any other use.

"Piscina," and "lavacrum" are used, as synonymous, by Durandus; but the latter word is sometimes applied to a basin for washing of any kind; as in the inventories of Finchale, in 1354-5, and in 1411, printed in the "Monasticon Anglicanum." "Lavatory" is more commonly used for the trough, or basin, in which the hands and face were washed, examples of which remain at York, Salisbury, and Durham, but is used for the piscina, in the contract for Catterick Church, and in the catalogue of furniture for the royal chapel at Eltham, 6th Henry VIII. "Sacrarium" is the term used by Mr. Pugin; it formerly signified a receptacle for any thing sacred, as "sacrarium piscinæ," "sacrarium baptisterii," and applied frequently to an apartment, or sacristy. "Water-drain," was used by Mr. Rickman, as well for the drain, as the niche, which contained it. "Fenestella," the Latin word for a *little window*, was formerly, and, by the Cambridge Camden Society, is now applied to the recess, or niche, in which the basin was usually contained, "piscina" being retained for the last-mentioned. To our previous mention of the term "font," we may add, that it is adopted by Du Cange. Though the custom of washing the hands, before the communion, was one of very high antiquity, piscinæ are not often found of earlier date, than the thirteenth century. Norman piscinæ, where they do occur, are of the rudest form: there are two at Romsey Church, Hants, and one in the crypt of Gloucester Cathedral.

Piscinæ are found in every imaginable form; the most common is that of a recess, about a foot in width, with foliated head, ogee, crocketted, or otherwise; with a basin at the bottom, six or seven inches in breadth, with a drain leading into the ground. Piscinæ with round trefoiled heads were not uncommon, at the beginning of the thirteenth century, and they are found at Haddenham, St. Lawrence's Church, Ramsgate, and Coggeshall, Essex: about 1250, they were superseded by the pointed trefoil. At Long Wittenham Church, Berks, is a very remarkable piscina, illustrated in the *Archæological Journal*, vol. ii. p. 134: it is of a trefoiled form, with a small cross-legged figure in armour, lying along the front of it, on the edge, with the basin at the back: in the head of the piscina are two angels, as if hovering over the figure below.—There is generally a shelf of stone, or wood, across the middle of the fenestella, and sometimes a recess, running inwards, on one or both sides, of which the use is unknown. At Christ Church, Hants, there is a niche in the interior. The piscina at Jesus College Chapel, Cambridge, of transition character, probably of the date A.D. 1200, has a central shaft, two basins at half the height of the shaft, and intersecting arches; the whole inclosed within a square border. The piscina at Rothwell Church, Northamptonshire, is triple, a very unusual form. Some piscinæ have no recess or fenestella, but project on brackets, others are half projecting. The recess at Hexham Church, Northumberland (A.D. 1200), is a simple, trefoiled arch-head: some have rich canopies, with pinnacles; others are supported upon a shaft, as in the example from Aylesbury. A piscina at Stoke Golding Church, Leicestershire, has two bowls in the same niche, and the large piscina in Tiltey Church, Essex, has one basin octangular, and the other circular. Two of the most remarkable examples are those at St. Alban's Abbey, and Cobham Church, Kent; the former is of early date, but enriched, and occupying a large space; the latter, of perpendicular date, is very elaborate. "The orifices of Early-English piscinæ," says the "Few Hints on the Practical Study of Ecclesiastical Antiquities" of the Cambridge Camden Society, "are generally either shallow and circular, or deep and reversed pyramidal," as in the piscina from Aylesbury. "In Decorated, they are four-foiled, five-foiled, &c., up to seventeen-foiled; which last is very unusual, but occurs in Ardingley Church, Sussex. Other forms are square, semicircular, eight-foiled within a raised rim, covered with a pierced flower, or with a dog or lion keeping guard over the orifice."

The use of the shelf, before-mentioned, is not known with certainty. When it is of large size, it may have formed the Table of Prothesis, or Credence, on which the elements were deposited previous to their oblation; but, it is usually much too small for this purpose, and the credence table was generally placed on the north side. Some suppose, and with some degree of probability, that it held the soap, and others, that it was "the receptacle of the vessel for the holy oil, as it is not found in churches which have a chrismatory."* In the Glossary of Architecture (Art. Fenestella), there is this quotation:—"Parva campanula, ampullæ, &c., in *fenestella*, seu parva mensa ad hæc preparata"—"Missale Romanum"—which might lead to the belief, that the oil and the bread and wine occupied the same place. At Aylesbury Church, in a chapel attached to the north aisle of the nave, is a piscina with a shelf across the middle, and a smaller shelf above that. We are not aware that this peculiarity has been noticed. In the same church, near the piscina, now illustrated, is a second, but of different form: there is also a niche.

The piscina at Haddenham Church, Buckinghamshire, which forms the subject of one of our illustrations, is a singular example, and has the appearance of being composed from pieces of some other work. It has a round-headed trefoiled arch, with the dog-tooth enrichment, and may be considered as early English—the style of the thirteenth century. The several leaves are very well executed, but the whole has suffered from neglect, and half its beauty is concealed by green mould, and whitewash. There is no appearance of a basin, but this is probably shallow, and filled up with the whitewash, or cement, which is remained on the bottom. The piscina stands in the south wall of a chapel, which is on the north side of the chancel; and it is the only part of the original chapel, which has been preserved, the present one being of late date. The church itself is a small edifice, near the road from Aylesbury to Thame, about seven miles from the former place. It appears to have been commenced about the year 1200. The font is of decided Norman character; it is circular upon an octagonal base, and has some grotesque carving. The church has had many alterations during the fourteenth, fifteenth, and sixteenth centuries, but the main building belongs to the early part of the thirteenth. It contains one or two small brasses, a rood-screen, parcloses, and open benches of late date. The latter are curious; being placed far apart, and having two seats in each compartment, so that the faces of some of their occupants would not be towards the east. The tower is square, and finished with a plain parapet; the Early English arcade, which surrounds it, at the belfry, is of excellent character, and has been engraved in the Glossary of Architecture. There was formerly a chapel, or aisle, on the south side of the chancel; the arch and *responds*, corresponding with those on the north side, being built into the wall.

St. Mary's Aylesbury, is a large cross church, with aisles, and north and south chapels to the nave, with which they are now united. The tower is at the intersection, and is ascended by a turret stair, at the north-east angle; the stairs commencing on the west side of the transept. There were eastern aisles to the transepts; that on the south has given place to a school-room in a late style, and that on the north, to a sacristy, and room adjoining. The arches, by which the transepts communicated with the aisles, are now remaining, they are early English, the original style of the building, of the best character, and have lately taken part in the general restoration, which at the time of our visit, the church was undergoing, under the superintendence of Mr. Plowman, of Oxford. Several of these arches are built into the walls, and the church had greatly suffered from the defective construction of the tower; one of the piers of the nave had been thrust out of the perpendicular, in an alarming degree, and enormous, and unsightly counterforts had been built up, at different times, to prevent the falling of the tower. The roofs of the transepts are of timber, with rich tracery, but those of the chancel, and nave, were concealed by modern lath and plaster ceilings. These were jointed, and coloured in imitation of stone by the parish plasterer; whose merits seemed to have made some impression upon our cicerone, the clerk. The old benches may be seen, amongst the modern pewing, and also a few panels from the roodscreen, with figures painted upon them. There is a fine door to the south transept, *perpendicular*, enriched with panelling between the label and the four-centred arch, as in the example at Witney, Oxfordshire, figured in the last edition of "Bloxam's Gothic Architecture." The west door is early English, with shafts, and a trefoil headed arch on each side; and it is singular, that, in each arch, the capital, which is farthest from the door, is raised above the level of the other. A good early decorated monument is in the north transept. There is a piscina in each of the chapels of the nave, and two in the north transept, one of them being that now engraved. The font is a remarkably fine one, circular upon a square base, of Norman character, of beautiful form, and highly enriched in the double cable, which surrounds the stem, and the channelling of the bowl. When we saw it, it stood in the north transept, but, probably, once stood at the west end, where a modern one had usurped its place. It would well repay a journey to see it. The piscina above is in the east wall, and is in the style of the transition from early English to Decorated. The shaft is clustered and elegant; it stands in a recess:—the fenestella is square, and recessed in a greater degree; and the basin is square.

The churches of Buckinghamshire merit an attentive examination; in the neighbourhood of Aylesbury, they are numerous, and many of them have the old seats, and other original features remaining.

EDWARD HALL.

* "A Few Hints," &c., &c.

TOMB-STONES AND EPITAPHS.

In a lecture on ancient and modern burial rites, recently delivered by the Rev. Joshua Fawcett, M.A., at Bradford, the lecturer made the following remarks on monuments and epitaphs:—

"Spon, whose pursuits as an antiquary, joined to his character as a Christian, well qualified him for his ecclesiastical researches, observes, 'that if the doctrine of purgatory was any where to be found, it would be particularly in the epitaphs of the early Christians. But in the ancient epitaphs you never read, before the 7th or 8th century, '*Pray for him*,' nor even so much as '*Requiescat in pace*,' now so often read in modern epitaphs, and on escutcheons, and which is nothing more than an expression of our wish, as to the state of the deceased. In the early records of the pious dead, we read only, with the dates of their death, '*Obiit in pace*,' '*Depositus est in pace*,' '*Quiescit in pace*,' '*Obiit in somnum pacis*,' '*Acceptus est apud Deum*;' *i. e.* 'He departed in peace,' 'He is laid *here* in peace,' 'He rests in peace,' 'He departed into the sleep of peace,' 'He is accepted of God.' In addition to this simple inscription there were merely the initial letters of the deceased's name.

Unhappily, we live in times when the reverse of all this is the rule. No one can frequent the sleeping-places of the dead without being painfully struck with the extreme impropriety alike of monumental erections, and monumental inscriptions.

The general tone of monumental inscriptions should be characterised by Christian humility, kindness, and by a disposition to say *too little* rather than *too much*.

Unfortunately, the choice of inscriptions is too often left with the stonemason, who, furnished with a small stock of trite and everyday verses, supplies according to his own taste the wished-for eulogy.

Independent of the right which the clergyman has, of admitting or rejecting any monumental inscription, it is always best to submit to his judgment any tribute of respect which it may be thought desirable to erect and engrave, as by this means any error in diction or in doctrine may be avoided.

The same author already quoted, observes upon the folly and absurdity of making the stonemason the reference in the want of a suitable epitaph: "And now, suppose the customer requires a few lines of poetry, and is no poet himself, the complaisant stonemason obviates the difficulty at once. He has a book full of epitaphs; and one of these—grammar, spelling, and all—is, in a few weeks, transferred

from the book to the stone: perhaps it is some such nauseous nonsense as this:—

'Afflictions sore, long time I bore,
Physickiones was in vain;
'Till God did please, from deth to seize,
And ease my of my pain.'

Or some one of these:—

'A time of death there is, you know full well,
But when, or how, no mortal man can tell;
Be it at night, noon, now, or then,
Death is most certain, but uncertain when.'

'And thus it is with man's frail clay;
His life, at best, a round of sorrow;
For he who rises well to-day,
May be a corpse before to-morrow.'

'I've lost the comfort of my life,
Death came, and took away my wife:
And now I don't know what to do,
Lest death should come, and take me too.'

'As I am now, so shalt thou be,
Therefore, prepare to follow me.
God takes the good, too good on earth to stay,
And leaves the bad, too bad to take away.'

'He lived and died a true Christian,
He loved his friends, and hated his enemies.'

'Here lie I beside the door,
Here lie I because I am poor,
Further in the more they pay,
Here lie I as well as they.'

The following is found in Wibsey chapelyard. It is an epitaph on a blacksmith:—

'My stithy and hammer I declined,
My bellows too have lost their winde;
The fire's extinguished, and my forge decayed,
And in the dust my vice is laid;
My coal is spent, my iron is gone,
My last nail 's driven, my work is done.'

From Matherne churchyard:—

'Here lies John Lee, that good old man,
We ne'er shall see him more;
He us'd to wear a snuff brown coat,
All buttoned up before.'

Now all this, and manifold worse than this, which almost every churchyard bears witness to, may be avoided by a simple reference to the judgment of the clergyman, who would in all cases gladly give every assistance in his power either to correct the epitaph proposed, or to supply its place with one more suitable.

In Wibsey burial-yard there is, however, a very beautiful contrast in the following sententious inscription:—

Here lies
A piece of Christ,
A star in dust,
A vien of gold,
A china dish,
That must
Be used
In Heaven,
When God
Shall feast
The just.

There is an absurd fashion lately sprung up of mingling Latin words with English inscriptions; as in the following epitaph:—

Here lie the remains of
P. Q.,
Late of this parish.
Obit May 1, 1820. Ætatis suæ 65.
Having been schoolmaster of this place for thirty-five years.

But the most ridiculous instance of this affectation is the following. It appears that a Latin epitaph was required, but a rhyme, or a jingle of sound, was deemed indispensable. Accordingly, the words '*Requiescat in pace*,' having been chosen, the letter-cutter, in order to effect the latter object, modified them thus—

'Requiesce
Cat In Pace.'

The folly and ignorance of this needs no comment.

In a small work, entitled, 'A Tract upon Tombstones,' the following pertinent remarks appear—'There remains one more offence against propriety and good taste which is very common on gravestones, and which I will therefore mention. I allude to the ornaments which are usually introduced in low relief, above the inscription; and these consist chiefly of cherubs, doves, scythes and hour-glasses, mattocks and shovels, skulls and cross bones, urns, and reversed or extinguished torches.

I suppose there are persons who admire those conventional forms of ugliness (*cherubs*), with puffy faces of pink and white, black (often squinting) eyes, gilt hair and wings, which are intended as representations of one order of the holy angels. Certainly, if tawdriness of colour can attract, these things look *smart* enough when they come out of the stonemason's yard; but let a few months pass, and what a change has taken place! The summer's sun has faded the red of the cheeks, and the damps of autumn have covered, perhaps, one-half of the face with a mouldy green, so that the remains of its former brilliancy only make this ugly representation still more hideous. I do not say that a sculptured angel, keeping watch, as it were, over a tomb, would not be an appropriate emblem there, but cherubs, as they are commonly represented, would be much better omitted; for the work is so ill executed, that the ideas suggested by it are rather ludicrous than solemn.

In some places, a *dove* with extended wings is more common than cherubs at the top of a head-stone. If this is meant as an allusion to the Holy Spirit, I think that a more inappropriate place could hardly have been fixed upon; for when a person has ceased to live, the means of grace are ended, and the Holy Spirit no longer strives with man. Perhaps, however, it will be said, that the dove is an emblem of the deceased person's innocence. Alas! such a symbol is unfit for even the best of us.

I remember seeing this ornament sculptured on the tomb of a man who had been a market-gardener. The bird was represented as hovering, with outstretched wings, the tail raised, and head downwards; but the design was very coarsely executed; the neck looked like the stalk of a plant, the spreading tail like long narrow leaves, the oval body (which was gilt) being marked over with indentations, the poor man's neighbours took it into their heads that his tomb was ornamented with a flying pine-apple—of course an allusion to the profession of the deceased.

Scythes and hour-glasses, mattocks and shovels, skulls and cross-bones, being frequently intermingled, and placed, as it were, in a group, at the head of a grave-stone, may be classed together, and one condemnation passed on them all. It is not that they are unmeaning, or that their meaning is objectionable, but they are mere symbols, and not very imposing symbols, while the *grave itself*, over which they stand, is a stern, and awful and striking reality, awaking far more solemn thoughts than these mere types of mortality can do. Besides, they are altogether defective in inspiring the thought with which the view of a grave should always be attended; the thought, namely, of that which lies beyond the grave, and of the time when death shall be swallowed up in victory. Scythes, and skulls, and spades, might be appropriate enough for a heathen, but a Christian wants something *more*.'

Having stated what is objectionable, it is only right we should state what is not. 'There is *one* emblem, perfectly unobjectionable, perfectly appropriate, full of solemnity, full of consolation; which raises hope and dries the tear, and turns mourning into gratitude; which, while it reminds us that we are sinners, reminds us of the means of pardon; which, while it shews us the penalty of sin, and thereby humbles us to the dust, at the same time cheers us with the thought of Him who paid the penalty; who rose triumphant from the grave; who is the resurrection and the life; who will change our vile bodies, and raise them from the dust; who hath hallowed the grave and gate of death into the passage of immortality; and who, having himself overcome the sharpness of death, hath opened the kingdom of heaven to all believers. That emblem, I need scarcely say, is the CROSS.'

The following directions, extracted from 'Origines Genealogicæ,' by Stacey Grimaldi, F.S.A., will afford some slight guide by which the date of an ancient monument may be ascertained when its legend can no longer be deciphered:—

Tenth and Eleventh Centuries.—The coffin-lid in the form of a prism, the better to shoot off the wet, because the bottom part of the stone coffin lay on the ground. In armour, the rustred, ringed, trellised, tegulated, mascled, and edge-ringed, obtained use.

Twelfth Century.—Coffin-lids improved, or distinguished with crosses; at first plain, then fleury, in bas-relief. Tables, whereon effigies or sculpture. Priests had chalices in their hands on their breast; prelates had mitres, crosiers, great crosses, and pontifical habits; knights had arms, spurs, and swords. The armour was in the preceding century. No coats of arms, on shields, or otherwise, occur prior to this century. The earliest known in England are those of Geoffrey Magnaville, Earl of Essex, buried in the Temple Church, in the year A.D. 1164.

Thirteenth Century.—Coffin-stones, with heads or bodies emerging from them, and placed in walls, with arches turned over them. The first brass statue, that of Henry III. Lombardic capitals became general on tombstones. The first table monument is that of King John, in Worcester Cathedral, who died A.D. 1216; and the fashion lasted until the reign of James I. French *epitaphs* occur. The oldest instance of a skeleton monument is A.D. 1214. Cross-legged figures are between A.D. 1224 and A.D. 1313. They imply crusaders, or that the party had vowed to take the journey. The armour is complete mail, with only knee-pieces of plate.

Fourteenth Century.—Lombardic capitals on tombstones not used after A.D. 1361. The text, or old English hand, succeeded, and continued till the reign of Elizabeth. The inscriptions were engraven on brass, and the words abbreviated. The armour is a mixture of mail and plate, but mostly mail. Coats of arms were not *quartered* by subjects until this century: John Hastings, earl of Pembroke, was the first. Supporters to arms first occur, being used by Richard II. Coronets first appear: the instance is John of Eltham, who died A.D. 1334.

Fifteenth Century.—Burials in chapels introduced. In armour, from A.D. 1400, all plate but the gorget: in A.D. 1416 all plate occurs. Henry V. was the first who bore three *fleur-de-lis*, instead of *semee*.

Sixteenth Century.—Inlaid with brass, altar monuments at the beginning of this century. Monuments against the wall, chiefly since the reformation. Roman round-hand took place about the end of the reign of Henry VIII. '*Orate pro anima*' was discontinued on monuments at the Reformation: Catholics (Roman) have only used it since. The first deviation from the Gothic forms of tombs is the monument of Lord Danley's mother, who died A.D. 1578. Skeletons in shrouds succeeded, and were imitated by corpses in shrouds, tied head and foot. Figures supported their heads on their right hands, an attitude taken from the Greek and Roman monuments. A kneeling attitude for children takes date not till after the Reformation; nor for parents, except to the cross; nor the infant in swaddling clothes, nor cradle.

Seventeenth Century.—The latest date of animals at the feet is A.D. 1645. Cumbent figures occur till A.D. 1676.*

AN ARCHITECTURAL FRAGMENT.

THE dark and gloomy religion of Osiris and Isis, stigmatized by Gibbon as the most degrading form of superstition, accords with the style of their temples. It is noticeable that the Egyptians lavished ornament mostly on the interior, leaving the exterior comparatively bare and plain, contrary to the general practice of the Greeks. The Tombs of the Kings will remain for ages to come monuments of those who built them: in their exterior no exquisite proportions, no careful adjustment of means to end meet the eye, the majority consist of a mass of hewn stones with just so much evidence of design as to shew that they were built by some mighty potentate. Not so the interior; radiant with beauty, uncontaminated by the tread or the touch of the mob, it was perhaps designed to shew to the *esoterica* the splendour of art, the refinement of the entombed monarch; the paintings probably represented his acts, his wars, his triumphs, perhaps the history of his whole life. It illustrates well the singular difference which was always maintained between the vulgar and the initiated, and which Pythagoras introduced into Greece. This distinction, which existed in the time of Aristotle, no doubt extended in Egypt further than religion and philosophy, as all learning was in the

* On the subject of monuments, see papers in BUILDER, p. 98 and p. 140, *ante*.

hands of the priests, who assiduously laboured to create a reverence among the people by enveloping learning in mystery, and by continually employing certain mystic symbols or particular attitudes which they deemed it impious to depart from. This may account for the similarity in form and attitude that is observable in their statues: some great statue was perhaps chosen as a prototype, and considered the ultimatum of art. It would weaken the popular reverence for the deity, or rather for the priests, if any other attitude was adopted; the one particular form having become intimately associated with the idea it embodied.

In the pure simplicity, the unaffected grandeur, the bold nervousness of the early Greek writers we recognize the style of thinking, if I may so speak, that originated the Doric order. In the more ornate refinement of the Ionic we recognize the influence of Asiatic luxury upon the susceptible temperament of the Attican colonists; and by the energy or rather vagrancy of thought that characterizes their temples, we are prompted to remember that restlessness and love of novelty that caused their emigration under Androculus and Nileus.

When we examine Gothic structures, our minds revert at once to those times when the spirit of chivalry was at its height, when love and battle, revenge and heroism, were the pleasure and business of mankind,—when the power of the barons was high, that of the king feeble; when society was in endless commotion and a vindictive and martial nobility oppressed the people without compassion. What do we not owe to the soothing and gentle influence of religion, that restrained the impetuous, emboldened the timid, and harmonized, in some degree, a discordant and conflicting mass of anarchy and misrule. In these calculating days we scoff at "the supine indolence with its attendant profound ignorance of the clergy of the "dark ages," forgetting that the great churches built in those unenlightened times stand imperishable monuments of the falsehood of their statements, and that at present, far from excelling, we are able only in some degree to imitate the labours of these "barbarians."

Medieval architecture is the type of the medieval ages. Gaze at the old cathedrals, dilapidated as they are by the rude hand of the Puritans, the tastelessness of the revivalists, and the abrading influence of time. The lofty windows, decorated with the most beautiful ramifications of tracery, and radiant with the most resplendent hues; the solemn, chequered, gloomy light, diffused around; the interminable length of the vistas; the lofty proportions; the scientific skill shewn in supporting and balancing the strains; the numerous intersections and complexity of the groining; the lengthened shadows produced by the deeply cut mouldings; the carefully and accurately worked ornaments, with the artistic skill with which they are copied from nature;—all these particulars together, agree in making what may be called the romantic style of architecture. The solemn devotional spirit that breathes through the whole of the edifice, that takes the beholder out of himself; the deep feelings with which you approach the place, sanctified by ages and as the resting place of the bones of your forefathers, and compare the noble spirit that inspired men to make such sacrifices of money and time in those days, with that ostentatious, half-mock spirit that prompts men to indulge in feasting and dancing under the specious but flimsy mask of charity.

David Hume remarks* that overloaded ornaments, fantastic conceits, &c., are never found in the works of the early Greek writers, but that as taste degenerated, they gradually crept in, until at last they completely vitiated and infected all compositions. He then goes on to say, "On the revival of letters, when the judgment of the public is yet raw and unformed, this false glitter catches the eye and leaves no room either in eloquence or poetry for the durable beauties of solid sense and lively passions. The reigning genius is then diametrically opposite to that which prevails on the first origin of the arts." He then criticises the writers of the Elizabethan age, and condemns "the glaring figures of discourse, the pointed antithesis, the unnatural conceit, the jingle of words," that they so much abound with. These irregularities accord with the prevailing features of those mixtures of Gothic and Italian that are called Elizabethan and Rennaissance, in which occur the unnatural and strained images of birds and beasts—stiff and twisted forms of scroll work; and we perhaps admire the good qualities of these styles the more, for the same reason that Hume supposes we overrate Shakspear's genius, because "bodies appear more gigantic on account of their being disproportioned and misshapen." H. J. L.

* History of England, Appendix to the reign of James I.

THE SMOKE NUISANCE.

Mr. Editor,—As you were kind enough to give insertion to my observations on the subject of sewage nuisances, I am tempted again to offer a few remarks on another more palpable class of nuisance, one which you have so ably handled in you journal and elsewhere. I refer to the "Smoke Nuisance," which however I should rather term "The Fuel Wasting Nuisance," for a wasteful and inconsiderate expenditure of coal &c., is, in fact, the actual cause of (nearly) the whole nuisance. Having a short time since in my ramblings, met with what appeared to me a simple and reasonable, and as I was then assured, a certain expedient for the consumption of smoke, I venture to lay the same before your readers, or I should rather say, smoke consumers (for such we all are and no thanks for the liberal supply on all occasions!) in the hope that all may be benefitted thereby, and those who should feel more immediately interested, profitably instructed. Every person who is acquainted with steam machinery is fully aware in how short a time a load of coals is emancipated. The plan I have adverted to is simply this:—In front of the ordinary furnace (which is more convenient underground), is brought out a second or extended floor of the furnace; over this extension or second furnace, an arch is turned; this arch is provided with a ring or aperture by means of which this second or outer furnace is supplied, and which, in fact, forms the floor of the coal depôt or store. The fire is lighted in the ordinary manner in this outer furnace, after which portions of the fire are moved on to the main furnace until it is sufficiently supplied. A tolerably good fire being obtained, the front furnace is now supplied from time to time with fresh fuel, the smoke from which of necessity passes towards the inner furnace and is in its passage over an extended body of fire, almost entirely consumed; any addition to the furnace in the way of substantial fuel is of course made by moving on the burnt coal from the front furnace, and thus the furnace may be said to be fed conjointly with coke and the smoke arising from the manufacture thereof.

I believe I am correct in stating that the above process is more than sufficient for the work of the furnace itself, and is profitably employed in making coke for general purposes. I tender you these few unconsidered trifles, conceiving that any information having a beneficial tendency, will not be quite unacceptable to your readers, or without some good effect to the community at large.

I am, Sir, &c. Συνεργος.

Relative to this matter, our attention has been directed by various correspondents at different times, to the greatly increasing nuisance produced by the smoke from the steam-vessels on the Thames, which now extends far beyond the banks of the river, and causes great loss to traders in addition to annoyance to all. Some steps should be taken immediately to compel the owners of these vessels to use means to prevent the nuisance complained of. We extract the following remarks on this subject from the *Times*:—

"The great increase of this nuisance within, comparatively, a short time, cannot fail to have struck almost every person; and the vast increase in the number of steam-vessels on the river is daily adding to the evil. But it is not only from the greater number of these vessels that this nuisance has so much extended; a large proportion of it arises from the cupidity of the owners, which has tempted them to discontinue the use of those descriptions of coal which can be burned without causing smoke, and substituting in their stead the commonest and cheapest description of fuel. Many of the steamers plying above London-bridge were formerly in the habit of using the better descriptions of Welch coal; but the smoke from most of the steamers now issues from their funnels in dense black clouds, darkening the atmosphere for miles up the river, and injuring the vegetation to a vast extent.

If this were an evil which admitted of no remedy, without interfering with the important facilities of transport afforded by steam-vessels, the case might assume a very different complexion. But it admits not of a question that remedies may be applied without the slightest inconvenience or impediment; and those remedies must be enforced, whatever opposition may be made to them. It is not considered any hardship upon railway companies to compel them, by a clause in their Acts of Parliament, to burn a description of fuel in their engines which shall not emit smoke; and if railway engines, passing through open and uninhabited parts of the country, are required by law to be supplied with smokeless fuel, much more ought steam-vessels to be equally restricted, when navigating a river like the Thames, the banks of which are densely populated in every part where steamers ply. The increased expense of fuel of this description is no valid argument against such a restriction. The question of expense is not allowed to weigh against the advantages to the community in the case of railway companies, and it ought not in that of river-going steam-vessels. Nor is the additional expense of such fuel of much moment. The loss which occurs in the present mode of burning coal in all ordinary steam-vessels is immense. It has been estimated to exceed in many cases 40 per cent.; the whole of which would be saved by using coke, or the best descriptions of Welch coal, that burn without smoke: and it is even considered by many competent and scientific men that economy would be promoted by the use of a better description of fuel, and by employing improved methods of combustion. Without deciding on the relative merits of the numerous rival inventions for consuming or preventing smoke, and even putting out of the question the possibility of applying these inventions at all in the cramped and contracted furnaces of steam-vessels, we know that the smoke from these furnaces can be prevented, by using either coke or some of the numerous kinds of anthracite coal; and if steamers were prohibited from plying on the river unless their furnaces were constructed to consume the smoke, or the fuel used were of that description which emits no smoke, the owners would very soon discover both the best fuel as well as the best method of burning it."

Application by Government of Nasmyth's Steam Pile Driver.—This powerful engine, which is working such mighty changes in the cost and construction of works where piles are necessary, is now being patronised by Government. Mr. Nasmyth has been by order of the Lords of the Admiralty to Deptford Dock to choose a place fit for the erection of one of a large size; the driving head to weigh 12½ tons, and capable of giving from seventy to eighty strokes per minute; yet, so completely is this ponderous machine under the command of the engineer, that he can so regulate it that it should take a dozen taps to crack a nut, and then not crush the kernel! It is intended also to have Nasmyth's direct action steam-hammer, which is on the same principle, at all the Government dockyards, of different sizes suitable for large anchor work, and the smaller works of the smithery. Mr. Baker, who is superintending the marine works at Devonport, has had a Nasmyth's pile driver erected, by which the whole of the piles necessary will be driven in three months, which, by the old system, would have taken three years.—*Mining Journal.*

Continued at p. 381.

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THE INTELLECTUAL IMPROVEMENT OF OUR OPERATIVES.

Sir, — In your excellent journal, The Builder, of the 27th instant, you have given a most valuable article on the improvement of the intellectual condition of our artisans. If the subject-matter were carried fully out, and which I trust it will be hereafter, the greatest possible good would be done to that most important class—the operatives of this country. There is no doubt but you have hit one of the right nails on the head, and that competition, unless subjected to a wise and salutary scrutiny, is, from the seeds of mischief contained within its system, likely to overspread and choke up the intellectual energies of our artisans. But let us endeavour to discover wherein this evil lies. For why should architects and builders feel it necessary to compete, and be induced to give the work to be executed by those who have sent in the lowest price? There may be more reasons than one for this proceeding, but the one is very certain, and that is, the ignorance and narrow-mindedness on the part of certain employers; and the want of that appeal from the architects and builders to the employed, to warn them of the mischief so likely to ensue from that grinding down to the very lowest price per inch, and the screwing system of splitting farthings, in order to get the building reared for the sum proposed to be expended or subscribed—caring very little for its instability, its deformities and its inconsistencies; for as long as it appears to stand, the proprietors are satisfied with the result of their bargain.

There is no doubt but the architects and builders could cure this evil; it only requires the putting of their shoulders to the wheel, and the cure would accordingly come. And as you justly remark — "To workmen we would say,—put your own shoulders to the wheel, become masters of your trade—artisans, not mere labourers — artists if you can, able to give a 'because' for a 'why,'—make your work your pleasure. An upright man who will do this, cannot fail to rise, and better still, will pass a more useful and happier life." Indeed, the whole article is so true, and so much to the purpose, that I would advise all the parties — the employers, the architects, the builders, and the operatives, to read, learn, and inwardly digest the matter contained therein, and they would soon ascertain how essentially necessary it is that each of them should take the bull by the horns, to free themselves from the impending danger.

It is well known that the body of operatives is a most important one, and deserving of our encouragement; but the present state of things is against that encouragement to which they are justly entitled. Competition prices will not allow them time to think before they execute, nor to receive instruction in the arts, and without which they must remain labouring mechanics. An operative ought to be able to construct and draw the work he is employed to execute, and to know the designer's reasons for why it is to be so and so formed, that he may clearly see his way and enter readily into the spirit of his work—deriving an intellectual pleasure at every form he produces. This source of happiness to him would be certain if the faculties for the arts were legitimately exercised; but this is very seldom the case, as artisans cannot afford to pay for a mathematical and artistical education; and, therefore, youths must enter into their master's service uninstructed in construction and design—the two mental qualities of all others in building matters the most important. As our gentry require architects, the architects require builders, and builders require artisans;—the three classes should combine, and make a fund to be applied to the education of the sons of their workmen, in order to fit them for that business which they are destined to enter. Their faculties for the arts should then be rightly exercised and directed during their apprenticeship, which would not only make them more skilful in their calling, but more intellectual men, and advance them in the scale of society, and to which they would be entitled. Several instances have come under my notice, of the following will shew the advantages gained by such cultivation. About ten years ago some of my designs were being executed by some carpenters and joiners in Sussex, and while I was painting some pictures in the same place where the carpenters were executing my designs, I was enabled to instruct these men in the construction of geometrical problems in perspective, in drawing and design; and by shewing to them the value of natural forms in the animal and vegetable kingdom, and teaching them to become active and accurate observers in the boundless field of nature, they soon felt the value of such information; and whenever they had to execute such forms as were immediately derived from nature, they would go into the gardens and fields, and obtain the flowers and leaves of plants, and place them before them while they were executing such portions of the designs which were made up of similar flowers and foliage. And though these artisans came as carpenters to work at 25s. per week, they were so much improved in a few months in ability, that their wages were raised to 30s. per week, and in about a year they received 35s. per week, and in two years they received 40s. per week, and in three years 50s. because they had obtained considerable talent in carving; and one, who was the most skilful, received 60s. some time after, and when he had completed all the work that his employer required, he called upon me to thank me for the instruction I had given him, and informed me that he had just had an offer of four guineas and a half per week, and which he was going to accept.

Other instances of this kind I could name that have come under my notice, but this will be sufficient to shew that a right exercise and direction of the faculties for the arts of our operatives, would be in favour of all the parties concerned, to the employers as well as the employed. And why should so valuable a class of men have so little done for them in their education? Surely the great comforts derived by every class—and particularly the higher—from their labours, ought to induce the wealthy to come forward in their favour, and establish an institution for a due cultivation of their faculties in all matters that pertain to their calling. If such a school was established I need not state what would be the result; the workmen themselves would see into the great benefits that they would derive, and the superior order of men they would become by such an intellectual training. They would no longer delight in low pursuits, or dishonestly spend their last farthing in intoxicating drinks, reducing their wives and families to the lowest state of misery. With such a state of things they would soon be disgusted, and would arouse themselves from their animal state, and enter, heart and soul, into the intellectual culture that such an institution would offer to them. I trust that 'ere long we shall see such a project carried into effect, and by the parties concerned.

I am, Sir, &c.,

Geo. R. Lewis.

61, Upper Norton-street, Sept. 29, 1845.

ANCIENT ARCHITECTURAL DECORATIONS.

A writer in the *Sussex Advertiser* says—"On cleansing and scraping the old wash from the walls of Battle church, previous to their being rewashed, the walls have been discovered to be full of paintings, of a very ancient and curious character, some of them very well executed, which appear to have been done during the reign of one of the Edwards, or probably before; there is also some writing, but it cannot (except a word or so) be deciphered. Only a portion of the walls has been scraped. I am fearful the whole will not be similarly treated, as one of the churchwardens appears averse to any more being scraped, and, indeed, annoyed that such operations should have been commenced." It is to be hoped the local antiquaries will give their attention to this discovery, and exert their influence to obtain an examination of the whole of the building. The *Athenæum* mentions a similar discovery of great interest in the cathedral at Brunswick. "In removing the plaster coating from one of the lateral walls of the nave, they have found the latter covered with fresco paintings in its entire length and breadth. These are divided into compartments—each one containing a subject from the life of Duke Henry, surnamed the Lion, born in 1129, and who died in 1195—the founder of the city of Brunswick, and builder of the Cathedral. The paintings are of the highest finish; but have, unhappily, suffered much from the removal of the plaster which overlaid them, notwithstanding the utmost precautions used in the operation. The government has ordered their careful restoration—as also their publication by engraving. They are supposed to be of the fourteenth or fifteenth century. It is hoped that other frescoes will be found in the same edifice—probably on the opposite lateral wall, at any rate.

STATUE RAISING.

Sculptors abroad have been busy lately in works of commemoration; in some cases, as it seems, they might have had worthier subjects. At Dunkirk, for example, a colossal bronze statue of Jean Bart was recently inaugurated, who was nothing more than a successful privateer that flourished 150 years ago. The statue is 16 feet high, and is considered a masterpiece of the celebrated David (d'Anger). He appears in the act of boarding a vessel, brandishing a sword in his right hand, and a pistol in the left, and is attired in the costume of Louis XIV. To decorate the streets on the inauguration day, the pretty practice, common enough on the continent, was followed, of letting into the earth on each side of the pavement, large branches of elm and oak, so as to transform the streets into groves. We remember seeing all Ghent thus rendered into gardens a few years ago on a much worthier occasion.*

A statue is to be raised to Claude Lorraine at Epinal, and one at Aurillac, to Gerbert, afterwards Pope Sylvester II. The monument to William the Conqueror, at Falaise, in Normandy, is being proceeded with. In Germany no opportunity is lost to commemorate a great man. A statue of Erwin von Steinbach, the architect of Strasburg cathedral, has been raised at Steinbach, in Baden. Beethoven's statue, by Hähnel, of Dresden, inaugurated at the late festival, is a fine work. The features are boldly sculptured, and bear an expression of profound and earnest thought, mingled with the wildness of inspiration, which is seized to its full extent at the first glance. The figure is clothed in a costume which is a compromise between the modern dress and the classical robe, and the attitude, which represents him with a pencil and note-book in either hand in an interval of reflection, is easy and natural. The fault found with the statue is, that its vigour approaches too much to coarseness, and that its appearance is somewhat squatty. The pedestal, which, as well as the statue, is of bronze, bears four bas-reliefs, representing four allegorical figures of fancy, symphony, sacred music, and dramatic music. It was obtained by competition. The casting is admirably well done. At Nuremberg (Bavaria) some statuary has been set up at the entrance to the new Louis Canal, uniting the Maine with the Danube. It consists of a group, representing the river gods of the Maine and Danube, and bearing an inscription signifying that the canal, which was begun by Charlemagne, but abandoned, had been finished by Louis King of Bavaria. The other pieces consist of two columns, surmounted by Navigation and Commerce, personified by two female statues, with appropriate emblems. At Skanderborg in Copenhagen a marble equestrian statue of King Frederick VI., from a model by Thorwaldsen, has been set up. In England, amongst the new propositions is a statue of Sir Thomas Fowell Buxton, to be set up in Westminster Abbey in honour of his efforts to extinguish the slave trade. Wyatt's figure of the Duke of Wellington is nearly cast. The statue of the Duke of Sussex, ordered from Mr. E. H. Bailey by the Freemasons, is nearly finished. The whole figure is eight feet high, including a six-inch plinth; its weight is about six tons, and it is formed of one solid block of white Italian marble, from the quarries of Carrara, the original cost of which was 280 guineas: the price to be paid to Mr. Bailey is 1,800*l*. When completed, it will be placed on a five-feet pedestal, to be erected on the dais in Freemasons'-hall, which is at present being embellished and decorated. The public subscription statue of the Duke is intrusted we believe to the same sculptor. A bust of the late Admiral Sir F. Maitland has been put up in the dockyard chapel at Portsmouth.

* The chief honours of the Belgic University had been taken at the examination by three sons of townsmen, and all the inhabitants went out to meet them, and escort them to their homes in triumph.

REPAIR OF TIMBER-BUILT HOUSES.

AWARDS UNDER METROPOLITAN BUILDINGS ACT.

Mr. Robert Wade, builder, was doing the following repairs to a wooden house in Bailey's Rents, in the district of St. Nicholas, Deptford, and refused to give notice to the district surveyor, Mr. Martyn, viz.:—

Cutting away the decayed quartering, and weather boarding of the external walls, to the height of one foot from the ground, and raising the present brick foundations one foot, to receive and support them at their diminished height; also taking down about four courses of the brickwork of the chimney-stack, and rebuilding and pointing ditto, and setting new chimney-pots thereon; also repairing the external weather boarding, which was in a very bad and rotten state;—and mutually they requested the award of the official referees, as to whether or not the said repairs "come within the jurisdiction of the Act."

The referees awarded (May 28th, 1845):—"That a mere superficial repair, such as pointing, is not within the operation of the said Act, but that a structural repair is within the said Act, and with respect to the building in question, that inasmuch as the works in question involve structural repairs, the same are within the operation of the said Act, and that although the building in question may not have been built according to the present or any previous statute for the regulation of buildings, yet it is the duty of the district surveyor to see that such building is not made more combustible than it may have been hitherto."

Fees of the office, 1*l.* 8s. 9d., and 1*l.* 1s. to the district surveyor, to be paid by the builder.

In consequence of suggestions made by the referees, and as a sort of appeal against this award, Mr. Francis Edwards, architect (on the part of Mr. W. J. Evelyn, the owner of the house in question and nine others, similar), in conjunction with the district surveyor, submitted the following inquiries:—

William John Evelyn, Esq., proposes to repair ten several timber-built houses covered with deal weatherboarding, situate in Bailey's Rents, in the parish of St. Paul, Deptford, upon which the following questions arising thereout, are proposed to be submitted for the decision of the official referees under the Metropolitan Buildings Act.

1. If the quarters and boarding (forming the "external inclosure") are partly decayed at the bottom, so as to require the brick foundation to be carried up less than one foot in height, is it not a repair permitted by the Act, without requiring a notice to, and supervision of the district surveyor?*

If a notice is requisite, is any fee payable thereon; and if so, what amount?

2. If the said quarters and weather boarding are simply repaired with the same materials, the portion taken out being less than "one-fourth of the whole surface," is any notice to the district surveyor requisite?†

If so, is any fee payable, and what amount?

3. If the chimney tops are taken down three or four courses, and reinstated to the same height, and the common pots reset, is any notice to be given of this, and is any fee to be paid for it, and what amount? There are two chimney-stacks to each house.‡

4. The privies to these houses are built of timber, and weather boarded; cannot they be repaired without a notice, and if so, is any fee paid for it?

If the privy is taken down, cannot it be rebuilt with timber, if detached from the house? and is a notice to be sent to the district surveyor?§

Whether any fee is to be paid for the same, and what amount?

Or, if the privy be rebuilt with brickwork, is it requisite a notice should be sent to the district surveyor; and if so, is any fee to be paid him for the same, and what amount.

On the 21st of August the parties were heard, Mr. Dawson, barrister, appearing for Mr. Evelyn, and Mr. T. Chambers for Mr. Martyr, and on the 13th day of September, the referees made the following award:—

"On the first and second questions, and on the first part of the fourth question—that inasmuch as the Metropolitan Buildings Act requires every district surveyor to cause all the rules and directions of the said Act to be well and truly observed, and inasmuch as the said Act makes provision in schedule D, part 2, with regard to the 'old external walls or other external inclosures of any building already built,' in reference to materials to be used in the repair thereof; and inasmuch as the said Act also requires the builder to give notice to the district surveyor before any matter or thing placed by the said Act under the supervision of the district surveyor shall be done. And inasmuch as the operations supposed in the first and second questions, and in the first part of the fourth question are works within the meaning of the said Act, notice should be given to the district surveyor as provided by the 13th section of the said Act. And inasmuch as a service is required to be performed in respect of such works, the surveyor is entitled to a fee, but as no fee is specifically assigned to such service, the amount payable must be determined by the order and appointment of the official referees, with the consent of the Commissioners of Works and Buildings.

And as to the third question, inasmuch as the operation therein described does not affect the structure of the building on which it may be performed, and is not specifically provided for in the Metropolitan Buildings Act, the said official referees hereby certify, determine, and award, that such operation is not to be deemed a work within the meaning of the said Act.

And as to the second part of the fourth question, the said official referees do hereby further certify, determine, and award, that the rebuilding with timber, of any building not being an insulated building, within the meaning of the said Act, would be contrary to the provisions of the said Act, unless any such building be included in the conditions stated in the modification, as it regards certain small office buildings directed by the order of the Commissioners of Works and Buildings, dated September 5th, 1845.*

And as to the third part of the said fourth question, the said official referees do hereby further certify, determine, and award, that if any building of what nature soever be rebuilt within the limits of the Metropolitan Buildings Act, notice thereof must be given to the district surveyor, and a fee will thereupon become payable according to the rate thereof."

Fees of the office (5*l.* 5s. 3d.) and 3*l.* 3s. to the district surveyor, to be paid by Mr. Edwards.†

* Refer to schedule D, part 2nd, page 782 and 783 "Materials to be used in Repairs," and 13th sect. of the Act.

† Refer as above.

‡ Refer to schedule F, page 789, "Chimney Shafts."

§ Refer to schedule H, page 790 and 791, "Cesspools and Privies."

* See Builder, p. 446, *ante*.

† We repeat our suggestion, that parties finding awards reported by us applicable to their own cases, should consult the whole of the papers connected with them, at the Registrar's office. They will find Mr. Newall, the keeper of the papers, attentive and obliging.

Correspondence.

STAINED GLASS WINDOW IN ST. JAMES'S CHURCH.

Mr. Editor,—Having read various articles, letters, and paragraphs on this subject, I, as a subscriber to the fund, naturally feel a great interest in the result. It appears evident and conclusive that a very great blunder has been committed, and an act of injustice to the subscribers, as well as to the artists applied to,—to say nothing of the misfortune of providing an eminently bad precedent by the adoption of an unseemly discrepancy.

Your remonstrances have no doubt, mainly contributed to the arrest of its progress, and this is gratifying; but as in your last you state that you "learn the committee have sent especial instructions to Mr. Wailes, that he is to take out of his design every thing that is Gothic," *which is impossible withoutentire obliteration*, it must, I think, be a clear admission on the part of the committee that they have (even though inadvertently) committed an act of great injustice to all the parties concerned.

As you, Sir, remark "they know they are in error, yet fear to retrace their steps." It seems clear that in *honour* and *justice*, the committee ought to recal all the designs (allowing the person who has been so untowardly chosen to produce another). This, it seems to me, would get the committee out of a dilemma, in which they have inadvertently placed themselves; would be more honourable to them than to persist in an error, and more just to the subscribers and to the public. Those who have the care of public works are deeply responsible, as their example becomes a bad or good precedent in future works.—I am, Sir, &c.,

Sept. 20, 1845. A Non-Parishioner.

STEAM FROM THE COMBUSTION OF GAS.

Sir,—In answer to a question by "A Shopkeeper" in your last number, I beg to state, coal-gas, which is composed of carbon and hydrogen, is during its combustion, by its union with the oxygen of the air, resolved into carbonic acid and water (the carbon and oxygen forming carbonic acid, and the hydrogen and oxygen water); which water, owing to the temperature of its formation, exists as vapour or steam. This coming in contact with the cold glass of your correspondent's window, is condensed, and the only remedy appears to be, to remove the gas lamp farther from the window, its close proximity causing the steam to be condensed instead of being dissipated about the room as in ordinary cases.

I am, Sir, &c. J. G. S.

"H. B." (an architect) recommends the adoption of "Rutter's Light," brought out by Platow and Co., Holborn: the products of the consumed gas are therein allowed to escape through a tube. "A Bowness" (7, Little Britain), offers to examine and rectify the nuisance complained of.

IMPROVED SASHES.

Sir,—I have made a sash frame and sashes, in appearance the same as those now used, but, by a simple contrivance, the sashes can be removed from the frame and replaced in five minutes, by any servant, man or woman, after once seeing it done. My object in contriving it is, to obviate the danger arising from servants sitting outside to clean the windows, likewise glaziers raising ladders, and sitting outside to repair windows and paint them. Now, Sir, I am at a loss to know in what way I may benefit myself by the contrivance. It would not pay any person in this town to take out a patent for it, neither do I think that it would be of any advantage for me to register it. I think that it would pay any large sash-frame maker in London to register it; any information will be thankfully received by a constant reader.

September 29. A. J.

Any communication will be promptly attended to by addressing a paid letter to A. J., Post-office, Hanover-street, Portsea, Hants.

*** We insert the above with the view of aiding the writer.

Miscellanea.

The Ordees of the Royal Commission.—The results of the late exhibition, as regards the orders given to the competitors, do not seem to have been rightly understood. Mr. Dyce is to execute his cartoon of "The Baptism of Ethelbert" in fresco, in the centre compartment of the House of Lords, over the throne; the commissioners desire to see one fresco done, that they may rightly judge of the effect; but they have guaranteed to Messrs. Maclise, Horsley, and Cope, that these gentlemen shall execute their several subjects (with such revisions as they may consider expedient), *in the event of fresco painting being decided on*, after the completion of the work by Mr. Dyce. It is also open to the two other artists—Mr. Redgrave and Mr. Thomas—to revise their designs; at least it is so understood; for no other artists, treating the same subjects, have been preferred to them. With respect to the other works, Messrs. Horsley, Cope, Herbert, Severn, and Tenniel are commissioned to execute five frescoes in a hall where it is proposed to place statues of the poets—each artist having to select a subject to illustrate the poet who may be allotted to him. Six of the poets are Chaucer, Spencer, Shakspere, Milton, Dryden, and Pope; there are to be other two, but they are not yet determined upon. The compartments in the Poet's Hall are 8 feet high by 5 feet 7 inches wide. Mr. Maclise was offered a compartment in the Poet's Hall, but he declined the commission, being desirous of completing his fresco in the House of Lords—for which he reserves himself.—*Art Union.*

Especial Duty of a Clergyman to Promote Sanatory Improvement.—In the application of these remedies, it is to be hoped that all classes will gladly bear their part. But it is especially desirable that the clergy should take their full share of this arduous labour. In a case where many prejudices will have to be contended with, they who have the best opportunities of knowledge must be the first to adopt and to promote an improved system. They who are the most conversant with man and with his interests in a spiritual aspect, must be forward to turn into this direction the prevailing taste for physical pursuits. Dispersed as they are every where throughout town and country, resident in every clime and quarter of the realm, acquainted with the higher classes, familiar with the lower, and having recognized authority as the teachers of both, to reprove them in evil, and to exhort them unto good, they cannot but be responsible, more largely than most others, in the exercise of these precious talents, for the protracted continuance of any evil of this kind, which is once well proved to exist, and also to admit of remedy. It is to them, therefore, that one of their brethren appeals, in conclusion, with the expression of his earnest hope, that they will co-operate cordially in removing these plague-spots of unhealthiness and indecency from the homes of the labouring classes; and will never rest until the abodes of all around them are as cleanly, as wholesome, and as compatible with habits of decency as their own respected dwellings. There is no more insurmountable barrier, we may rest assured, to the communication of the moral and religious impressions familiar to ourselves, than the diverse, and alien, and repugnant habits of life forced by adverse circumstances, whether against their inclination or not, on those whom it is our duty and desire to instruct. Nor would any outward means do so much to forward the success of our teaching as the extending to every family that which, as shewn in these letters, is at present out of the reach of many, but might be imparted to all, namely, the possibility of living if they are so disposed, in a healthy and decent home.—*The unhealthy Condition of Dwellings, &c.: by the Rector of Alderley.*

Taunton and its Improvements.—We drew attention a few weeks since to the great spirit and judgment the inhabitants of Taunton were displaying in rendering their town more attractive to strangers, as well as more pleasant and healthy to themselves, and suggested the desirableness of other towns similarly circumstanced following so excellent an example. It has been highly gratifying to observe several provincial papers copying the paragraph into their columns, with the evident view of arousing a similar feeling on the part of those in their respective neighbourhoods who have the power, and only lack the inclination to act in a similar spirit. A correspondent of the *Hull Packet*, who signs himself "Not an Architect," quotes the entire paragraph as "an example worthy of being followed in most of the towns of the kingdom," at the same time loudly calls upon those who possess power in his own locality to unite the ornamental with the useful in all future works, which apparently has been sadly neglected of late.

Westminster Improvements. — These long talked of improvements are about to be commenced. The line will begin in Floodstreet, pass through the Almonry, Orchardstreet, and Duck-lane, by the chapel in the Broadway, pass Mr. Carter Wood's Brewery, Palmer's Village, to Shaftesbury-terrace, Pimlico, and is to be called Buckingham-road. Yesterday week notices signed by Mr. Downes and Mr. Taylor, two of the commissioners, were served on those persons who have any interest in the property along the line, to the effect that they are ready to treat for the purchase of such property, but should no claim be sent in within twenty-one days from the 23rd of September, the commissioners will proceed to a valuation of it according to the terms of their Act of Parliament. It is said that Mr. Elliott, the brewer, has received 100*l.* for the meadow in front of his brewery, or at the rate of about 4,000*l.* per acre! He had himself laid it out for building upon but the road passing through it, he was obliged to sell it to the commissioners. It is believed that the works will commence at the Pimlico end, but nothing positive is known.

Improvements in the City of London. —At a Court of Common Council held last week a report of the Coal, Corn, and Finance Committee was brought up and unanimously agreed to. From it we learn that the committee having considered the subject of the city income generally, with the view of ascertaining if any, and what sum can be applied towards the city improvements, certified that a sum of 20,000*l.* may be applied annually out of, and charged upon, the city's coal duty during the next twenty years.

Tenders.

For a new wing to a House, at Tollington Park, Islington, for J. H. Dixon, Esq.; Mr. C. Foster, architect, Islington:—

Brake	£392
Dove	375
Williams	349
Pickford	338
Carter	237
Buck	185

The difference here is fearful.

Tenders for building two small Houses, at Walworth, for Mr. Ireland; Mr. C. Foster, architect.

Hawkins	£650
Brake	632
Pickford	616
Goss	595

All had the same bill of quantities.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the execution of works on the Manchester, South Junction and Altringham Railway, in two parts: 1, being a distance of 1½ mile; 2, being a distance of 7¾ miles.

For the execution of works on the East Lancashire Railway, viz., the Accrington Contract, being a distance of about 8 miles.

For the execution of the Works between Shipley and Keighley for the Leeds and Bradford Railway Extension. They include the Fencing, Earthwork, and Masonry, roads and permanent way. In length about 7½ miles.

For the supply of 5,000 Tons of Malleable Iron Rails, and 1,000 Tons of Cast-iron Chairs, to the Huddersfield and Manchester Railway and Canal Company.

For the supply of 1,700 Tons of Wrought-iron Rails; 2,000 Tons of best Yellow Pine Timber, and 21,000 Beech Sleepers; 100 Sets of Wrought-iron Wheels, to the Cork and Bandon Railway Company.

For the execution of the Works, in two divisions, of the Dublin and Belfast Junction Railway. The first division being a distance of 8 miles and about 44 yards; the second division being a distance of 8 miles and about 1,453 yards.

For the supply of about 4,000 Tons of Rails for the Edinburgh and Northern Railway.

For the supply of about 1,000 Tons of Railway Chairs for the Edinburgh and Northern Railway.

For the supply of 60,000 Memel or Red Pine Sleepers, and 120,000 of Larch, Scotch Fir, or Pine, according to specification, for the Dublin and Belfast Junction Railway.

For the execution of Works on the Syston and Peterborough Railway, in 2 parts: part 1 being a distance of about 9½ miles; part 2 being a distance of about 12 miles.

For supplying the Liverpool and Bury Railway Company with Sleepers, conformable to specifications.

For the execution of works on the Leeds, Dewsbury, and Manchester Railway, viz., the Churwell Contract, being a distance of about 2½ miles.

For the execution of a portion of the Edinburgh and Northern Railway, being a distance of about 8 miles; to be estimated for in two lots.

For supplying the Eastern Union Railway Company with 8 First Class, 12 Second Class, and 8 Third Class Carriages; to run on six wheels, the gauge being 4 feet 8½ inches.

For the Surveying of a parish, containing between four and five thousand acres of land, under the Tithe Commutation Act. The work required is a first-class map, three chains to an inch, and two reduced copies.

For the supply of Paving, Flint, Whinstone, and Bombay Granite, for the year ending 29th Sept. 1846, to the Trustees of the South District of St. George the Martyr, Southwark.

For Lighting with Gas-Light a part of the Kent-road, for a term of seven years, from the 1st day of Dec. next. The contract to include lamps (in number 138) with the Mains, Service Pipes, Tubings, Stop-cocks, Burners, &c.

For the execution of the Railway to connect the Midland Railway Station at Sheffield with the Sheffield, Ashton-under-Lyne, and Manchester Railway Station, being a distance of about half a mile. The contract includes the execution of a tunnel of about 350 yards in length.

For supplying the East Lancashire Railway Company with 90,000 Sleepers, of either Larch or Baltic Timber, according to specification. Also, with about 380,000 lineal yards of Larch Railing, according to specification. Also, about 28,000 Larch Posts, being 6 ft. 6 in. long, and 5 in. by 3½ in. in sectional area, at the smallest part.

For the execution of Works on the East Lancashire Railway, viz. the Burnley Contract.

For the execution of the entire Works of the Wear Valley Railway, being a length of about 12 miles.

For the execution of the entire Works of the Cockermouth and Workington Railway, being a length of about 10 miles.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

In the brick fields adjoining the road from Folkstone to Cherrington: 56 clamps of Bricks, containing about 3,000,000.

At Wheatcroft's Wharf and Warehouses, Praed-street, Paddington: a very superior selection of well-made and well-finished Chimney Pieces; comprising Statuary, Vein, Dove, Black Monchella, Ridella, Celdona, and other Marbles.

At Thaxted, Essex: 600 Spruce, Larch, and Scotch Firs, now felled. Also several fine Oak Timber Trees, of large dimensions.

At Bouchier Park Farm, near Brook Hall, Essex: 40 Oak Timber Trees, felled in 1844 and 1845.

At Great Waltham, Saling, and Panfield, Essex: 62 fine Oak Timber Trees, 32 capital Ash, and 17 Elm ditto, many of which are of large dimensions.

Errata.—In last number (p. 462), *for* "Great Chalfield Church," *read* "Great Chalfield Church." In Mr. Brock's letter as to works in the Tower, where speaking of size of rooms, *for* "28 feet 25 inches," *read* "28 feet by 25 feet."

TO CORRESPONDENTS.

"Levelling, &c."—*Mr. Turnbull, 27, Whiskin-street, Clerkenwell, will be happy to give the instruction required.*

"Jackson."—*The most comprehensive work on the subject is Mr. Bernan's: published by Bell, Fleet-street.*

"Well-wisher" (Leamington).—*A letter addressed to Mr. Martin, 30, Allsopp-terrace, New-road, London, would doubtless obtain the required prospectus.*

"C. A. J."—*We are unable, of our own knowledge, to recommend an architectural drawing school. Mr. Mulholland, 8, Great College-street, Westminster, gives instruction.*

"A Young Beginner" *cannot do better than follow the advice we gave to "Tyro" last week; viz. to get "Tredgold's Carpentry," or Nicholson's works on same subject, and copy the diagrams.*

"An Observer."—*Mr. Morley's name appears in our account of her Majesty's pavilion, p. 350, ante.*

"N. N."—*If the roof of any building (unless insulated) be "stripped, ripped, or uncovered," schedule G provides, that it "must be covered with slates, tiles, metal, glass, artificial stone, or cement," and as the district surveyor is bound to see the Act carried out, notice must be given when a roof is about to be uncovered, and a fee may be demanded.*

"R. M. and Son" *may take the same reply.*

"Frequent Reader."—*To heat "a small greenhouse in the country;" we are disposed to recommend an ordinary flue rather than a stove.*

"Ornamental Plastering."—*A correspondent wishes to be directed to a work on ornamental plastering; and to be informed of a good composition to work foliage in by hand.*

"G. F." (National Monuments).—*The information kindly forwarded appeared in our journal last week.*

"S. R."—*The work on the Fresco decorations of Italy may be had of Mr. Lewis Gruner, 132, Regent-street.*

"F. T. D." *shall hear from us in a day or two.*

Received: "Dolman's Magazine," No. VIII.; "Medical Times," (September); "Description of the Fumific Impeller," by A. Gordon, C.E.; "The Philathenic," No. II.; "Pictorial Gallery of Arts," part IX. (Knight); "Old England," part XXII.

*** *Our readers will observe, that in consequence of press of matter and the number of advertisements, we have this week given eight additional pages.*

ADVERTISEMENTS.

PUBLICATIONS.

Just published, price 5s., neatly bound in roan, with tuck, gilt edges, and lettered, a Pocket Edition of

A CYCLOPÆDIA of the NEW METROPOLITAN BUILDINGS ACT, together with the Act itself, a Folio Table of the Metropolitan Districts (old and new), a List of the Surveyors, with their Residences and Offices, and a Table of Fees to be paid to the Registrar for services performed.

In the Cyclopædia all the details of the Statute are arranged Alphabetically, so as to be instantly found, and accompanied by extensive references and counter-references to the sections of the Act itself and its minute provisions.

By the late A. BARTHOLOMEW, Esq., F.S.A., Architect, Surveyor of the Hornsey District.

Published at the Office of "The Builder," 2, York-street, Covent-garden; and to be had of all Booksellers.

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May be obtained, as above, and at the Office of the Company, No. 5, HENRIETTA STREET, COVENT GARDEN.

ANALYSIS OF GOTHIC ARCHITECTURE.

This day is published, No. 16, containing the Drawings of the Roof from Wymondham Church, Norfolk, and other illustrations. Price 2s. 6d.

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*** The object of this work is to illustrate in a practical manner the various features of Ecclesiastical Architecture, including open roofs, metal works, &c. &c.

PELHAM RICHARDSON, 23, Cornhill, and all Booksellers.

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London: JOHN OLLIVIER, 59, Pall Mall.

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INVENTORS requiring protection by LETTERS PATENT should apply direct to the PATENT OFFICE, as above, where Patents can be speedily procured for the United Kingdom, &c., and by which a great saving of expense will be effected. CAVEATS are entered at this office, fee 1*l.* 1*s.* DESIGNS of all kinds are REGISTERED. Apply at the PATENT OFFICE, 5, Chancery-lane, near Fleet-street.

FIRE PROTECTIVE and GENERAL BUILDINGS IMPROVEMENT COMPANY (Provisionally Registered), for the Preservation of Life and Property from Fire, and Security from Robbery.

In consequence of the continual applications from Builders and others for Licenses to use the Company's Patents, the Committee hereby give notice, that so soon as the complete registration of the Deed of Settlement is effected, the List of Charges will be duly announced, and the Directors will be ready to grant licences. Agents will be required in every principal town throughout the kingdom: surveyors or builders will be preferred, to whom a liberal commission will be allowed. Full particulars may be known by applying at the Office, No. 9, Lincoln's-Inn Fields, where models and plans may be inspected.—By order, W. F. BRAY, Secretary.

WILSON'S PATENT VENTILATING SPIRAL CHIMNEY POT, for the cure of smoky chimneys (manufactured by J. PORTER), is the ONLY article for the purpose which assists the draft of the chimney by an external propelling power. Upwards of fifty have been recently fixed on the chimneys of Buckingham Palace, and several on Windsor Castle, with great success. This Chimney-pot is not only the best and most effectual ever invented for the purpose named, but stands unrivalled in its ornamental appearance. The public may be supplied with the above useful article by any of the respectable ironmongers, or at the sole manufactory, Southwark-bridge Iron Roofing Works.

TO BUILDERS—KENSINGTON PARK, NOTTING HILL.

TO be LET, several plots of BUILDING GROUND, beautifully situated; roads and sewers made, and gardens laid out; decidedly the best situation round London. Bricks can be had on the ground, if approved, and other assistance if required. For further particulars apply to Mr. W. REYNOLDS, Estate Office, Clarendon-terrace.

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TO BE DISPOSED OF, by PRIVATE CONTRACT, the STOCK in TRADE and GOOD WILL of an old-established BUILDING Cabinet-Manufactory and Upholstery Business, which has for many years past been carried on in a town in the western part of Dorsetshire. The valuable and commodious premises where the business has been conducted, consisting of an excellent dwelling-house, with extensive workshops, storehouses, and offices, may be purchased with the stock, or taken on lease, for a term of years, at the option of the purchaser.—Further particulars may be obtained on application to Mr. P. COX, solicitor, Beaminster, Dorset.

SPACIOUS BUILDING GROUND, in the heart of the City, to be LET on a BUILDING LEASE. The site comprises Old Founders' Hall, Lothbury (extending from east to west seventy feet and from north to south thirty feet), and a further space in connection with it suitable for purposes of an additional entrance to the Premises. Persons willing to tender for these Premises on a Building Lease are hereby informed that a Committee will meet here on Thursday, the 16th of October next, at one o'clock precisely, to take such Tenders into consideration.—Particulars may be obtained by applying at Founders' Hall, or to J. B. GARDINER, Esq., Architect, 4, Bank Chambers, Lothbury, where a Plan of the Premises may be seen. By Order, J. GRAY, Jun., Clerk.

Founders' Hall, 16th September, 1845.

NEW STREET FROM FARRINGDON STREET TO CLERKENWELL GREEN.

GROUND to LET on BUILDING LEASES.—The Clerkenwell Improvement Commissioners propose to Let for the purposes of building Fourteen Parcels or Lots of Ground, situated on both sides of a New Street, to be called "Victoria-street," leading northwards from Farringdon-street to Clerkenwell, and to the proposed Station of the London and York Railway; unto parties tendering the highest rents for the same above a minimum reserved rent, under certain conditions. Printed particulars of which, and also the Ground Plan of the said Allotments, and the Plan and Elevation of the proposed Buildings thereon, may be seen, on applying at the office of Mr. R. C. CARPENTER, Surveyor to the Commissioners, No. 99, Guildford-street, Russell-square.

WILLIAM BURCHELL, Clerk to the Commissioners.

N.B.—Persons desirous of taking one or more Lots of Ground, are to make Proposals under Sealed Covers, indorsed "Tender for Ground, Victoria-street," and addressed to the Clerkenwell Improvement Commissioners, at their office, No. 24, Red Lion-square (where printed Forms of the Conditions of the Contract may be had), by or before Twelve o'clock on Monday, the 20th day of October next.

SALES BY AUCTION.

MARBLE CHIMNEY PIECES.

MR. H. BIERS will SELL by AUCTION, at Wheatcroft's Wharf and Warehouses, Praed-street, Paddington, on Thursday, 9th October, at Twelve o'Clock, a very superior selection of well-made and well-finished CHIMNEY PIECES, comprising Statuary, Vein, Dove, Black, Monchella, Ridella, Celdons, and other Marbles. The above can be recommended as well worth the inspection of the Trade, Builders, and others. Catalogues are preparing, and, when ready, will be sent post-free to any part of the Kingdom.—13, Dorset-place, Dorset-square. Approved bills at three months in a purchase of 35*l.* and upwards.

SURREY FREEHOLDS, AFFORDING VOTES FOR THE COUNTY.

MESSRS. MUSGROVE and GADSDEN have received instructions to SELL by AUCTION, at the Auction Mart, on Tuesday, October 14, at 12 o'clock, Fourteen Lots of valuable Building Ground in the Parish of Horley, adjoining the Station of the Brighton Railway, having Frontages upon good Roads, and the whole well situated and adapted for Building purposes.

To be viewed. Particulars may be obtained at the King's Arms Inn, Horley; Grapes, Reigate; at the Auction Mart; and at Messrs. MUSGROVE and GADSDEN'S Offices, 18, Old Broad-street.

TO BUILDERS AND SMALL CAPITALISTS.—EIGHT LEASEHOLD BRICK-BUILT CARCASES AT ISLINGTON.

MESSRS. RUSHWORTH and JARVIS will SELL by AUCTION, at Garraway's, on Friday, Oct. 10, in four lots, by order of the executors, eight well-built carcases of private houses, planned to contain six rooms each, roofed in, with arched vaults in front, and garden in the rear, situate in the very improving neighbourhood of the Huningford-road, in the parish of Islington, forming part of a new street on the west side thereof, intended to be called Grace-street. The property is leasehold for a term of 97 years, and a separate ground-rent of 4*l.* 15*s.* per annum will be affixed to each house. The principal part of the purchase-money may remain on mortgage, if required.—Printed particulars may be had of Mr. Clayton, "Sutton Arms," Chalk-road, who will point out the property; also of Messrs. CHAMBERLAYNE and MEADEN, solicitors, 21, Great James-street, Bedford-row; and at the offices of Messrs. RUSHWORTH and JARVIS, surveyors and auctioneers, Saville-row, Regent-street, and 19, Change-alley, Cornhill.

ROYAL ADELAIDE GALLERY.—NOVEL ENTERTAINMENT.—Atmospheric Railway daily, with explanatory lecture. The New Zealand Chief, Pahe a Range, will give a course of Lectures on the Manners and Customs of New Zealand, in the evenings of Monday, Wednesday, and Friday next. Mr. Russell continues to deliver his unequalled Lectures on Character, Tuesday, Thursday, and Saturday Evenings. Lectures on Science, &c., Daily, including Major Beniowski's Artificial Memory; Beale's Rotatory Steam-engine; Kollman's Locomotive Engine for ascending inclines on railways. Every Evening a grand Promenade Concert, supported by first-rate talent, both vocal and instrumental.

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WRITING AND BOOK-KEEPING.

MR. FOSTER, author of "Prize Essay on the best Method of teaching Penmanship;" "Pencilled Copy-books;" "Double Entry Elucidated," and other commercial works,—continues to give lessons in WRITING and BOOK-KEEPING, at 161, Strand, adjoining King's College; where young gentlemen are prepared for the counting-house or government situations in a superior and expeditious manner.

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The limits of an advertisement preclude any discussion on the merits of this system. Its main features, however, are sufficiently marked; the first object being to develop the principles upon which every plan of accounts is based, and to substitute real for mechanical progress. The initiatory exercises are varied in form and substance, so as to involve the student in a train of investigation having for its object to test the accuracy of his attainments, and to fix the knowledge firmly in his mind. He is, in fact, compelled to think and cannot proceed unless he comprehends the means and the end—the process and the result—the whole and the parts.

The writer is aware of the distrust which prevails with regard to any thing new. Nothing is more common than the cry of improvement; and pretensions greater than he can claim, are daily put forth by the promulgators of "short and easy methods," with no other view than to impose upon the credulity of the unenlightened. He, however, pledges himself to prove, to the satisfaction of every candid mind, that this process leads with certainty to a knowledge of Book-keeping, utterly unattainable by any other means, abridges the period of study, removes every difficulty in auditing accounts, and imparts a power of investigation which neither Fraud nor Error can escape.

*** Prospectuses may be had of Messrs. SOUTER and LAW, 131, Fleet-street; to whom reference is made.

The Builder.

No. CXL.

SATURDAY, OCTOBER 11, 1845.

THE main object of the Cottage Improvement Society for Northumberland, founded October 1841, and remodelled 18th October, 1844 (Lord Howick in the chair), to diffuse information as to the progress ch shall be actually made in erecting an roved description of cottages in Northumand, to point out their localities, to circu-, by means of the reports, useful plans and ations, and, above all, to shew the import-e of providing at least two habitable rooms, hose new cottages which are gradually re-ing the old ones as they fall into decay."

The report of the committee for 1845 is just lished, and contains plans, sections, and ations of three different pairs of cottages ted on the estate of the Duke of Northumand; of three cottages, and of six cottages Swinhoe (Mr. Tewart's estate); and of a of cottages and a single cottage on the steracres estate.

o far as "providing at least two habitable ms," the object is certainly attained by the s published; but beyond this they go a little way. They add nothing to our pre-e knowledge on the subject, no new mode usbanding warmth, improving the ventila-, or ensuring good drainage; no good hod of forming a floor, at once cheap, ng, warm, dry, easily cleaned, and that ld not remain damp long after washing (a t *desideratum*); no advantageous fresh ptation of materials, efficient casement, or al suggestions as to the supply of water. act, as to the most important points here led to, namely, ventilation, drainage, and ly of water, no reference whatever is made em in any one of the descriptions accom-ing the plans. In some of the cottages n, the fire-places are in the *external* walls, out any necessity for such an unwise ar-gement, and in nearly all of them the floor the *level of the ground*.

he publication of fresh suggestions and arrangements, even if not found advan-ous ultimately, induces discussion, elicits , and advances the object; but in these e, simply one step in advance of the ancient for labourers, there is positively nothing iscuss; and we cannot see that one good will be served by the publication of them. speaking thus strongly of these plans, we ot desire in any way to impeach the judg-t of the society. In one of their regula-, the committee invite the parochial clergy, all ministers of religion, to afford them tice of any remarkable improvement that have been effected in cottages under their rvations," and offer publicity to "communi-tions from landowners and others, as to improvement in cottages, cottage-gardens, ther matters bearing upon the comfort of abourer, more especially as to the plans h may have been followed, and the outlay rred:" and we may safely conclude, that have published the best examples they d get. The inference that should be drawn our remarks is, simply, that much atten-to the subject is yet wanted in Northum-and. We trust the efforts of the society to induce this attention will be successful. The following remarks on the improvement desired (from the "Postscript" to the Report), written by the Rev. E. Feilde, of Rennington, may be usefully quoted:—

"The present period appears decidedly favourable for a movement of this nature. We are now in the enjoyment of a national peace. In the agitations of warfare, when the struggle is for existence as a nation, it is difficult to draw public attention to what are regarded the secondary subjects of convenience and embellishment. But opportunity has been afforded for cultivating the arts of peace; and the upper and middle classes have extensively profited by them: for their accommodation chiefly, hills have been levelled, valleys filled up, and the roughest places made smooth, and exclusive roads constructed at an almost fabulous expense. As these gigantic undertakings advance through Northumberland, it is hoped that the new dwellings for the officers and servants connected with them will be constructed on the commodious and decent model of *two* rooms, which it is the object of this society to recommend. As the country is opened to successive trains of travellers, it is consoling to reflect, that fewer one-roomed tenements will meet their sight, and that many hovels which offended the eye some ten years back, are transformed into becoming and convenient habitations.

A dingy and barbarous cottage may suit a dark and barbarous age; but in the present days of improved knowledge, a wider diffusion of domestic comfort, something a little beyond bare walls and perforated earth floors, and patched windows, may reasonably be looked for at the hands of those who can afford the indulgence."

"The present generation is a *reading* one, and must, therefore, be more or less a thoughtful one; and it is well for a people, when beginning to relish the charms of contemplative life, to find kindly natures disposed to meet, as far as possible, their new-born tastes and wishes. Little opportunity is offered for fireside reading during our long winter evenings, in a confined room, where every conceivable operation of domestic economy is carried on, and which is not impervious to the weather from above, from below, and around. Is it to be wondered at, that the well-sanded floor of the beer-shop and public house (with all their evil concomitants), are sometimes sought in preference?

Proofs have been given of the advantages to human life which have followed sanatory regulations in towns and cities. These latter are, through legislative interference, beginning to enjoy the resources of science which have been applied with success to the dwellings of the upper classes. It is idle to suppose that the mere fresh air of the country is all-powerful to prevent epidemics in villages, and to remedy the defects of a confined locality. Besides, the summer breezes blow but for a very limited period in the north, and the cottager requires defence at all times against the prevailing damp of this district. These requirements made good in the shape of a well-drained and weather-tight cottage, added to the blazing fire, will impart a relish to the homeliest fare, and a sense of comfort which will brighten the countenance."

The reverend writer, in concluding, refers to the establishment of the "Society for the improvement of the condition of the Labouring Classes," whose first work when commenced, namely, the model-houses near Bagnigge Wells Tavern, Pentonville, was mentioned by us with reprehension in the first page of the present volume.

These houses are now nearly finished, and we deeply regret to say, without any attempt to remedy the egregious mistake committed—a mistake that appears perfectly extraordinary when we read the names of the gentlemen composing the committee. We fancied at first that the arrangement of the model houses must be unknown to them, but inasmuch as it is stated in the committee's report almost in a congratulatory tone, that the new buildings "are in the form of a court," we are no longer permitted to think so. The following is the whole passage in the report that refers to the houses in question:—

"With respect to the improvement of the dwellings of the poor, the special committee on that subject had held thirty-six meetings, and their results demanded the serious attention of the public. It was not in the power of the committee to say that they had determined on the most convenient and best form on which to model the cottages of the poor, but they had encouraged the publication of designs for that purpose, and from the information thus collected they were prepared to construct such cottages on a very improved plan. The report expressed a hope that happy results would be derived from the erection of cottages in the neighbourhood of London. The evil effect upon the working classes of their present accommodation was most conspicuous in the lodging-houses of the metropolis, where they paid 4s. 6d., 4s., or 3s. 6d., and never less than 2s. per week. In the buildings which were being constructed by them, the committee would not presume to say that they had fully attained their object, but they believed their experiment would be attended with the best effects. *The buildings were erected in the form of a court*, on the one side of which were eight buildings containing three rooms each, and two double houses capable each of containing two families. Of the single houses with three rooms the rent would be 6s. per week, rates and taxes included; and for the two double houses the rent would be 3s. 6d. per week. On the opposite side of the square there were four houses, each accommodating two families, offering on two floors' room, thirty rooms for widows and single women of a mature age, at 1s. 6d. a room per week. Thus twenty families and thirty single persons would become the tenants of the society. The contract for the works amounted to 3,916*l.*, and they were situated at Packenham-street, Lower-road, Pentonville."

We sincerely hope that in future works, we shall have no more *courts*.

THE OFFICIAL REFEREES.

WE have avoided mentioning the arrangement made for filling the vacancy caused by the retirement of Mr. Higgins, because it seemed to us after all, uncertain and indefinite. As, however, it has now become matter of conversation in particular circles, we consider it right to put our readers in possession of the information. It appears that the duties of the Metropolitan Buildings Office render the appointment of a *third referee* desirable. The present Act, however, only empowers the election of two, and it has been determined therefore, at least so we are informed on good authority, to make no change at present (Mr. Higgins having consented to resume his office, *pro tempore*), and to bring in a bill early next session, to amend the Act in this and other respects. The appointments are promised to Mr. Tite and Mr. Ambrose Poynter, but so many things may occur before these appointments can be confirmed, that, as we said before, we should not have considered it right to mention the arrangement, if we had not found it generally spoken of. We hope no undue haste will be used in framing the amended Act, and that parties who have given consideration to it in its present shape, and have suggestions to offer, will have the opportunity of doing so afforded them. A recent modification of the Act will be found on another page.

SANATORY CONDITION OF LANCASTER.—The Metropolitan Health of Towns Association are anxious to select Lancaster as a model town, and with this view Mr. Chadwick has instituted inquiries there with so favourable a result, that it is intended in the course of a few days to bring down eminent engineers to survey the locality, &c. "We," says the *Lancaster Guardian*, "understand that the company's terms are, that one-third of the requisite capital shall be contributed by the town, and the remainder by them, on condition of being secured in the possession of the liquid refuse, and other fertilizing agents which the waste pipes and sewers may yield."

THE NEW COURTS OF LAW.

We mentioned last week, the report of the committee appointed to consider this matter, and pointed out the site suggested by Mr. Barry for the new building. Recurring to this document, we should first mention that the report itself is very short, being nothing more nor less than this:—That the Select Committee appointed to consider &c., "Have examined evidence on the subject of the matters referred to them, and have agreed to report such evidence to the House."

Mr. Barry considers it impossible to re-construct the present Courts of Law so as to provide sufficient accommodation, and does not know of any other site in Westminster that could be set apart for the new courts. It was suggested that the south side of Bridge-street might be removed, and New Palace-yard converted into a quadrangle, by extending the present clock tower of the Houses of Parliament along the present site of the houses removed, so as to afford accommodation therein for the courts, but Mr. Barry did not consider they could be efficiently arranged there. The removal of the old courts would promote very materially the effect of the new building; and the quadrangle was desirable though the new courts could not form part of it. "At the present moment," said Mr. Barry, "there is no principal or striking entrance to the new palace for the public. The only great entrance is the state entrance to the House of Lords, reserved exclusively for the use of her Majesty. There is no situation in which a main public entrance could be so convenient, or have so good an effect as at the north-west corner of the proposed quadrangle enclosing New Palace-yard. If the quadrangle were added to the building, it would be only necessary to secure this entrance gateway, in order to render the building more secure from external attack in case of public commotions. The building, as now designed, could be effectually protected towards the river, but it will be very much unprotected on the other sides."

The Victoria Tower, it is found, will not be sufficient to accommodate the public records, and the Master of the Rolls objects to their being placed in the roofs, which have been in some degree prepared for them.

The plan of the building to be erected on the site in the Strand (described in our last) would be very much like what he proposed some years ago when the centre of Lincoln's-Inn Fields was talked of as the site, now put quite out of the question. "The accommodation would be for twelve or fourteen courts, each with a judges' room, a clerks' room, and ante-room, barristers' room, and solicitors' room; and in the common law courts, in addition to this accommodation, a room for the jury. It would include also, a room for the grand jury, a law library, consultation rooms, a refreshment room, a great central hall, communicating with the whole of the courts and their appurtenances, for the accommodation of the public; and private lobbies, and communications for the convenience of the judges and the bar. The courts would be arranged around the great central hall, and towards the exterior of the building, surrounding the courts, would be arranged all the private accommodation connected with the courts respectively."

The style of the new building would be altogether different from that first proposed. "I should say that it would be desirable that it should be in the mediæval style of architecture, and that the loftier the building is made, provided no practical inconvenience results from the height, the better will be the external effect. In the exterior of the building I should propose four stories; the centre of the building would be lower, and the great hall and surrounding courts would be lighted entirely from above."

The cost Mr. Barry estimated at 300,000*l*. The Strand would be widened to 100 feet. Part of the building would be in the city. Temple Bar would be detached and not in the middle of the road, but might remain.

Mr. R. L. Jones in his evidence, described some improvements contemplated by the city. "It is proposed to commence from the corner of Cheapside, at the west end of Cheapside, and to take down the whole block of building on the north side of St. Paul's, and thence going across the Old Bailey, through the site of the Fleet Prison, crossing Farringdon-street, up to Little New-street, and thence up to Fetter-lane, which joins the Rolls estate, taking another diagonal line into the wide part of Holborn, which would be the means of relieving Holborn-hill, as to which a loud complaint has so long been made, because we have ascertained that the acclivities from the point at the west end of St. Paul's churchyard will be no more than Ludgate-street or Fleet-street, about one in thirty.

He thought the city would insist on boundary gates, but did not consider they would object to removing the present gates (Temple Bar), and substituting others.

Mr. William Cadogan, surveyor, had made the estimates in conjunction with Mr. Barry. "The sum required for the purchase of this property is 675,074*l*. The value of the frontage of the ground that will be to be let, I have estimated at 316,500*l*., which will leave, of course, to be provided for, a sum of 358,574*l*. Then, as a set-off against that, as a deduction from that sum, there are a great many houses now used by Government as being their property, which will sell for a large sum of money, and will go in reduction of this last sum; because if these courts are built, those offices that they now use would become unnecessary."

The valuation was made house by house: some were taken at twenty-five years' purchase, some at twenty, and some as low as eighteen, As to the ground-rents to be obtained for frontages attached to the new courts, to be let for chambers, witness had put from five guineas a foot to three guineas.

DIVIDING-WALLS IN BUILDINGS OF THE WAREHOUSE CLASS.

MODIFICATION OF METROPOLITAN BUILDINGS ACT.

Under the clause in the Buildings Act which gives her Majesty's Commissioners of Woods and Works power to modify its rules, already referred to in our columns on other occasions,* the following (the third) alteration has been made:—

"Whereas the official referees have by their report in writing, bearing date the 4th day of August, 1845, certified to us that it is their opinion that the rule of the said Act, in schedule C, part 4, videlicet:—'With regard to any building of the second class hereafter built or rebuilt, in reference to the capacity or contents thereof within the same inclosing walls.:—

If such building contains more than 200,000 cubic feet, then such building must be divided by party-walls, so that there be not in any one part of such building more than 200,000 cubic feet without party-walls,'—is inapplicable to many warehouses, workshops, and manufactories, and to certain sheds or covered places; and that in respect thereto, the objects of the said Act will be as effectually attained by the adoption of the modification of the said rule hereinafter directed.

And whereas the official referees have also stated in such report the grounds of such their opinion, and on the investigation thereof it appears to us, the said commissioners, that such opinion is well founded. Now we, the undersigned, two of the Commissioners of Works and Buildings, pursuant to, and in exercise of the power in that behalf given to us by [the said recited Act, do direct that the modification so recommended, may be made in the rules prescribed by the said Act, by inserting after the first rule of schedule C, part 4, above quoted, the following words, videlicet:—

'Provided always with regard to warehouses, workshops, and manufactories, or to parts thereof, used exclusively for the storing, working, or manufacturing of iron, brass, lead stone, or other incombustible materials, and containing one story only (except any brick or stone vaulted cellars) and having no timber floor, and having no ceiling in or under the roof thereof, in reference to the capacity or contents thereof within the same inclosing walls;—

And with regard to sheds or covered places, used for unloading, transferring, and reloading goods in course of transit, and not as warehouses for the storing or warehousing of goods, in reference to the capacity or contents thereof within the same inclosing walls;—

That if it be found necessary or conve
for the purposes or uses of any such w
house, workshop, or manufactory, or of
such shed, or covered place, that the
should not be divided by party-walls, so as
there be not in any one part thereof more
two hundred thousand cubic feet without p
walls,—Then so long as the same shall be
for the purposes aforesaid, and no long
shall not be necessary so to divide the sam
party-walls, but every such warehouse, w
shop, or manufactory, and every such she
covered place, shall be subject as to its exte
and party-walls, and as to its internal
sions, and as to the application of iron
thereto, and as to its arrangement and
struction in every respect, to the sp
approval of the official referees, in the
manner as is required in respect of the
and other constructions of buildings of
third class, and the said official referees
hereby required to have regard to the circ
stances of each particular case, as to
locality and neighbourhood thereof.'

Which modification being made in
rules will in our opinion give effect to
purposes of the said Act, as witness our h
this 26th day of September, 1845.—(Sign
Lincoln, } Commissioners of W
A. Milne, } and Buildings."

AWARDS UNDER BUILDINGS ACT

CUTTINGS INTO CHIMNEYS.

The provision in schedule F, that no cl
ney-shaft, jamb, flue, or breast, shall be
into for any other than two or three spec
purposes, caused unnecessary inconveni
to many parties. Some time ago we publi
an award by the referees on this po
which served to shew that when the cut
away was securely done, was not dangerou
regards fire, and the wall was ent
within the same premises, they would pe
it. Since then, they have made several o
awards in the same spirit, the heads of w
we subjoin.

Mr. Stutely, on the part of Mr. Robb,
about to rebuild 79, St. Martin's-lane,
wished to form a mezzanine over the s
whereby the chimney openings of each s
upwards would become above the level of
respective floors. The district surveyor,
Kendall, considered himself unable to as
to such alterations in the breasts, as were
quired to bring the chimney openings
with the respective floors.

The award was:—"That it is competen
the said Martin Joseph Stuteley to alter
level of the respective openings in the
chimney-breasts of the said house, but i
doing, the backs of the existing chim
openings or fire-places must not be cut
nor the withes of any of the flues cut a
except where the new fire-places wil
formed, nor the backs of any of the flue
cut into for any purpose; and that the b
of all the new chimney-openings or fire-pl
must, where the brickwork shall be foun
be less than 8½ inches in thickness, be
built of that thickness; and that any an
new work must be built with sound br
laid in and with cement, and that the alt
tions in question must be made conform
with the rules in schedule F, of the Metro
litan Buildings Act."

The costs to be paid by Mr. Robb.

Again:—Mr. May of 66, Oxford-street,
sired to enlarge his house by removing
chimney-breast on the shop story, and to
port the superstructure by iron columns
breastsummers in a secure and fire-proof m
ner. The award was:—"That inasmuc
the wall in which the said chimney-st
exists is an internal wall, and as the
chimney-stack is proposed to be carried
sufficient iron girders, supported on suffic
iron standards of the full width of the chim
stack, that is to say, 1 foot and 11 inch
and as the bearing of the said standards i
be upon York stone plinths, distributing
weight over the old brickwork of the chim
stack in the first or basement story, whic
not of less width or thickness than the chim
stack above, the same will not be contrar
the said Act, and may be done in accorda
with the (said annexed) drawing marked C
The costs to be paid by Mr. May.

* See p. 327 *ante*, to permit use of Dr. Arnold's ventilating valve; and p. 446, as to construction of small buildings.

* p. 327, *ante*.

In another case, Messrs. J. and W. Bennett ad cut away two chimney-breasts in the party all of a house in Bloomsbury-street. The uestion having been sent to the referees, the ward was:—"That in cutting down the said himney-breasts or stacks of flues, the said oseph and William Bennett have acted in con-avention of the rule headed 'Cuttings into himneys" in schedule F of the said Act, but nasmuch as it appears, that having regard to ie rates of the buildings respectively parted r to be parted by the party wall in question, ich party wall is of the full thickness in every art thereof; and inasmuch as the district sur-eyor assents to the truth of the allegation, iat the said chimneys were carefully cut way, and have been made good in the most ibstantial manner, and that the said wall rms a good and sufficient fire-proof construc-on; I the said William Hosking with the sent aforesaid, make no direction thereon." The costs to be paid by Messrs. Bennet.

WIDTH OF ALLEYS.

Mr. Suter on the part of the Fishmongers' ompany, submitted an application for per-ission to continue Stew-lane straight into hames-street, of its *present width*, 8 feet 2½ ches; it now comes into Thames-street by elbow, through a plot of land belonging to e Company on which they wished to build. hey had agreed provisionally with adjoining ndower for the purchase of a slip of land to fect the change, but considered they were nable to proceed without consent of the ferees.

The award was:—"That inasmuch as Stew-ne is an ancient alley, the proposed substitu-on of a straight passage of access to, and rress from it and Upper Thames-street, such ssage being open throughout to the sky, for longer circuitous passage ill-ventilated, and bject to various nuisances, is not to be eemed to constitute the formation of a new ley within the meaning of the Metropolitan uildings Act, and will not be contrary to the ovisions, rules, and directions, of the said ct."

ARAPETS TO EXTERNAL WALLS AND EAVES' GUTTERS.

The following award will remove a very evalent misconception. Mr. Barker, and r. C. Beachcroft, the district surveyor, con-rred in submitting the following statement the official referees:—

'Mr. Blashfield having previously to the t of January, erected several stables in the ews attached to the houses in Kensington alace Gardens, with iron eaves' gutters, I sh to be informed if under the new Buildings ct, I shall be required to put up parapets xt the mews, or whether the iron guttering ay be continued to five new stables now in e course of erection."

The referees determined:—"That the Me-opolitan Buildings Act does not require para-ts to be raised upon external walls fronting public ways, and that the said Act does not ohibit the use of iron guttering, but when e eaves of any roof, cover and oversail an ex-rnal wall, none of the wood work of the roof, ch as the ends of rafters or otherwise, may placed within 4 inches of the outside face of ch wall, unless any such wood-work be pro-cted with such materials and in such nner, as may be approved and permitted by e said official referees; and that any eaves, ether with or without iron guttering, may t overhang a public way or ground belong-g to any other owner; and whenever drip-ng eaves are used, whether with or without on or other gutters, the ends of the party lls ought to run out by corbelling or other-se, to the extent of 1 inch at the least be-nd any such eaves and gutters."

The costs to be paid by Mr. Barker.

BRICKMAKING.—Above a million of bricks is said, have recently been sent to Ceylon, ballast, for the erection of a coffee-mill ere. The price in the metropolis is rising. few weeks ago Owen Johnson, a brick-ker, in the Isle of Man, moulded, for a ger, 6148 bricks in eleven hours, being at rate of 9½ per minute.

CRYPT OF EXETER CATHEDRAL.—It is erted that the crypt of Exeter Cathedral is ed as the *bishop's wine* cellar! We shall be d to hear that the statement is untrue.

AN EFFORT TO ADVANCE HISTORICAL ART.

SIR,—Several inquiries having been made respecting the proposal to be founded on the suggestions thrown out a few weeks since upon the subject of fresco painting, and to which you were good enough to give publicity through the medium of your valuable work, I beg to offer a few additional hints which, by entering more into details, will be found to answer the various queries.

The royal commission has caused many artists to abandon portrait painting and other lucrative branches of art, and to devote their energies to historical painting and the practice of fresco. Three years of experiment have proved a great amount of talent to exist in this country, and which owing to many circumstances, such as change of style, awkward shapes, restriction of size, and choice of subject, has never had a fair opportunity of developing itself. The royal commissioners have selected the artists to whom they intend to confide the decorations of the new Houses of Parliament: that being done, and the premiums and expenses being nearly all paid from the 4,137*l.* received from the exhibitions at Westminster Hall, all the rest of the artists who have been practising fresco, *many* of whom distinguished themselves (although not among the selected few), are now left *to their fate*, not the least hope being held out to them, unless they may be fortunate enough to obtain employment in assisting to carry out the designs of the selected artists; so that original talent in composition, and continued efforts in fresco painting, appear to be no longer required by the royal commission. The postponement of the exhibition of historical painting until 1847, is another instance of that uncertainty which is destroying the confidence of artists, and paralyzing their efforts. Even in 1847, it is very doubtful if the Hall can be available, as the addition of thirty feet to its length, and the work necessary to forward so important a feature in the new buildings, will in all probability require it to be occupied by workmen. In this state of uncertainty *historical art cannot long exist, for there is no place wherein historical works can be exhibited.*

When the King of Bavaria found German artists could produce cartoons and paint frescos, he gave them the Hof-Garten for practice, and then proposed great national works to give encouragement to those artists who distinguished themselves. A series of honourable, employment extending over twenty-five years, has raised a school of art celebrated throughout Europe. In France, the Government, with its immense public galleries, and an annual expenditure on art of more than 40,000*l.*, has in the course of thirty or forty years erected a school of art disputing excellence with Germany.

In England, the Government in three years, with the same purpose, has distributed 6,000*l.*; to pay which, they received in shillings at the exhibitions, 4,137*l.* 13*s.*; the balance therefore gives an *annual patronage of* 621*l.*!

In London there is no Hof-Garten. The Royal Exchange (*a grand opportunity lost*) has been bedizened by Germans; cloisters and churches are closed by clerical objectors. The Royal Academy—the British Institution, are certain to reject large historical works *even in oil.* In this deplorable state of things no other course appears open than to erect at the least possible cost some temporary place dedicated to the reception of cartoons and works in fresco. A large surface of wall which could be extended right or left according to the amount of surface required, and which would then be *available on both sides* for fresco painting, naturally suggests itself, and would in an inexpensive manner meet the great want complained of. I would propose an association of British historical painters, composed of such artists whose works would entitle them to become members. Such association should solicit, and would readily receive the advice and assistance of poets, historians, antiquaries, architects, and anatomists. They should arrange to execute a series of subjects illustrative of the manners, institutions, customs, and events of a particular period of British history, not by pampering false notions by the representation of mere pageantry, or by depicting the destruction of their fellow men, but by selecting points illustrative of the virtues of our English worthies, and treating them in such a style, that historical events and biography may be judged of according to the spirit of the age in which the events took place, or the persons lived.

The first series might illustrate the ancient British period. Ancient bards and chroniclers supply rich materials, which, although somewhat fabulous, might be found available. But the Druids, their temples, religion, sacrifices, laws; the ancient British warriors, their patriotic conflicts with the Roman invaders, furnish innumerable subjects for the pencil. Of this period it would be no exaggeration to say, that subjects might be found amply sufficient for the first series, and if a *catalogue raisonné* were published, in all probability great public interest would be excited. This series could be followed by the Saxon period, by the Danish, by the Conquest, from which time the history might be treated in separate reigns or according to the different houses, to the present time. Any objections respecting costume can be answered, by referring to the large pictures in the Hall of Battles, at Versailles, which include that of all periods, successfully treated.

The cartoons might be hung opposite to the frescos, and each artist should engrave in outline his own subject; a series of outlines if published under the patronage such a work would deserve, would be highly esteemed as an illustration of our history, and might be so managed as to be an ornament to the libraries of the wealthy, an educational acquisition to public and private schools, and might also be adapted to the means of the humble classes.

When the exhibition had concluded, the rooms would *be available for an exhibition of industrial art and manufactures*, similar to those opened in Paris. The cartoons could be all packed and sent for exhibition to either Edinburgh, Dublin, Liverpool, Manchester, Birmingham, Bristol, or in succession to any large city desirous of affording their population so great a gratification. In this way a *love of art* would be diffused over the whole kingdom, and if public good is to be produced by the pictorial representation of such virtues as adorn mankind, and which are recorded in our history, this would be the most effectual method of accomplishing an object so desirable. The same temporary accommodation for the exhibition of cartoons might be adopted in the provinces, and afterwards applied for exhibitions of industrial art, or the manufactures of the particular district, or for the temporary reception of objects of natural history and art, collected towards the establishing of local museums, according to the recent enactment. The next series of historical subjects could be painted on the same wall, the previous frescos being destroyed, but the *composition and drawing preserved by the cartoon.* Whether this exhibition should be annual or otherwise, would depend upon the artists, or to what extent fresco practice should be carried; but if it were possible to have an annual exhibition, what a store of history would be opened! what a powerful educational agent would thus be afforded!

To the royal commission is confided the two-fold important duties of suitably decorating with pictures the Houses of Parliament, and of promoting historical art most effectually in this country. Some provision similar to that now proposed is positively necessary, for the royal commission having concentrated upon historical art the powers previously displayed by British artists in portraiture, miniature painting, and small fanciful subjects, are bound by their office not to allow that talent for history, proved to exist among other artists besides those selected, to remain useless or to return into its former channels. It may be objected that, after a three years' struggle, and having contributed at least 20,000*l.* to the national experiment in art, artists are unable to continue so ruinous a course,—that of indulging in the luxury of historical painting! but it must be borne in mind, that when artists combine for the purpose of exhibiting their works at a charge for admission, they *thereby create a valuable property.* Artists, by contributing their works to the Royal Academy, British Institution, &c., maintain these bodies. At Westminster Hall their works have produced above 4,000*l.* in three years. With these facts, and with the patronage of royalty, the nobility, gentry, and the public, a *self-supporting exhibition* of historical art might be established, and which would afford some return

for the artists' labours. To carry into effect these great national objects, all that is wanted is a little money, great space, and a good locality. The new drive in Hyde-park presents easy access to a portion of this public property, where a wall might be built up of sufficient extent to allow frescos of the size of the pictures in the Hall of Battles, at Versailles, to be executed. On each side of the wall shed-work, such as we see extensively thrown up round public buildings, might be inserted, running parallel to the pictures. Such an accommodation has been formerly afforded to J. S. Copley, R.A., to exhibit his large picture of the Siege of Gibraltar. Also, for the picture of the Battle of Waterloo; and though last not least, for the exhibition of the skeleton of the whale!

When the importance of the proposed objects, and the necessity which exists for great efforts to be made, (so that England may assert her equality in art as well as in letters and science, with France or Germany) be considered, it may be hoped that no difficulties would be presented by the Government in the way of allowing a space of national property to be temporarily covered for this purpose. But if the authorities should be deaf to the entreaties of artists, no doubt a sufficient love of art and its ameliorating influence upon society, would be found in wealthy individuals, willing to devote to this purpose a few *hundreds* from the *millions* of pounds now subscribing to railways.

This proposition appeals as forcibly to the intelligence and wealth of Liverpool, Manchester, Birmingham, or Bristol, as of London; for a travelling gallery of British historical art is one of the objects; and every one who feels the necessity of diffusing education through the attractive and refining medium of art, or wishes to see high art successfully cultivated in this country, is called upon to aid in the accomplishing of so important an end.

I beg to apologise for the length of my letter, and will only add, that any information will be gladly received upon the subject (a subject peculiarly deserving the support of all literary, scientific, and educational establishments; also, of corporate bodies throughout the United Kingdom), and that before long the proposal will be submitted, in a more matured form, for the consideration of the profession, and the support of all such bodies throughout the kingdom.—I remain, Sir, &c.

B.

THE WANT OF EFFICIENT ARTISANS.

The manner in which our recent remarks on the condition of the operatives* connected with building have been received, the response and sympathy elicited, have given us much satisfaction and pleasure. We have received above twenty letters on the subject from men of all classes,—thanks from operatives themselves, and expressions of a desire to aid in effecting an improvement from persons of some influence. We do not mention this in any degree boastingly, but as an evidence that the decline over which we grieved, is universally felt, and that, as a strong desire to raise the condition of the class in question exists, there are grounds for hope that something may be done in this behalf.

Great anxiety is especially manifested by several who have addressed us, to obtain cheaply, a knowledge of architectural drawing. One, who may be taken as an exponent of several, writes as follows:—

"Mr. Editor,—I have been a reader of your valuable paper almost from its commencement, and have studied the articles it has contained from time to time with pleasure and profit; but I have never felt so much interested as when I read the remarks in your leading article of the 27th ult. Although you have selected only two trades to confirm your position, your statement will equally apply to that class of operatives to which I belong, viz., the journeymen carpenters.

I feel my position, and hundreds more, keenly feel it, and desire to be delivered from their ignorance. What are we to do? Drawing-schools are scarcely to be heard of, architectural lending-libraries there are none! I have inquired and cannot find any comprehensive work on architecture; they all treat on distinct parts of it, and are so very expensive, that they are out of reach to men of my station. Your correspondent of the 4th inst. has shewn the good resulting from his taking by the hand two or three workmen; but men thus kind are few and far between. Artisans, however, would not mind paying if they were likely to have instruction for it. Pray lend your influence, Mr. Editor, to the establishment of a school: I need scarcely assure you there would be plenty to avail themselves of its benefits, particularly the younger part of the trades. We should then be able to give the "why" and "wherefore."—I am, Mr. Editor, &c.,

A Journeyman Carpenter.

Something more is wanted than cheap drawing-schools and architectural lending-libraries, desirable as it is that these should be provided; and we will endeavour, when opportunity serves, to express some opinions on the subject. It is feared, notwithstanding that our correspondents and others feel differently, that the desire to excel has been so depressed by circumstances, that even when opportunities to obtain instruction are offered, the operatives are not sufficiently disposed to take advantage of them.

* See p. 457, *ante*.

IMPROVEMENT IN BRISTOL.

We mentioned some time since several projected improvements which were occupying the attention of the inhabitants of Bristol,* and said that a fresh spirit seemed to have been awakened in that ancient city. The proposal to establish an Athenæum for moral and intellectual improvement seems to have received considerable support. At a public meeting held a fortnight ago, Mr. Haberfield, who was in the chair, stated that 2,000*l.* had been raised for the purpose, and 527 annual subscribers obtained. Dr. Budd, in moving the adoption of a report brought up by the committee said:—"In all that regarded the accumulation of wealth, England was in the advance of other countries; it was in fact one great hive of bees, but in much that related to the embellishment of the lives, and the culture of the intellects of the people, it was far behind other nations. He had just returned from a short tour in France, and in passing through Havre and Rouen—the Liverpool and Manchester of France—the first object which struck him in the former place was a splendid building which far out-topped all the others, and on the front of which was inscribed "Library, Museum, Sculpture, Painting." He was still more struck, when at mid-day, he saw crowds of all classes thronging the wide portals, and entering the building freely without fee or payment. The same was the case at Rouen, where there was a library of 4,000 volumes, a beautiful gallery of paintings and sculpture, and a museum of natural history. He did not mention these things to extol France above his own country; there was that in England which they all knew how to appreciate—the moral worth of its people, which raised them above all others—such was not the lesson those things taught him, but when he looked at such institutions abroad and recollected Bristol, the contrast was a humiliating one, and the lesson he was taught was, to make every effort that she might outstrip her neighbours, and obtain possession of a library a museum, a gallery of paintings, and make the same provision for the intellects and the minds of her people, which so much rejoiced liberal persons travelling abroad to see there made. He was sure it was greatly to the interest of the people of this country to provide for the intellectual and moral development of the population. From that all civilization sprang. Were not all the gifts which science had bestowed the results of the exercise of the mind and the study of the closet? Were not the railways, which now covered the land and turned out such sources of unexpected wealth, the gifts of two or three men of genius? He had often lamented that in none of their splendid termini was a single niche left for a Watt, a Stephenson, a Black, or a Gay Lussac the men who had given to them the steam-engine which rushed over the face of the land, annihilating time and space.

Mr. W. D. Bushell said, that much had been done for the moral and religious education of the people, but still there was such an amount of ignorance and sensuality on every hand, that shewed there was a vast amount of mind in the country paralysed, as it were, lost and buried, he might say, in the tomb. To raise the depressed mind by wise culture was the highest end of the social state. They must teach men to think. Thought was antecedent to action, and no man would act well until he thought well. Education was not only of insuperable value to the individual, but it went to form the whole character of the nation. Education sifted, as it were, the very gravel for gold, and held up every pebble to discover if it were the refuse of nature, or contained within it the germs of brilliancy and worth. In establishing such institutions as that now proposed, they should recollect that they were not intended to be confined to the higher classes. They should rather seek to raise up those who were below them. Let them contemplate the pages of their own history, and they would find that their greatest men had sprung, not from those who were bred in palaces and nursed in splendour, but who had been born in cottages, and reared in poverty, but whose innate worth, indomitable energy, and talent, had made them the lights and beacons of the nation. And who would say that amongst those who would hereafter imbibe knowledge in the Bristol Athenæum, there might not arise some young man, who in time to come, should guide the destinies of his native land?

The projected establishment of baths and wash-houses has not yet met with the success that it deserved; but which, we think, may partly be ascribed to the public attention not being sufficiently attracted to the subject. At a recent meeting of the committee, it was resolved to make another appeal to the public, and in the meantime to ascertain from those gentlemen who have subscribed, whether they consent that the amount of their subscriptions should be applied to the erection, or hiring, of suitable wash-houses for the poor in dense localities—the subject of public baths being suspended until more adequate funds be raised.

We have received two or three letters on the subject of the new Guildhall, which it seems does not give universal satisfaction. As, however, these communications display much personal feeling and pique, we decline inserting them, and shall give some account of the structure ourselves when completed.

* See p. 399.

FULHAM CHURCH.

Sir,—My attention having been directed to this interesting old structure, by your notice that the restoration of the tower was commenced, I am induced to suggest to the inhabitants of the parish, that they should forthwith complete the work they have so well begun, by restoring the *body* of the church to something like propriety and architectural consistency. Attached as it is to the palace of his lordship, the Bishop of London, so justly famed for the number of new churches he has been instrumental in raising, and the restoration of old buildings he has effected, the desirableness of this step must be apparent, and the difficulty of obtaining funds small.—I am, Sir, &c.,

Oxford and Cambridge Club. M. A.

Improvements in Spitalfields.—On Tuesday the Commissioners of Woods and Forests issued notices for the erection of the houses in the new line of street leading from the London Docks to Spitalfields Church, the entire length consisting of about 3,000 feet, being divided into 32 lots. The width of the new street will be about 54 feet. The lots severally are to be let on lease for a term of 80 years, from Christmas day, 1845. The new street, north of High-street, Whitechapel, will be called Commercial-street; that leading out of East Smithfield will be called Dock-street; and East Smithfield will be named St. George's-street. In Commercial-street a new church is in course of erection, to be denominated the Church of St. Jude, and in Dock-street a church will be built for the Sailors' Home in Wells-street. A new street is also proposed to be formed in continuation of the Commercial-road to High-street, Whitechapel.—*Globe*.

Gloucester County Gaol.—The new buildings at the county gaol are now nearly completed, as far as external construction is concerned.

ON THE EARLY USE OF THE POINTED ARCH.

At the late meeting of the Archæological Institute of Great Britain,* Mr. Edmund Sharpe read a paper, "On the early use of the Pointed arch," or the period of transition, as he afterwards expressed it, between the first and second great eras of Christian Architecture, for a notice of which we avail ourselves of the columns of the *Athenæum*. Mr. Sharpe confined his observations to a period between 1130 and 1180. Of all the new elements introduced during this *transitional* period, he observed, the earliest, and certainly the most important in all its bearings and results, was the pointed arch, which, if it did not originate, certainly inspired, and controlled the rest. He would not enter into that fertile field of learning and conjecture, the "Origin of the Pointed Arch," but would restrict what he had to say to the causes which led to its first introduction into Christian architecture, and to its rapid and universal adoption; and these causes he was disposed to look for rather in some real advantage in point of *construction* than in any supposed superiority in point of *decoration*. No one who has examined with any attention the architecture of the transitional period could fail to observe the remarkable circumstance that in these buildings, the pointed form of architecture is to be found principally in the vaulting, the pier-arches, and the arches of the crossing; in other words, over the *large openings* only, whilst in all piercings of the wall, in the doors, the windows, the arcades, and over all the *small openings* the circular form is preserved unaltered. The pointed arch was not introduced, therefore, for the sake of decoration or effect, —it was introduced for the purposes of construction—and he would, therefore, adopt the happy designation already received of calling the one *Arches of Construction* and the other *Arches of Decoration*. The builders of the twelfth century discovered that the pointed arch possessed, in point of construction, certain advantages over the circular arch; they, therefore, introduced it into all those parts of a structure where strength was required; while, from a predilection for the earlier form, they retained the circular arch in all other parts where the safety and stability of the building were not involved. Nothing is more common in the large circular vaultings of the Romanesque style than to find the crown of the transverse arch considerably depressed. This occurs constantly in the long barrel vaultings of the south of France, as well as in the quadripartite vaultings of the north. Depressed circular arches are not uncommon in England, and whether the depression took place immediately after the completion of the work, or at some subsequent period, the depression read this lesson to the builders, that there was a liability in a circular arch of large span to lose its form at the crown. It must have been a matter, moreover, of common observation to every one acquainted with the architecture of the transitional period, that the pointed arch, in its earlier stages, was generally very obtuse in form, and that the variation from the circle is at times so trifling, as scarcely to be perceptible. In the church of Alstadt, in Bavaria, the arch he had found, from actual admeasurement, constructed from one centre only. One discovery led to another, and he was now enabled to assert, from actual admeasurement, that many of the obtusely-pointed arches of the transitional period are not constructed upon the true and acknowledged principles of a pointed arch—that is, from two distinct centres; but are to be considered simply as slight alterations of the semi-circular form. He was of opinion that the pointed arch first made its appearance in the vaulting arches, the arches of the crossing, and the pier arches. He had observed in several churches in the south of France, that whilst their arches of construction are pointed, their arches of decoration are circular. But he must be understood to confine his observations to a period between the years 1130 and 1180. An important inquiry yet remained to be made. When did the pointed arch first take its appearance in the arches of construction? Over what length of time did this diffusion in the use of the two forms of arch extend? How long did the pointed arch thus remain the servant, and the circular arch the master? And at what precise point of time did the pointed arch obtain that ascendancy in the *decoration* of buildings, which enabled it to accomplish that revolution which its admission in *construction* had already commenced? There is perhaps no building of the transitional period which better illustrates what he had been advancing than the church of Kirkstall Abbey; it also fortunately happens, that there is perhaps no building to which an authentic date can be more satisfactorily attributed; for we know that the whole of the convent migrated, in the year 1148, from the place of its original establishment to a spot on the banks of the river Aire, where it now stands, and that in the year 1152 the church was already commenced. The building may, therefore, be looked upon as representing the prevailing character of the architecture of the very middle of this transitional period; and it is, therefore, particularly fortunate that the entire church is preserved to us in its original state, the only insertion being that of the east window, and the only addition that of the pinnacles on the gables. He referred to this church as confirmatory of the view he had laid down.

The Marquis of Northampton directed attention to the church of St. Andrew, at Vercelli, in Italy, built by Cardinal Guala, Cardinal Legate in England, during the reign of King John, in which all the exterior arches were rounded, all the interior pointed. This he brought forward in illustration of the theory of Mr. Sharpe.

* See pp. 442, 446, 459, and 465, *ante*.

THE ORIGIN AND USE OF PISCINÆ.

Sir,—With all due respect for the learning displayed by the writer on "The use of the Piscinæ," in your last number, and his description of a "piscina at Haddenham, on the south wall of a chapel which is on the north side of the chancel," I beg to suggest that this so-called "piscina" may have been either an aumbry, a bagioscope, or a confessional opening from the chapel to the chancel; and for this plain reason, viz. because he says that it has "no appearance of a basin."

Not, however, to remark on the present vagueness of our terms relative to Gothic architecture, and ecclesiology, permit me to state—as to the difficulty experienced by your correspondent in conceiving how piscinæ "could ever have been suspended,"—that in every Romish church which I have yet examined, there *hangs* in its sacristy, or near its altar, a vessel containing sanctified water for the ablution of the priest's hands previously to his celebrating mass. This is the *pensile* piscina, spoken of by Ducange, and generally is a copper vessel of three or four quarts capacity, with a rounded bottom and a basket-like handle, by which it is *suspended* to a peg or hook near to the sacristy door.

I may also observe that, in addition to its several applications mentioned by your correspondent, the word piscina is still occasionally applied by the French to denote what we call a font, as in the following extract from an account of the administration of baptism in M. de Caumont's sixth volume of that very useful body of archæology, his "Cours d'Antiquités Monumentales," viz. "le parrain et la marraine après avoir répondu pour lui, inclinent sa tête sur la *piscine*; le prêtre prend de l'eau des *fonts* dans un petit vase et en verse trois fois sur la tête du nouveau né," &c. &c.,—"the godfather and the godmother after having answered for the child, incline its head over the *piscina*, and the priest then takes, in a small vessel, from the fonts a portion of the water therein contained, which he pours at three times on the infant's head," &c. &c.

But I am trespassing on your useful columns, and will therefore conclude by remarking that, in the application of the terms above pointed out—although there may be some reason for so employing the term piscina—it is not easy to say why the term font is employed (as it commonly is) in the plural number—unless possibly with allusion to the vessel containing the chrismatory oil which is used in baptism according to the Roman Catholic ritual, and yet used by us Protestants at the coronation of our sovereigns.

W. Bromet.

ST. MICHAEL'S CHURCH, SOWTON.

The church of St. Michael, at Sowton, near Exeter, was consecrated on the 19th inst. by the Lord Bishop of the diocese, attended by a large body of clergy and gentry; a part of the cathedral choir assisted in the service.

The neighbourhood is indebted for this edifice to the munificence of Mr. John Garrett, of Bishop's-court, at whose expense the whole has been rebuilt on the site of the old church. The style selected is that which prevailed in the fourteenth century. The plan is, nave with south porch and north aisle; chancel, 20 by 12, with priests' door and vestry, and a tower with entrance at the west end. The material is a stone from the neighbourhood, the mouldings and dressings in Caen stone. The timbers of the roof are open to the interior, and with the ribs and carved bosses have a good effect; there is accommodation for about 200 persons in seats of appropriately carved oak. The reading-desk, &c., are well arranged. The pulpit is of Caen stone, and is to be further enriched by Thomas, the sculptor employed at the new Houses of Parliament, who is also preparing a figure of the patron saint for a niche in the Tower. The windows are all filled with stained glass; the Crucifixion, with the three Marys in the altar window; Moses and Aaron in the side windows of chancel; St. Michael, St. Gabriel, and St. Raphael in the west window. There are four windows with figures and Christian emblems, erected to the memory of deceased members of Mr. Garrett's family. The remaining side windows are filled with ornamented quarries, with labels bearing the Apostles' creed; the whole are by Willement, except that in the west window of aisle, which was removed from the old church, and is the work of Messrs. Ward and Nixon. The chancel is paved with encaustic (or more properly *ornamental*) tiles of good design. On the south side of the chancel within the rails are two sedilia on steps. The railing is constructed partly of iron bronzed, and partly of brass. Under the east window a string course is carried, supporting two carved panels with the Commandments painted on porcelain. Below the string course the wall is covered with porcelain tiles of a rich pattern. The table is elaborately carved in oak, with panels painted a rich ultramarine colour, a sacred emblem being upon each panel.

The mode of heating by hot air is somewhat novel, and appears to answer well. The belfry is furnished by Mears, of Whitechapel, with an excellent peal of eight bells. Mr. Hayward, of Exeter, was the architect, and Mr. John Mason, the builder.

Q.

Royal Institute of British Architects.—The first meeting in the ensuing session will be held on Monday evening, the 3rd of next month. It depends on the members themselves to provide instructive and agreeable matter, and if each of them would consider it his duty to forward something,—a notice of an ancient building, the resolution of a question in architectural jurisprudence, description of a new material, or of a new mode of construction, the end would be fully attained. A committee was appointed last session to decide on various points of every day practice, and to report thereon. We consider this one of the most important inquiries instituted by the society, and look with interest for the result: extent of an architect's responsibility, the scale of charges, power of recovery, obligation to contractors, &c., are questions of extreme importance, and require to be set at rest.

Building at Cove.—Messrs. Grissell and Peto, the builders, are said to have purchased of Mrs. Stubbs, of Cove, a spacious extent of building-ground, on which they mean to erect bathing villas, which, it is expected, will have a most material effect in increasing the prosperity of Cove.

British Archæological Association.—We hear that the third congress of the association will be held next summer, at Gloucester, under the personal support of the Duke of Beaufort, Earl Fitzhardinge, and Lord Ducie. Lord Albert Conyngham, the president, will preside.

CARVED PANELS, BY INIGO JONES.



CARVED OPEN DOOR PANELS,
IN A HOUSE, ANGEL COURT, CITY;

BY INIGO JONES.

ANY person having a taste for the style of ir early English Classic Architects, who ould devote some time to ferret out what at resent remains of their works in the City, ould be well rewarded. Besides the ancient uildings belonging to the city companies ith their princely halls, rich with carved reens, and gorgeous ceilings, the elevated ais and large with-drawing parlours, their aint furniture and their store of plate of the ign of Henry VIII., Elizabeth, and the uarts,—he would find that many of the old sidences of the great London merchants had en refronted, and that while their exterior hibited no ancient appearance, their interior mained without material alteration. The eat fire must have swept away a large portion antique buildings, but improvement has obably done more to rid the city of some of e best works of Inigo Jones, and of the still rlier architects, in those localities which the e did not devastate.

Inigo Jones, as an architect, was, with the ception of Sir Christopher Wren, the most tensively employed in the cities of London d Westminster,—to his admirers even a gment, such as is represented in the print, worthy of consideration. My late master, r John Soane, very early acquired a taste for s works, having in youth, when trying for e silver medals of the Royal Academy, made awings and measurements of the water front old Somerset House and Whitehall Chapel. the former building, the principal front of e County Fire-office, in Regent's Street, is d by Mr. Gwilt (see Chambers's Treatise Civil Architecture by Gwilt, pp. 234 and I,) to be an indifferent copy. Mr. Gwilt narks, "that the loss of Jones' building at merset House is much to be regretted. It s not only, perhaps, the most elegant of the rks of Inigo, but contained fewer abuses an most of his other buildings."

During Sir John Soane's long life he never t an opportunity of obtaining measurements l delineations of any work, either supposed known to be Inigo's; and at a late period, a considerable expense, we, his pupils, were t in the country for that purpose; and in s way he formed a very large number of awings, some of which were exhibited to students at the Royal Academy during his ture: they are now preserved at his Museum Lincoln's-inn-Fields. Of this collection I ve copies, and the BUILDER has already had uced drawings of a few of them. The sent subject represents two carved open r panels in a house in Angel Court, near Bank of England, and Sir John, who in- cted the building, put it down as a work of go's, and had drawings made from it. Of rse considerable difficulty must exist, in rectly fixing any isolated example in the to Inigo, but the style of this example, the rich foliage, disclosing a profusion of ts, amongst which Cupids and animals n to sport, and which remind one so ngly of the friezes in the Baths of Dio- ian and the Torre di Nerone, is certainly of his day, before the elegant, slight car- of Gibbons came into fashion.

he house in Angel Court, at the time the ving was made, probably thirty years since, occupied by Mr. Lear. I have not seen building myself; any person who would venture into the immediate neighbour- d of the Stock Exchange, during the pre- railway excitement, after purely anti- ian purposes, would probably be mistaken madman. It is not my intention to enter a long catalogue of the works of this t man, nor to give an account of his life. here is one remarkable fact, however, con- ed with his productions, which I must ce. In spite of the changes of time, and caprices of fashion; in spite of the envy ontemporaries, and the self-complacent eit of many of his successors, though may have been depraved, and some of spoilt children of fortune have given laws tter men than themselves,—still the works nigo Jones have compelled the unfeigned ration of his successors. Even the hyper- al Walpole has given a warm and hearty te to his genius; it is at once so charac- ic and so true, that I quote it: "Jones, if a table of fame, like that in the Tatler, were to be formed for men of real and in- disputable genius in every country, would save England from the disgrace of not having her representative among the Arts. She adopted Holbein and Vandyke, she borrowed Rubens, but she produced Jones. Vitruvius drew up his grammar, Palladio shewed him the prac- tice, Rome displayed a theatre worthy of his emulation, and his king was ready to encourage, employ, and reward his talents. This is the history of Inigo Jones, as a genius."

C. J. RICHARDSON.

BENCH END FROM MINSTER CHURCH, THANET.

IN continuation of the series of bench ends drawn by Mr. Truefitt, which we gave a short time ago (page 330), we now present a fine example from Minster Church, in the Isle of Thanet, from a drawing by Mr. Caveler.

The Church of St. Mary at Minster is built in the form of a cross, the nave having side aisles; it is of very great antiquity, and con- tains some excellent work. The interior of the chancel is particularly worthy of notice; it is of that style now generally known by the name of Early English. The other principal portions of the church are Norman.

The late estimable Mr. Gage Rokewode was of opinion, as he on more than one oc- casion mentioned to us, that there is much Saxon work in the church, and we would direct the attention of such of our antiquarian friends as live in that neighbourhood to this point, in the hope of inducing an investigation of the building.

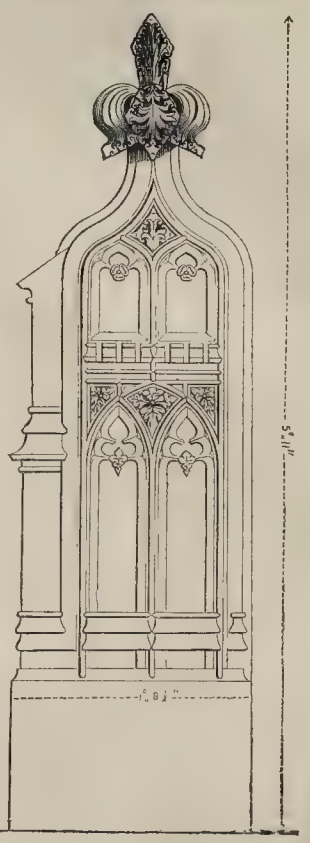
The chancel contains some ancient stalls, or seats of oak, carved in a bold manner, and having under the seats grotesque figures and various devices. The ends of these stalls are different in design, but that represented by our engraving may be considered the finest.

NORMAN DOORWAY, LITTLE BARFORD CHURCH.

THE annexed engraving represents the doorway of the parish church of Little Bar- ford, in Bedfordshire, closely adjoining Hunt- ingdonshire. It is of the Norman period, and is remarkable for the singular want of uni- formity,—the studied irregularity in the orna- mental compartments on the face of the arch. The scale is three-eighths of an inch to a foot.

Bond-street. T. C. TINKLER.

BENCH END, MINSTER CHURCH.



NORMAN DOORWAY, LITTLE BARFORD CHURCH.



THE CONIC SECTIONS

CONSIDERED IN REFERENCE TO THEIR PRACTICAL APPLICATION.

The Parabola.

THE *Parabola*, according to the definition given at page 462 of the current volume, is formed by a plane passing through a cone in a direction parallel to the slant side thereof; it is therefore a curve of such a nature, that if any number of points be assumed in the axis, and through these points perpendiculars be drawn to meet the curve in either direction:—

The distances between the vertex or origin of the axis and the several assumed points, are respectively proportional to the squares of the corresponding perpendiculars.—Or, in other words, *the abscisses are proportional to the squares of their corresponding ordinates.*

From this proposition the general equation or characteristic of the curve is derived, and the manner of its derivation may be illustrated as follows:—

Let ABC, fig. 2, be a section along the axis of a right cone, of which C is the vertex and AB the diameter of the base, and let DVE be a parabolic section, made by a plane passing through the cone in a direction perpendicular to the plane ACB, and parallel to the slant side CB; then is VF the line of common intersection of the two planes ACB, DVE, and DE the line of common intersection of the cutting plane DVE with the base of the cone, so that V is the vertex of the parabolic section, VF its axis parallel to CB, and DE its base, FD and FE being ordinates to the axis in the point F.

Through any point I in the axis VF, and parallel to the base DE, draw the straight line GH meeting the curve both ways in the points G and H; then are IG and IH ordinates to the axis in the point I, GH being a double ordinate corresponding to DE, the base of the section.

Through the same point I and parallel to AB, the base of the cone, draw the straight line KL, meeting the slant sides CA and CB in the points K and L; then is KL the diameter of the circular section through the point I, any how assumed in VF, the axis of the parabola.

Now, since the ordinates FD and IG meet the circumferences of the circular sections ADB and KGL, as well as the parabolic curve DVE in the points D and G, they are respectively perpendicular to the diameters AB and KL, and, consequently, they are ordinates to these diameters, as well as to VF the axis of the parabola; for because the planes ACB and DVE are perpendicular to one another, it follows from the principles of solid geometry, that DE and GH are also perpendicular to AB and KL. From this construction, therefore, we are to prove, that, *the abscissa* VI, *is to the abscissa* VF, *as the square of the ordinate* IG, *is to the square of the ordinate* FD; because by construction the straight line KI is parallel to AF, the triangles KVI and AVF are similar to one another, and, consequently, by the property of similar triangles, we have

$$VI : VF :: KI : AF;$$

but by the nature of proportion, if the consequents of an analogy be both multiplied by the same quantity, the ratio is not altered in consequence of such multiplication.

Now, since VF the axis of the parabola, is parallel to CB, the side of the cone, and KL parallel to AB, it follows that IL and FB are equal to one another, being opposite sides of the parallelogram ILBF; hence it is

$$VI : VF :: KI \times IL : AF \times FB;$$

but by the property of the circle, the rectangles or products KI × IL and AF × FB, are respectively equal to the squares of the ordinates IG and FD; therefore, by substitution, we get as follows,

$VI : VF :: \overline{IG}^2 : \overline{FD}^2$, which was to be proved.

If this analogy be converted into an equation, by making the product of the mean terms equal to the product of the extremes, one form of the equation to the parabolic curve becomes

$$VI \times \overline{FD}^2 = VF \times \overline{IG}^2 \ldots\ldots (A.)$$

Now, in this equation, if any three of the quantities be given, the fourth can always be found, by simply disengaging the required quantity from that with which it is combined, by division and the extraction of roots according to the combination.

If it were required to determine the ordinate IG from the abscisses VI, VF, and the ordinate FD; we have only to divide both sides of the equation by VF, and extract the square root of the quotient, and we get $IG = FD \sqrt{\frac{VI}{VF}}$. And in like manner, each of the other quantities in terms of the rest may be expressed as follows, viz.:—abscissa $VI = \frac{VF \times \overline{IG}^2}{\overline{FD}^2}$; abscissa $VF = \frac{VI \times \overline{FD}^2}{\overline{IG}^2}$; and finally, ordinate $FD = IG \sqrt{\frac{\overline{VF}}{VI}}$.

From these equations the following practical rules are deduced, according as it is an ordinate or abscissa that is required; when it is an ordinate, as in the first and fourth of the above equations, the rule is as follows;—

RULE.—*Divide the abscissa belonging to the required ordinate by the other abscissa belonging to the given ordinate; multiply the square root of the quotient by the given ordinate, and the product will be the ordinate required.*

This rule for the ordinate is very concise and easy of application; but when an abscissa is required as in the second or third of the above equations, the rule is as follows:—

RULE.—*Multiply the square of the ordinate belonging to the required abscissa by the given abscissa, and divide the product by the square of the other given ordinate for the abscissa required.*

By these two rules all questions respecting the ordinates and abscisses of the axis can be resolved, and the following examples will shew the manner in which they are to be applied.

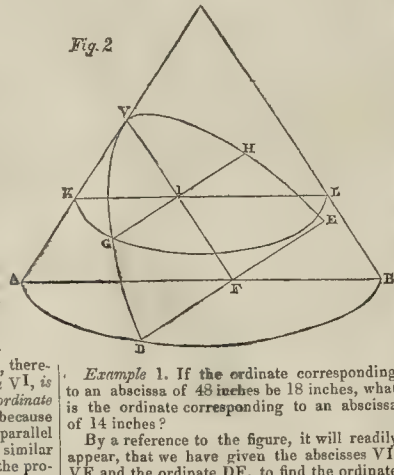


Fig. 2

Example 1. If the ordinate corresponding to an abscissa of 48 inches be 18 inches, what is the ordinate corresponding to an abscissa of 14 inches?

By a reference to the figure, it will readily appear, that we have given the abscisses VI, VF and the ordinate DF, to find the ordinate IG, corresponding to the lesser abscissa VI. Therefore, by the first of the above rules, it is $\sqrt{\frac{14}{48}} = 0.54006$; and $0.54006 \times 18 = 9.721$ lin.

Example 2. If the abscissa corresponding to an ordinate of 12 inches, be 17 inches, what is the abscissa corresponding to an ordinate of 27 inches?

Here again, by reference to the figure, we find that the given quantities are VI, VF, and IG, to find FD the ordinate corresponding to the greater abscissa VF; and for this purpose, the second of the above rules gives the following process:—Square of given ordinate, $27 \times 27 = 729$; square of the other ordinate, $12 \times 12 = 144$; then $729 \times 17 = 12393$; and $\frac{12393}{144} = 86\frac{9}{16}$ inches.

And in precisely the same manner are the rules to be applied to any other example, taking particular care to apply the ordinate or abscissa given, corresponding to the abscissa or ordinate required exactly as directed, otherwise the process will lead to a very false result. This is all the difficulty that can occur in the application of the rules, but a very little attention and practice will be sufficient to guard against the liability to fall into error on this point.

If we return to the analogy from which the general equation (A) was derived, and divide each consequent by its antecedent, we shall find that the expression $\frac{\overline{IG}^2}{VI}$, or $\frac{\overline{FD}^2}{VF}$ is a constant quantity for the same parabola, to whatever point of the axis the quantities may be referred; but as each of these terms expresses a ratio by the nature of proportion, they may be converted into an analogy, as follows:—

$VI : IG :: IG : \frac{IG^2}{VI}$; and $VF : FD :: FD : \frac{FD}{VF}$

from which it appears that in each case, the fourth term of the analogy is a third proportional to the abscissa of the axis and its corresponding ordinate; but by the definition page 463, the third proportional to an abscissa and its corresponding ordinate is equal to the parameter of the axis, or to the double ordinate which passes through the focus. Let this element be denoted by the symbol p, and let it be substituted for the terms $\frac{\overline{IG}^2}{VI}$ and $\frac{\overline{FD}^2}{VF}$ in the above proportions, and they become

$VI : IG :: IG : p$; and $VF : FD :: FD : p$.

Let each of these analogies be converted into an equation, by making the product of the mean terms equal to the product of the extremes, and we shall have

$p \times VI = \overline{IG}^2$; and $p \times VF = \overline{FD}^2$;

so that generally, to whatever point of the axis the ordinate may belong, its square is always equal to the rectangle of the corresponding abscissa drawn into the constant quantity p. Therefore, if x be put to denote any abscissa estimated from the vertex, and y the corresponding ordinate; then the general characteristic of the curve, on which its several properties are dependent, becomes

$$p x = y^2 \ldots\ldots\ldots (B.)$$

But for the convenience of practical men we shall express this equation in a specific form as follows:—

$$Parameter \times abscissa = ordinate \times ordinate \ldots\ldots\ldots\ldots\ldots\ldots (C.)$$

Now this is a very simple and elegant expression for a curve of such extensive application in practice as the parabola is, and the rule which it supplies is thus enunciated.

RULE.—*Multiply the given abscissa by the parameter, and extract the square root of the product for the ordinate required.*

Example 3. What is the ordinate corresponding to an abscissa of 24 inches, supposing the parameter of the axis to be 6 inches?

Here, according to the rule, we have $24 \times 6 = 144$, the ordinate squared; therefore by taking the square root of 144, we get 12 for the ordinate required.

From the same general equation (C), we may determine the abscissa corresponding to a given ordinate, when the parameter is known; for we have only to divide both sides of the equation by the parameter, and the quotient will be the abscissa sought; thus we have

$$abscissa = ordinate \times ordinate \div parameter \ldots\ldots\ldots\ldots\ldots\ldots (D.)$$

The practical rule derived from this equation is expressed in words, as follows:—

RULE.—*Divide the square of the given ordinate by the parameter of the axis, and the quotient will be the abscissa sought.*

Example 4. What is the abscissa corresponding to an ordinate of 12 inches, supposing the parameter of the axis to be 6 inches?

Here, by operating according to the rule we have $12 \times 12 = 144$; and $144 \div 6 =$ inches, the abscissa required.

It frequently happens, however, in the application of the parabola, that the parameter or constant quantity is not given; indeed, almost every case where the curve is to be delineated, the parameter requires to be found; but in every instance such data must be proposed as will enable us to determine what that element is, for we must either have given two abscissas and one ordinate, or two ordinates and one abscissa, and from an ordina

nd its abscissa, the parameter of the axis can lways be determined, since by the definitions age 463, and from what has been shewn bove, it is always a third proportional to those wo quantities. It is not, however, absolutely ecessary to determine the value of the para- neter for the purpose of delineating the curve, s that can be done mechanically by means of series of ordinates calculated by the first ule, as deduced from the general equation A); it must, however, be understood that the arameter is involved in that process also, lthough not exhibited as an independent term. Ve shall now proceed to shew how the para- ola is to be constructed mechanically, by a eries of ordinates calculated in the manner ere mentioned.

Problem. Let it be required to delineate a arabola of which the base is 30 inches, and ie axis 30 inches.

In order to obtain a series of ordinates, it ecomes necessary in the first place to have a eries of corresponding abscisses, and for this rrpose, we must divide the axis into a certain umber of parts or intervals, through which e ordinates are to be drawn; it matters not hether those intervals are equal or unequal, it it is most convenient, both for the calcu- tion of the ordinates and for the graphic de- neation, that the intervals should be equal. ow, if we divide 30 into 10 equal parts of inches each, the series of abscisses for hich the ordinates are to be computed will be 6, 9, 12, 15, 18, 21, 24, 27, being 9 in all, the st, or tenth ordinate, being equal to half the ven base.

Consequently, the series of ordinates corre- onding to these abscisses as calculated by e rule for that purpose, are 4·74, 6·71, 8·22, 49, 10·61, 11·62, 12·55, 13·42, and 14·23 ches respectively; therefore, if indefinite ght lines be drawn through the several points division on the axis parallel to the base, d on each of these lines both ways, the ove ordinates be set off from a scale of ual parts, the curve that passes through e extremities of all these ordinates will be e parabola required; but this will be best derstood by carefully tracing the steps of nstruction as follows.

Draw the straight line AB, fig 3, to repre- at the base of the parabola, which make equal 30 inches from a scale of any convenient gnitude at pleasure. Bisect AB perpendi-

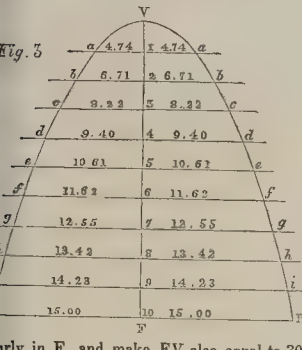


Fig. 3

arly in F, and make FV also equal to 30 hes from the same scale as before; then is the axis of the parabola according to the mple given. Divide the axis FV into ten al parts of three inches each, in the points mbered 1, 2, 3, 4, &c., and through the ral points of division thus obtained draw straight lines *aa, bb, cc, dd,* &c., parallel to base, AB; then from the same scale of al parts from which the base and axis were n, set off both ways from the points of di- on on the axis the several calculated ordi- s as shewn in the scheme, and the curve ch passes through the several extremities he ordinates will be the curve of the para- required; and in this way may any other bola be constructed mechanically by means series of computed ordinates, without wing the actual numerical value of the pa- eter.

T.

ANCHESTER ATHENÆUM. — A second d *soirée* will be held by the members of nstitution on Thursday evening, October

FOREIGN ARCHITECTURAL AND COLLATERAL INTELLIGENCE.

Embankment of the Nile. — For several years past it has been stated, that Mehemed-Ali contemplated those stupendous works, which now appear near their realization. A French engineer, Mr. Naugel, is charged with the execution of this plan. The dredges and steam-engines have already been ordered in some of the manufactories of Paris. Mr. Naugel has also just purchased, by order of the Viceroy, sixteen brick-machines, made after the plan of Mr. Carville, and which have occupied a conspicuous place in the late exhibition of French industry, each of which can produce every day more than 10,000 bricks, almost without any expense. The chief engineer will also convey to Egypt thirty large crushing machines for making hydraulic lime and cement.

The Houses of Luther and Melancthon at Wittenberg. — These once rather humble domiciles are now attracting royal attention, like Luther's chamber on the Wartburg. The King of Prussia has given orders to purchase the former and to convert them into public schools. The renowned gates of the Wittenberg Cathedral also, where Luther boldly affixed his "positions," and which are nearly decayed, will be replaced by new ones made of brass, and richly ornamented with emblems.

The Present State of Cologne Cathedral.— The work of restoration has progressed most prosperously during this season, and the King of Prussia, who had occasion to see it during his stay at the Rhine, has addressed a very flattering note to the Directors of the Dome-Building Association. The two lateral portals have so far proceeded, that the arch over one of the entrances (richly decorated) is nearly completed. In fact, the building grows under the eyes of the beholders, but few can have an idea of its difficulties. The south aisle is now opened to the public, and if we consider, that its ceiling has been completed within the last two years, that new casements of the windows, etc., have been added, we may expect, that by 1848, the main nave also, up to the second gallery, will be completed. It is supposed, that by this time also the north tower up to the finishing of the main portal will be completed.

Scientific Congress at Naples.—This meeting—the first of the kind ever held in that capital—has been opened with much solemnity in the presence of the king. The number of gentlemen present, was an unprecedented one, viz. 1,500, from all parts of Europe and even America. What comes within the province of this Journal shall be stated on a future occasion.

THE SANATORY CONDITION OF THE WORKING CLASSES IN PARIS.

MR. ALPHONSE BEAUMONT—the Irish traveller, and brother to Elie Beaumont, the great geologist, has put forth an article on the above subject, from which we extract as much as comes within our province, and may be useful to the English worker. We agree with the noble French philanthropist, that "*Industrial Hygiene*" and its practical and legislative application, is a field scarcely trodden—if we except the late efforts of Lord Ashley and a few others. Mr. Gay Lussac in France, and the Health of Towns Commission here, have fixed public attention on the murderous (*meurtrier*) condition of many of the manufactories and workshops. Still, the hitherto laws relating thereto, have entirely left aside that paramount care for the worker occupied in the interior of buildings—and have not attended but to the inconvenience which may result to the *neighbourhood* of such establishments. The laws regulating the work of children and females (here and in France) can be called only *preparatory*, and regulations for the protection of the health of the adult worker are to be added to the *statute* of industrial enactments (!). The law of 1841 has given to the Government of France the power of regulating the operations of manufactories where children are employed, and Mr. Beaumont wishes that this power should extend to all establishments where the health of the worker is placed in jeopardy. The thing seems self-evident, because, if by any insalubrious occupation hundreds of workers are sent to the hospitals, and finally to charitable establishments (poor-houses), it is not the individual manufacturer who bears these expenses, but the public at large. Mr. *Gendrin*, physician of the Hopital de la Pitié, in Paris, has addressed the Minister of Commerce on the subject of saturnine affections (poisoning by lead), and has, besides the mode of treatment, put forth the means of *preventing* these diseases.

But the subject which comes most within the limits of this journal are the diseases to which the workers in paper-hanging manufactories are exposed. Dr. *Blandet* has lately read three essays on that subject before the Académie des Sciences (Royal Society). It is especially the *Schweinfurt green* (Vert-de Schweinfurt), which proves noxious to the paper-stainers; as it is composed of acetate of copper and arsenicated acid. Most of the operations of those workers bring on cutaneous diseases. Many of these accidents, however, could be obviated by the care of the workmen, who, nevertheless, *refuse* to take the precautions indicated to them by some of their humane masters. Mr. Beaumont cites examples, where the men had disobeyed the injunction of using especial garments in their hours of labour, and others who would not avail themselves of the tepid bath, which was offered them gratuitously every evening. Gloomy samples, indeed, of the recklessness and atheism of our age; and Mr. Beaumont says very truly, that in this instance also, the material welfare of the humbler classes is intimately connected with their mental or *mind's* development. *A course of Hygiene*, in fine, is recommended by our talented contemporary, as one of the most essential agencies for the future welfare of whole generations. Mr. B. respectfully addresses himself to the Minister of Commerce, Mr. Cunin Gridaine, to effect such a praiseworthy object; which, if applied to this country, would mean the Board of Trade.

J. L.

STATE OF THE WESTMINSTER SEWERS.

THE following entry has been made in the "Book of Informations" at the Westminster Sewers' office, by Mr. Phillips, the clerk of the works, with whose views on the subject of sewerage our readers are acquainted. It is, perhaps, desirable we should say that our information was not obtained through him:—

"*Oct.* 3, 1845.—In obedience to the order of Court, as expressed in bye-law No. 60, namely, 'That each clerk of the works do endeavour to obtain every information on the state of the sewers within the district placed under his superintendence,' and 'that in the course of every month he inspect the whole of his district, and report his having so done, together with *his remarks and observations in the Book of Informations, in addition to such entries as have been usually made therein*:—'

"Therefore, I beg most respectfully to state, that there are a vast number of sewers under my superintendence that are similar to elongated cesspools, that is, they retain nearly all the sewage matter that is discharged into them, instead of affording efficient means for speedily carrying it off; and the stench and effluvia from the decomposed filth thus accumulated, escape through the untrapped gullies and drains, and contaminate the surrounding atmosphere with nauseous and deleterious gases, to the great injury of the health of the public: consequently they should not only be cleansed forthwith, but some ready and effectual means should be adopted in order to prevent the matter discharged into them afterwards from becoming deposited upon their bottom."

At the last meeting of the commissioners, held on the 3rd inst., Mr. Hawkins resigned the appointment of surveyor, on which Mr. Leslie, feeling that Mr. Phillips, in his endeavours to obtain an improvement of the sewers under his charge, had displayed a degree of moral courage not often found, and had shewn considerable ability, proposed him as a proper person to receive the vacant appointment. We trust the commissioners generally will think so too.

MACLISE'S CARTOON; THE SPIRIT OF CHIVALRY.—The committee of the Art-Union of London have shewn their taste and good judgment by determining to engrave this fine work for their subscribers.

SHORT DEEDS.

AN ACT TO FACILITATE THE GRANTING OF CERTAIN LEASES, 8 & 9 VIC. CAP. 124.

This Act, which received the royal assent on the 8th of August last, came into operation on the 1st inst. The preamble simply asserts it to be "expedient to facilitate the leasing of lands and tenements," and the first clause enacts that certain short forms of words (which are given in a schedule) shall be taken to have the same effect and to be construed as if other and longer forms (which are also given in the same schedule), had been inserted in any deed drawn up as follows, or to any other deed which shall be expressed to be made in pursuance of this Act.

This indenture made the day of one thousand eight hundred and forty- [*or other year*], in pursuance of an Act to facilitate the granting of certain leases, between [*here insert the names of the parties, and Recitals, if any*] witnesseth, that the said [*lessor*] or [*lessors*] doth *or* do demise unto the said [*lessee*] *or* [*lessees*], his [*or* their] executors, administrators, and assigns, all, &c. [*parcels*], from the day of for the term of thence ensuing, yielding therefore during the said term the rent of [*state the rent and mode of payment*].

In witness whereof the said parties hereto have hereunto set their hands and seals.

The second clause enacts "That every such deed unless any exception be specially made therein, shall be held and construed to include all outhouses, buildings, barns, stables, yards, gardens, cellars, ancient and other lights, paths, passages, ways, waters, watercourses, liberties, privileges, easements, profits, commodities, emoluments, hereditaments, and appurtenances whatsoever, to the lands and tenements therein comprised belonging or in anywise appertaining."

The third clause relates to remuneration for preparing and executing any deed under the Act, and enacts that in estimating the proper sum to be charged for such transaction, the taxing officer shall consider not the length of such deed, but only the skill and labour employed and responsibility incurred in the preparation thereof.

The fourth clause enacts, that any deed failing to take effect by virtue of this Act, shall nevertheless be as valid as if the Act had not been made.

The construction clause enacts, that for the purposes of this Act "unless there be something in the subject or context repugnant to such construction, the word 'lands' shall extend to all tenements and hereditaments of freehold tenure, and to such customary lands as will pass by deed or deed and surrender, and not by surrender alone or any undivided part or share therein respectively."

EFFLUVIA FROM SEWERS.

Sir,—On again introducing this subject before your readers, I am happy to say, that since the appearance of my former letter, I have received one or two communications from persons especially interested, offering me their assistance in more fully placing before the public opinions of, and remedies for, this great unnecessary evil. As a prelude, I would mention as a fact, that to such an extent has the practice of "venting" sewers been carried of late, that those gulley-holes which were trapped formerly, have been opened, and in some cases, even in the centre of the roadway, holes have been made in connection with the sewers, the fumes arising from which would sometimes, throw into the shade any comparison with the worst cesspool.

In referring to your correspondent's letter in your number of the 20th September, I would beg to offer a few observations on his comments. First, as regards the originality of the plan in point of "trapping," I do not arrogate such to myself as new; I only lay claim to, and advocate its introduction, when in combination with my system of "columns," or "vitiated air flues.*" Secondly, to his fears as to the bursting of sewers. When this occurs, it is not owing to the pent-up gases in the sewers, but chiefly to their unsound, as well as unfit construction, many of them being entirely destitute of the form calculated to withstand the immense hydraulic pressure, to which the sewers of London are continually subject. Again, with regard to the effluvia; I think the application of windguards or draft-creating machinery, would be found quite unnecessary, from the volatile nature of the gas, and the ever-existing draft in sewers, adhering at the same time to the idea, that it would be better to destroy the effluvia, if possible, than to allow it to float in the atmosphere.

I have now brought myself to that portion of my letter most interesting to your many able readers, viz., as to what sort of trap I should propose. I have revolved many ideas in my mind, and have now prepared a trap, the construction and applicability of which may induce comments from those not merely "*theoretically*," but (I hope) "*practically*" acquainted with the subject. I feel convinced that as the vast accumulations of mud in all the streets of the metropolis, will render the cleansing of the cistern, or lower part, an act of frequent occurrence, it is necessary that any trap that may be brought forward, should be so constructed, as to be removable with the utmost facility on any emergency.

Before concluding, I would say a few words on the varied application of the "columns," to render which ornamental as well as useful, the addition of gas-pendants in large thoroughfares would prove of great service to night traffic, while the introduction of doors at the bottom might serve as an easy communication in all parts with the bowels of the metropolis.

Although in introducing the subject before you I venture to anticipate the cordial good wishes and support of your correspondents in forwarding its introduction, yet I almost despair of its adoption till the strong hand of the legislature interferes to put a stop to the erroneous ideas and actions so conspicuously manifest in the present system of sewerage.

151, New Bond-street. J. L.

*** We have not engraved the drawing of the trap sent, as it does not appear to have any advantages over a trap figured in the second volume of The Builder, p. 594, and is less simple.

* We are compelled, in justice to a former correspondent, to refer "J. L." to p. 129, *ante*, where he will find columns for the escape of the vitiated air, proposed by "W. Rowland."

New Books.

Double Entry Elucidated, an improved method of teaching Book keeping. By B. T. Foster. Souter and Law, Fleet-street.

Dr. Johnson, who has a sentence for every thing, says justly, "Let no man enter into business while he is ignorant of the method of regulating books; never let him imagine that any degree of natural abilities will enable him to supply this deficiency, or preserve a multiplicity of affairs from inextricable confusion." Nevertheless, half the youths who leave school prepared, as is said, for the counting-house, know literally nothing of book-keeping, the mode of instruction adopted is for the most part so inadequate, so unscientific, and so irrational. Principles of universal application are kept out of view, and all is made to rest on a few arbitrary rules. The result is, as the author of the work before us observes in the introduction, that—

"It has become an established maxim among merchants and men of business, that a knowledge of book-keeping cannot be attained, except by dint of long practice in the counting-house; and, consequently that all attempts to teach the science are useless and absurd. We are not surprised to find that deemed impossible, which, in ninety-nine cases out of a hundred, is not accomplished; but are we justified in abandoning the pursuit of an object, before we have ascertained whether the means employed for its attainment are adapted to the end? Is there any sound reason why book-keeping should not be as efficiently taught as any other art or science? Geometry, navigation, land-surveying, and the like, are subjects which require, on the part of the learner, far greater powers of mind and thought, and a much greater exertion of those powers; and yet boys are found to obtain at school a satisfactory knowledge of these branches. How then is it that book-keeping cannot be taught? I answer, because the subject is not understood; the student is left to *learn* instead of being taught; rules are substituted for reasons; particular forms are confounded with general principles; and the memory is burthened at the expense of the understanding. True it is that most youths bring from school a fairly written, finely flourished set of books; and these are exhibited to the fond parent as a proof of his proficiency; but as the fox said of the mask, '*Quanta species sed cerebrum non habet*' (it is a fine head to look at, but there are no brains within),—the boy's hands may have learned book-keeping, but his understanding is perfectly guiltless of it!"

He does not overstate the importance of the matter when he says:—

"If we would place a check upon wild speculation—diminish the number of bankruptcies—afford a timely warning against extravagant expenditure, and throw a light into the obscure recesses where fraud and embezzlement are wont to lurk undetected—we know no better way of beginning than by urging a complete and effectual reform in this department of commercial education. Nay not only do we consider the interests of the commercial community deeply involved in the issue of this movement, we contend further that no youth, for whatever occupation he may be destined, should be considered to have completed even a common or tolerable education, until he can commence his intercourse with the world with a knowledge of that art which is so essential, so indispensable to the protection of his rights, which in truth will alone enable him to prove or maintain the distinction of *meum* and *tuum*. Let it then be taught in every school throughout the kingdom."

In the book before us the author endeavours to develop, by means of analysis, the principles upon which every form of accounts is based, and to force the student to think. The instructions in it are full and clear, and well calculated to impress the student. The following "general principles" will serve as a specimen of the author's style:—

"1. When the ledger is adjusted, the difference between the two sides of the stock account is *inversely* equal to the collective result of all the remaining accounts; and this difference, in each case, shews the merchant's real worth, or, if he be insolvent, his net deficiency.

2. Debtors and creditors are always in opposition to each other. Thus the respective items on the debtor side of one account are credits in some different account; and those on the creditor side, are debits in some other account.

3. Every transaction relating to property may be virtually considered under the single denomination of *barter*, or the exchanging of one thing for another: hence each transaction affects at least two accounts, and must be entered on the debtor side of one, and on the creditor side of the other. The *recipient* account is always debtor, and the *imparting* account always creditor.

4. To increase, or add a sum to, the debit side of an account, is in effect the same as to decrease, or subtract a sum from, its credit side; and *vice versâ*.

5. The aggregate amount of *debtors* in the ledger is equal to the aggregate amount of *creditors*; and, consequently, the debtors and creditors affected by each transaction are, in every case, equal.

The assets or debtors, and the liabilities or creditors, are at first equilibrated or made equal, by means of the stock account; and as every subsequent transaction affects an equal amount of debtors and creditors respectively (See 5 General Principle), this equilibrium is maintained throughout. The increase or decrease of the capital is exhibited by the net gain being carried to the credit, or the net loss to the debit, of stock; whilst in each case an opposite debit or credit, of corresponding value, is made in some one of the money, merchandise, or personal accounts."

Building Societies.—An important decision was declared in one of the Middlesex Registration Courts on Monday (Bethnal-green), relative to the right of shareholders in a building society to vote for parliamentary representatives. The claimants (the Court held) had an estate in equity, and that sufficient value had been shewn to entitle each to vote. Nineteen had been shareholders more than twelve months. Their claims were consequently held to be good.

EXCLUSIVE STUDY OF GOTHIC ARCHITECTURE.

Sir,—I fully agree with "Constant Reader" and your other correspondents on the same subject, in being of opinion that Gothic Architecture is now studied too engrossingly and too exclusively; and I am further of opinion that it is studied more as a dead language of the art than as a living one,—with more of plodding inquiry into its history,—with more of the mere collecting facts and the materials of study, than of real intelligence of the artistic value of that style at the present day to ourselves. As it is now pursued, the faculty chiefly exercised by the study is memory and little more; while those of judgment and reasoning taste are suffered to lie dormant and unexercised. The fruit we gather consists for greater part, of dates only; yet it must be owned that that fruit seems to possess if not an enlivening, an intoxicating quality. Even those who can talk very fluently about styles and periods, and have all *Rickman* by heart, or rather at their tongues' ends, often seem quite aground—*au bout de leur Latin*, when they attempt to proceed a step further, and without the aid of book or other prompter, to specify either the particular merits or the contrary of any individual example, or else of any modern imitation of the style in question. The most glaring solicism may stare them full in the face, in a modern antique design, without their being able to detect it.

Glossaries and other "collections of Gothic details" are, no doubt, very useful in their way, yet they go, and *can* go but a very little way, since however well suited for the professed purpose, they are fragmentary in plan, and so far defective, since it affords no more insight into the constitution and genius of the styles themselves than Ainsworth's and Johnson's Dictionaries do into those of Cicero and Shakspeare.

Whether we can yet appropriate Gothic architecture to ourselves at the present day remains to be shewn. Those who insist upon precedent for every thing in modern buildings of the kind, assure us *obliquely*, if not directly, that we cannot. According to them we can do nothing whatever of ourselves, neither ought to attempt it, but on the contrary be perfectly satisfied with, and vastly proud of being *doomed* to be imitators. Instead of studying what we ourselves now actually want, and what would be most suitable for present purposes, we are to study how we may best ape and imitate what was suitable many centuries ago. Nay, there are those who would even have us *Gothicize* painting, and return to what they are pleased to call the *naive* manner of the middle-age artists—to make *naive* representations of the human figure as we behold on the court cards—which pristine mode of drawing has in them been traditionally preserved to us in all its *purity*.

In strong contrast to the ardour with which Gothic architecture has of late years been taken up as a fashionable pursuit, and the industry with which it has been ministered to in a variety of publications, all more or less of a popular nature, is the almost total cessation of architectural publishing as regards other styles of the art. As far as these last, Greco-Roman, Italian, and modern architecture generally are concerned, there has scarcely been a single attempt to render the study of them popular. With exception of what relates to the orders alone—and they are treated far too drily, and merely technically, there exist at present no materials for such study, nothing to afford the non-professional public an intelligent or indeed any sort of insight into the principles of the styles just alluded to. As far as any attempts at all have been made towards furnishing the public with a cheap and popular manual on architecture, they have been most miserable failures, things apparently put together by booksellers' hacks, and made like Peter Pindar's 'razors,' only to sell. Of this kind is the treatise on architecture in "Chambers' Information for the People;" which displays such crude notions and astonishing ignorance of the subject, that the other treatises are of no better quality the title of the series should have been "Misinformation."

One circumstance which I conceive has tended very greatly to hinder the popularity, and more general diffusion of architectural works, is not only their expensiveness, but the inconvenient and frequently very unnecessary extravagance as to size, which is sometimes as to render them all but quite useless for such reference. Had Britton's cathedrals been brought out on the same scale as those by the Antiquarian Society, even had they been published at half the price they were, they would not have had any thing like the same effect in promoting the study of Gothic architecture. One might almost fancy that architects had old Frederick of Prussia's passion for *grenadiers*, and consider gigantic dimensions, nothing under the standard of elephant or atlas folio, to be indispensable for the professional dignity of their publications. It is upon such absurdly outrageous scale that the collection of Gaertner's buildings has just been begun; yet a far more economical size, either ordinary quarto or large octave, will in general answer the purpose just as well, since even if it does not admit of the whole of an elevation being shewn on a satisfactory scale, one-half of a regular front—therefore, on twice the scale it would otherwise be—answers the purpose equally well; or the whole might be shewn on a reduced scale, and a single compartment of it or more, as the case may require, be shewn on a separate plate; by which means, even an octavo page might be made to exhibit buildings on a very much larger scale than is now done in ultra-folio works. Many of the subjects in Durand's "Parallèle," for instance, might be given in a less than octavo size.

Apropos to Walpole's opinion of Vanbrugh, Horace was but a very coxcomb critic after all—a mere dogmatizer, who scorned to deal in reasons and arguments. Shades of Vanbrugh and Hawksmoor! most amply have ye been avenged by your libeller's own most pitiful production—that contemptible piece of architectural bathos, ycleped "Strawberry Hill!"

Should you print this, you may hear again from RUDOWNIK.

SUFFOLK CHURCHES.

WITNESHAM: ST. MARY THE VIRGIN.

Many of the rural churches of England are not a little remarkable for the retired, yet beautiful situations they occupy, and the church of Witnesham, seated in a valley and surrounded by some fine trees may be cited as an example of this kind.

The plan of the church is not unusual in this part of Suffolk. It consists of a spacious nave 56 feet long and 26½ feet wide, having a well-proportioned tower on the south, and a small aisle 23½ feet by 11½ feet, divided from the nave by three arches. There is little architectural embellishment, and no part appears earlier than the 14th century. The west window is of three lights, the tracery consisting merely of the intersections of arches, and even these are without foliations. The proportions of this window are very good, but the space is worthy of better decoration, which, though probably intended by the architect, we are inclined to think never was effected. The other windows are generally of two lights of the same character, but there are two of lancet shape and trifoliated. A window of perpendicular date has been inserted in the wall of the aisle, and another, much mutilated, appears at the east end. The clerestory of the nave contains ten windows of plain perpendicular work, and has a fine wood roof, now much hidden and defaced with plaster. The most interesting feature in the interior is the division between the nave and aisle, which exhibits some good decorated work in the capitals of the piers. The tower is of late date, it is built of flint and is very plain; but the battlemented wall and the buttresses occasion it to have a good effect. As usual, the tracery of the belfry windows is much dilapitated. There are five bells, bearing the inscription in each of "John Darbie made me 1660;" and one further records the name of Daniel Meadowe, a family which from a very early date has held possessions in this parish. Of the chancel little needs be said. It was once of decorated character, but all ornament has long since disappeared. The north and east walls have been rebuilt, and fragments of a fine east window may be seen embedded in the mortar; the chancel arch is a wretched specimen of the parsimony of the last century. Of stained glass, in which the Suffolk churches once abounded, till the fanatic zeal of William Dowsing was permitted to revel in the mutilation of sacred edifices, there are two fragments left; one in a south window of the nave shews the wolf guarding the head of Saint Edmund, but the head of the saint has been removed. In the chancel, on the south, are armorial bearings, argent a lion rampant sable, over all a bend gules. There is a large font elevated on steps, occupying a central position in the nave opposite the north and south entrances.

In removing the pews in the aisle a large vessel of Roman pottery was discovered a little below the surface of the ground, and though some bones were found close by it, there is reason, from its appearance, to suppose it was used as a vessel for culinary purposes, and not as a sepulchral vase. It was much damaged in removing the soil, but it probably was not perfect when discovered.

The exterior appearance of the church has been injured by the removal of the battlements, which was done about eight years since, when the roof was repaired.

The interior was until lately disfigured with unsightly, inconvenient, and uncomfortable pews, the removal of which and the substitution of open seats, has been effected under the superintendence of Mr. Ringham, of Ipswich. Sufficient of the original seats were left to afford models for imitation, and not only is the appearance of the church improved by this alteration, but additional accommodation is gained, and increased convenience to the congregation.—*Ipswich Chronicle.*

Correspondence.

WYKEHAM AND SUBARCUATION.

Sir,—In your useful periodical called The Builder, I observe a letter of mine printed on the subject of "Subarcuation," and the Architecture of William of Wykeham,* in which I find the words "the archæological antiquary and the artist." It is possible, as I wrote in haste, that the tautology is mine originally, but I must have intended either to say "the *architectural* antiquary and the artist," or "the archæologist and the artist." I have ventured to trouble you with this correction, in consequence of the honour you have done me by your public notice of a letter, written chiefly with a view of doing justice to the superior art and skill of William of Wykeham.

I am, Sir, &c., J. Ingram.

11, South Parade, Bath, Oct. 3.

WATER-PIPES WITHIN LIMITS OF BUILDINGS' ACT.

Sir,—Being requested to take down some wooden spouting at the back part of a dwelling-house in this parish, permit me to ask you if I can replace the same with wooden spouting, as before, or if the spouting must be of metal or zinc; the spouting projects before the face of the brickwork. An answer will greatly oblige A Carpenter.

Camberwell, Oct. 5, 1845.

*** The wooden spouting may be *repaired*, but, if taken down, pipes of metal or of other proper fire-proof material must be substituted.

The Arts have one Country.—A grand banquet has been given at Brussels, by the artists and amateurs of Belgium, to the foreign artists of Europe,—presided over by M. Van de Weyer, and attended by 180 guests. Among the artists whose names are mentioned as being present we find the English ones of Mr. Roberts and Mr. Prout. The spirit of the occasion is best expressed in its two leading toasts:—on the part of the entertainers—"To the foreign artists, or rather to the artists our brothers, for the Arts have one only country; and their cultivators, of whatsoever land, are members of a single family. To the union of all artists!"—on the part of the guests—"To the Belgian artists and friends of Art—enlightened amateurs who have assembled this noble Congress of the Arts!"—*Athenæum.*

Inducement to Builders.—The Drogheda Railway Company, in order to induce people to build along their line, offer to lend 20,000*l.* for the purpose, at 4 per cent., and to give a free ticket for life to every builder of a house rented at 30*l.* a year.

* Page 465.

Tenders.

Alterations and additions for Messrs. Sewell and Co., Compton-street, Soho (first contract); Mr. D. Mocatta, architect:—

Burton	£2,004
Leschalles	1,945
Haynes and Co.	1,729
King and Co.	1,596

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For Building a Saloon at the Spa, Scarborough, and two Toll Houses at the Bridge, for the Scarborough Cliff Bridge Company; with other alterations and improvements.

For certain Repairs proposed to be done to the interior of the Parish Chapel of St. Luke, Chelsea.

For sundry alterations and additions to a House in Huntingdon-street, St. Neots.

For completing ten fourth-rate Houses, at present in carcases, situate at Mile End.

For the Post and Rail fencing required in constructing the Manchester and Leeds Railway. Dimensions.—Posts, 6 ft. 6 in. long, and 5 in. by 3½ in. in sectional area; Prick Posts, 5 ft. 6 in. long, and 2½ in. in sectional area; Rails, 10 ft. long, and 3½ in. by 1½ in. in sectional area.

For the execution of the Works between Church Fenton and Harrowgate, for the York and North Midland Railway Company, being a distance of about 18 miles. The Works include a Tunnel and Viaduct.

For supplying the Great Grimsby and Sheffield Junction Railway Company with 8,000 tons of iron rails; each rail to be 15 feet in length and weighing about 70 pounds per yard. Also with 2,700 tons of iron chairs.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At Millbrook: three entire cargoes of very superior Miramichi, Gothenburg, and Riga Timber, Deals, and Staves.

At the New Inn, Cadleigh, near Tiverton: 72 Ash, 3 Beech, and 5 Wild Cherry Timber Trees, now growing on Cadleigh Court Farm.

At the Brickyard, near Farthinghay Hall, Woodbridge: 50,000 best building Lumps, 10,000 hard Red Bricks, 5,000 Brimstone Lumps, 5,000 Floor Bricks, &c.

At the Speech House, in Dean Forest, Gloucestershire: 1,394 Timber Trees, 680 Oak Poles, &c.

At Garraway's Coffee House, Cornhill: 96 Logs of East-Indian Hard Wood, partaking of the character of Red Lance Wood, very suitable for turning and ornamental purposes.

At Garraway's Coffee House, Cornhill: about 100 loads of East-India Teak, in logs chiefly, of first quality; about 40 loads of Teak in planks; 35 loads of African Oak; 11 logs of Honduras Mahogany; 12 logs of Red and Pitch Pine, &c.

TO CORRESPONDENTS.

"Drawing Schools."—*We must decline recommending architectural drawing schools until we can ourselves examine into their excellence.*

"A Subscriber."—*We are unable to learn Messrs. Testa's address.*

"An Operative," "A Mason," "E. H.," "Master of a Hundred Men," "T. T.," "Philo," *shall all be considered. The subject is one of great interest.*

"S. Durapeth."—*The most comprehensive "Glossary" is Gwilt's "Encyclopædia of Architecture;" the price is two and a half guineas. The "Oxford Glossary" (an excellent work) is specially devoted to Gothic architecture: the price of the last edition is 32s.*

"N. M." *wishes to know whether the farm of Kidbrooke comes within the operations of the Metropolitan Buildings Act. The terms of the Act are quite clear in this respect. If the farm is "within the exterior boundaries" of Charlton, or other parish named in the Act, the powers of the Act of course extend there; and if not, they operate to an extent of 200 yards from the boundary of such parishes.*

"J. O." (Dorchester).—*Nos. 2, 3, 58, and 82 of* BUILDER *are out of print, and are not likely to be reprinted.*

"Metator."—"*Engineering Field Work, containing practical Land Surveying for Railways, &c., by P. Bruff," will suit his purpose. It is published by Simpkin and Marshall.*

"H. J."—*Notice must be given to the district surveyor whatever the size. It cannot be built of wood.*

"J. L."—*The list suggested will be acceptable.*

"The Improvement of Sewers," "Bridge Building Fraternities," &c., *next week.*

Received: "J. H. M.;" "An Architect" (re window, St. James's Church); "W. K." (Hyde-park); "J. M.;" "A. L.;" "The Railway Review," No. 1, (Simpkin and Marshall).

ADVERTISEMENTS.

ROYAL ADELAIDE GALLERY.—NOVEL ENTERTAINMENT.—Atmospheric Railway daily, with explanatory lecture. The New Zealand Chief, Pahe a Range, will give a course of Lectures on the Manners and Customs of New Zealand, in the evenings of Monday, Wednesday, and Friday next. Mr. Russell continues to deliver his unequalled Lectures on Character, Tuesday, Thursday, and Saturday Evenings. Lectures on Science, &c., Daily, including Major Beniowski's Artificial Memory; Beale's Rotatory Steam-engine; Kollman's Locomotive Engine for ascending inclines on railways. Every Evening a grand Promenade Concert, supported by first-rate talent, both vocal and instrumental.

ROYAL POLYTECHNIC INSTITUTION.—Lectures on the Music of Spain, by Don Jose de Ciebra, with Guitar and Vocal Illustrations, on Tuesdays, Thursdays, and Saturdays, at Half-past Two o'clock. Dr. Ryan's Lecture on the Process for making Ice by Artificial Means, illustrated by Masters' Patent Apparatus, Daily, at Half-past Three o'clock. Also, Mons. Boutigny's experiment of making Ice in a Red-hot Crucible. Professor Bachhoffner's varied Lectures, with experiments, in one of which he clearly explains the principle of the Atmospheric Railway, a model of which is at work Daily. Coleman's New American Locomotive Engine, for ascending and descending Inclined Planes. A magnificent Collection of Models of Tropical Fruits. A new and very beautiful series of Dissolving Views, new Optical Instruments, &c. Experiments with the Diver and Diving Bell, &c., &c.—Admission, One Shilling; Schools, half-price.

HOT WATER APPARATUS. — The attention of architects, builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of heating churches and chapels, halls, stair-cases, conservatories, forcing and green-houses, manufactories, and warehouses, kilns, rooms for drying timber, &c., and every variety of purpose for which artificial heat is required. Within the last twenty years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises. BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

"Knowledge is power."—BACON.
Under the Superintendence of the Society for the Diffusion of Useful Knowledge.

ON and after the 4th of October next, a magnificent TERRESTRIAL THREE-GUINEA GLOBE, 36 inches in circumference, mounted on a handsome mahogany stand, will be presented by the Proprietors of the RAILWAY BELL, London Family Newspaper, to all who pay their Annual Subscriptions in advance of Thirty-two Shillings. A shilling extra if packed in a box. The globes will be delivered in numerical order as they stand upon the presentation list. Give your orders immediately to your Agents.

An allowance of 4s. 6d. is made to the Trade, remitting the cash, 33s., on each order, which includes 1s. for a box.

Specimen Globes, for the trade only, 16s. each, including box and booking.

*** All Agents receiving the Specimen Globe are requested to exhibit it from house to house, when all persons it is expected, with the slightest pretensions to intelligence or respectability, are sure to subscribe.

No orders attended to except accompanied by a remittance.

Price 6d., stamped.—Office, 335, Strand.

GRAINING COLOURS AND LIQUID WOOD STAINS.

HENRY STEPHENS begs to call the attention of Architects, Builders, House Decorators, Painters, Cabinet-makers, and all those engaged in the erection of churches where the appearance of oak is desirable, and those also who are employed in the revival of old carvings, faded furniture, or other ornamental wood work, to his GRAINING COLOURS and LIQUID WOOD STAINS.

The graining colours are prepared in a damp state, and upon so true a principle, that the workman cannot fail in obtaining the natural colour, nor of giving to the work the same effect and appearance at all times. The difficulty of producing a true colour and of preserving the same uniformity with the admixture of earths and oxides, which are the ingredients used in graining, has long been acknowledged. This difficulty is at once removed by these preparations, and the grainer is enabled to confine his attention to his art in graining, without being perplexed in proportioning and mixing his colour.

The LIQUID STAINS are solutions of colours which not only carry additional stain on to the various woods on which they are employed, but when used on the particular wood whose object it is to revive, it combines with and heightens the natural colour inherent in the wood, and is therefore a valuable acquisition to the DECORATOR and to the RENOVATOR of old oak or other carvings. They are also capable of giving colour to the sappy and defective parts of veneers and fine woods used by cabinet-makers and others.

In the decoration of churches, castles, baronial halls, and mansions, in which are often found beautiful specimens of ancient carvings; when the colour of the wood is changed and faded, these liquid stains will be found particularly serviceable.

They also impart to woods of inferior character and of soft texture, such as beach, birch, pine, deal, &c., the colour and appearance of such woods (whether oak, mahogany, rosewood, &c.) as it may be designed to imitate, and thus save the expense of more costly materials.

The above preparations for graining and staining for purposes of imitation and of revival, are prepared by HENRY STEPHENS, and may be obtained at 54, Stamford-street, where specimens of their application may be seen, and also at the Office of "The Builder."

ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architecture and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

Agent for Liverpool, Mr. WYLIE, 56, Gloster-street; ditto for Manchester, Mr. J. THOMPSON, Back King-street; ditto for Chester, Mr. J. HARRISON, Linen Hall-street.

MARTIN'S PATENT CEMENT.

TO ARCHITECTS, BUILDERS, AND PAINTERS IN FRESCO.

STEVENS and SON, PATENTEES and SOLE MANUFACTURERS, beg respectfully to announce that this beautiful Cement has now arrived at a degree of excellence far surpassing their most sanguine expectations. For all internal work it possesses a great superiority over every article hitherto in use; it is now being used extensively by Government in the British Museum and other public buildings. IT DOES NOT THROW OUT ANY SALT, but presents a beautifully plain and perfect surface, which may be painted upon dry work within four days without peeling. It is equally applicable for walls or lath, for mouldings, architraves, skirting, or flooring; and is admitted to form the best ground for fresco painting, having been used for many of the prize frescos lately exhibiting in Westminster Hall. It will bear an intense heat without cracking, and for hardness, durability, and economy, cannot be equalled.

186, DRURY-LANE, LONDON.

Agent for Liverpool and Manchester, Mr. R. Part, 12, Atherton's-buildings, Dale-street, Liverpool.

KEENE'S PATENT MARBLE CEMENT.—The Patentees of this composition beg to refer to the British Museum, the Royal Exchange, the new works at Bethlem Hospital, Greenwich Hospital, and the Coliseum in the Regent's-park, as buildings finished or in progress, in which Keene's Cement has been used as an internal stucco. Its superiority to common plastering consists in its extreme hardness, and the rapidity with which it dries, which qualities fit it to receive paint or other finishing sooner than other water Cement.

When employed for skirtings, architrave, and other mouldings, in place of wood, it checks dry-rot, is impervious to vermin, prevents the spread of fire, and is more economical in its application than the material for which it thus becomes the substitute.

Confirmation of these statements is to be found in the almost universal adoption of Keene's Cement for Skirting and Hall flooring in the new houses on the Hyde Park Estate, where its application is to be seen to the fullest advantage.

In Liverpool and Manchester, Keene's Cement has in several cases been used for the covering of the fire-proof warehouse floors, where its lightness and hardness give it the preference over tiles and flagging, which are much heavier, and necessarily leave the floor intersected with numerous joints, whilst Keene's Cement is laid down in one unbroken surface.

The high polish and marble-like hardness of which this Cement is susceptible render it the most suitable material for the manufacture of Scagliola.

Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

Depôt in Liverpool, 36, Seel-street; James Woods, Agent.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application to MANN and CO., SOLE AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOURED STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the action thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, producible by no other Paint whatever. It is cheap in its application, and may be used by any Painter, in any climate, even in the most exposed Marine situations.

The Builder.

No. CXLI.

SATURDAY, OCTOBER 18, 1845.

FOR a long time past the church of St. Benet Fink, in Threadneedle-street, has presented a ruinous appearance to the passers-by, in consequence of the re-val of the tower that stood at the west end he building at the time the site was cleared the new Royal Exchange and adjacent im-ovements.

The present church of St. Benet, Fink, called from one Robert Finck, or Finch, o built a previous church on the same site stroyed by the fire of 1666), was completed Sir Christopher Wren, in 1673, at the ex-se of 4,130*l.* The tower was square, sur-unted by a cupola of four sides, with a small ret on the top, and had a large recessed rway on the north side, of very good de-n.

The arrangement of the body of the church ery peculiar,—we may say unique, and al-ugh far from beautiful, affords a striking tance of Wren's wonderful skill. The plan the church is a decagon, within which, six nposite columns in the centre support six ni-circular vaults, that are carried upon hitraves and cornices to the external walls, l inwardly are faced with archivolts: between se rises an oval cupola. The effect of the ies of arched chapels, so to speak, around central area is singular. Wren's power of anging a plan to suit the site is shewn in nerous buildings, but in none more forcibly n in this small church.

The destruction of this building was threat-d some time ago, and elicited many expres-ns of regret from the public,—so many, in-d, that we had hoped the intention was ndoned. We now learn with infinite re-t that the work of demolition is to be com-nced almost immediately, and that the in-esting structure in question will be cleared y entirely.

The destruction of a church should never permitted without the most cogent reasons, ts architecture be what it may; and, if on other ground, we should therefore protest ngly against the contemplated *improvement;* n in addition, however, the building eatened is seen to be the work of one of the atest architects England ever had, a pe-ar example of his skill, sound and likely to tinue so, if not interfered with, much longer n half the new houses around it,—we feel nd to express our dissent from the inten-in the strongest terms, with the faint e that it may induce some member of the provement Committee to bring the subject e more under consideration before it be too

It will be very easy to take the building n, but very difficult to replace it. Public venience must of course be studied, and if Benet's stood in the way, and absolutely pre-ed the improvement of the thoroughfare, we uld grieve at its removal, but bow to the ne-ity. This, however, is not the case, and we l be forced to cry, shame on those who may oncerned in the wanton destruction of this able example of our great countryman's .

We refer our readers to a valuable and novel table for calculating the strength of cast-iron girders, which will be found on another page of the present number. It is prepared by a gentleman well known for his acquaintance with the subject.

THE BRIDGE-BUILDING FRATERNITIES IN THE MIDDLE AGES ON THE CONTINENT.

THE earliest method of passing large streams in ancient Gaul and Germany, was by the means of rafts, or even large bags of skins—as is known from inscriptions and other monuments. For the sake of assisting travellers, and aiding the circulation of merchandise, regular *guilds* of Lenuncularii, Lintrarii, and Utricularii were formed on the Seine, Sambre, Loire, Rhône, Durance, etc.; which, however, degenerated at times to that pitch, that they plundered travellers, and to use the expression of an ancient author, not only assisted in passing rivers, but even conveyed people into the waves of the Styx. Benevolent persons, therefore, decided on erecting at frequented places on the borders of rivers, hostelleries, constructing rafts, and, in fine, on building bridges.* These pious associations were called Pontifices (Ponties), resembling the ancient appellation of a similar kind. But the deserts and the memory of this truly *Christian* association—because there were *no* bridge-builders amongst the *fabri* of the Roman Empire—would have been probably lost, if it had not been preserved by the legend of a French shepherd called *Benezet*, whom the Roman Church reckons amongst their saints. It is, however, not known, whether Benezet was the founder of this society, or merely one of its first members. The wonderful acts which are ascribed to him have been the inducement for recording this association, which still is not sufficiently known. *Benezet*, which signifies the little Benedict, a poor shepherd, born at Hauvilas, in the Vivarais, came (according to narration) in 1177 into the Cathedral of Avignon, at the time when the Archbishop consoled the people about the horror of a solar eclipse. He declared himself called upon by heaven *to build a bridge* over the Rhône—a work then considered impossible, at least stupendous. The Archbishop treated him as a maniac (!), and sent him before the civil authorities, who proposed him, in the way of derision, to *begin* with a stone lying on the banks, such as twenty people could hardly have moved. Benezet *rolled* the stone away; and whatever we may think of the occurrence, still, it is a fact, that in 1185, already a toll was levied on the bridge of Avignon! Although it has been calculated that there was no solar eclipse in the year 1177—but the year following, such inaccuracy of date can hardly militate against the truth of the *leading features* of that legend. It does not detract from Benezet's merit either, that at his times, and even sooner, there existed pious fraternities for the comfort of travellers and pilgrims (Romieux)—which the holy men adapted to the building of bridges for all. Such has been the origin of that splendid monument of the middle ages—the most stupendous bridge in Europe, perhaps in the world. Its length extended to 2,770 feet, and was spread over twenty-one arches, which, however, were constructed in three *different* directions.* There is a charter of 1187, by which Johannes Benedictus, "Prior of the Bridge," obtained for himself and *brothers* a chapel and cemetery, and a chaplain. St. Benezet died in 1184; still in 1185 the bridge building fraternity began the construction of the Bridge of the Holy Ghost (*Pont du St. Esprit*) over the Rhône at Lyons, not finished but in 1305. It is now the largest bridge in Europe, being 2,524 feet long. This bridge also does not keep one straight direction, but has several bends, for adapting itself to locality, depth of water, &c. The bridge of Avignon was finished in 1188, and has always been considered as one of the wonders of France. There, I see it lie—long reaching, and smoothly laid over the Rhône, perceived from afar as you glide down the river. Popular tradition, which often leaves unheeded the so-called great deeds of the great, has faithfully preserved the memory of Benezet, and every peasant will tell you, that it was a shepherd who planned it. The finishing of this stupendous work confirmed the fame of the bridge-building fraternity, which was constituted and chartered in 1189 by Pope Clemens III.

Alike as its foundation is wrapt in obscurity, its shrinking also before the rays of (so-called) modern civilization, is not properly ascertained. How they ceased in Avignon, their head quarters, or whether they merged in some of the subsequent secular guilds, is not known. In other parts of France, as in Bon-Pas on the Durance, where charters of 1270 mention their existence; at Lourmain, between Aix and Apt, &c., their very name suddenly faints away in the noise and bustle of subsequent war and butchery.

As the construction of bridges was considered, in the middle ages, amongst the *works* of Christian *piety*,*—Italy, Spain, Sweden, and Denmark, possess several bridges which own the same origin, although it is not yet ascertained whether regular fraternities existed for that purpose. Still the Swedish chronicles mention one Benedict between 1178 and 1191, as a bishop and bridge-builder at *Skara*, who, a contemporary of Benezet, might have become illuminated from the same source. As the Templars of Spain had the duty of aiding the passing of pilgrims to Jerusalem, the old Roman road in Lower Navarra received the name of the Templar's Road. With such and similar pursuits, it cannot be wondered that the property of the bridge-building fraternity was, in many instances, surrendered to the order of St. John of Jerusalem (*frères hospitaliers*) and thus merged into it. The traces of analogous fraternities in Germany (England?) have not yet been properly examined. To its examination in France, *two* great names have chiefly contributed, *Gregoire*† and *Millin*. It was an ancient inscription near Mirabeau, on the Durance, found in the chapel near the place where the raft ordinarily starts from, which gave rise to the whole inquiry. It may be interesting for our readers to know, that the habit of the Knights of the Hospital of *St. Jacques-du-haût-pas*, at Paris (most probably an analogous fraternity in those times), exhibits, as shewn in their sepulchral monuments, a *pick* on their breast—while that of the Holy Ghost fraternity of Monpelliers consists of two road bridge-arches and a cross. [From German sources]. J. L.

* It is strange to observe, that most of the actual *speculations* of our times were objects of philanthropy in the middle ages. So, moreover, the business of pawnbroker, whence the Italian and French name: *Monte de Pietà, Mont de Piétée—mount of piety.*

* Details and drawings of this stupendous construction are to be found in *Gauthey* "Traité de Construction des Ponts; whence they have been copied into *Wiebekings* "Art of Water-building."

NEW CHURCH AT WILTON, NEAR SALISBURY.

THE new church at Wilton, dedicated to St. Mary and St. Nicholas, was consecrated on the 9th inst.

IT is of Byzantine architecture, coeval with the Norman of this country, *i. e.* of the eleventh century. It is 150 feet long, 50 wide, and 57 feet high internally, and is entirely faced with freestone, the inner portion of the walls being of brick. It stands upon a platform running all round the church, and is approached in front by a flight of six steps of Portland stone, the lowest step being about 100 feet in length. The plan consists of a central porch, a nave, side porches and aisles, chancel, chancel aisles, and three apsides, with a vestry and a bell campanile connected with the church merely by an open cloister, which is very richly ornamented, and consists of double columns on each side, standing on a basement or plinth. The building as a whole, externally, presents an imposing aspect, standing, as it does, isolated in the midst of an extensive area, and the general effect is unimpaired by the contiguity of other and incongruous buildings. The church stands well back from the street, from which it is divided, close to the footway, by a low wall, surmounted by handsome iron railings. The elevation on this side has three rich door-ways, in recessed arches, the principal one being elaborately carved with six columns. In the centre are a series of small windows, lighting a passage

* Morini Sacram. Pœnitentiæ. Paris, 1655, p. 768.

† Recherches historiques sur les frères pontifes. Paris, 1818, 8vo.

and staircase at the back of the gallery; a rose window, 16 feet in diameter, with twelve compartments richly carved, having the four evangelical emblems at the angles, fills the centre.

The clerestory is supported on columns of Bath stone, having capitals of rich and varied sculpture, executed with most delicate skill. Semicircular arches, and a row of triforium windows lead to the windows in the clerestory. The roofs of the naves and aisles are of open wood-work, the external covering being of slate.

The pavement of the centre aisle is inlaid in a series of ornamental crosses, and the chancel floor is covered with a mosaic pavement in rich and varied colours and design, approached by a flight of six steps from the nave. From the chancel, three Italian marbles steps, 18 feet in length, lead to the central apse, which has also a most splendid inlaid marble pavement, and is richly ornamented by marble columns, forming a reredos of seven panels, which are thus filled:—In the centre, the Cross, with the inscription, "He was wounded for our transgressions;" in the four adjoining compartments, the Lord's Prayer, the Creed, and the Beatitudes; and in the two extreme panels, the Cross, and other scriptural ornaments illuminated by Mr. Osmond, jun., of Salisbury.

The font is of various coloured marbles. The desk, from which the lessons are read, stands in the centre aisle, supported by a large carved and gilt eagle, standing upon a pedestal ornamented with mosaic panels. The pulpit, which forms a quarter of a circle, and is concentric with one of the stone pillars of the nave, is perfectly unique. Nine marble columns, with carved alabaster capitals, form its support, surmounted by a freize and cornice in Caen stone, with a row of twisted marble columns richly inlaid in curious tesselated ornamental work, partly in marble. The desk is of wood, richly carved in groups representing the Apostles, in bold relief.

The chancel rails afford a kneeling space of sixty feet in length, and the communion-table is the one hitherto used in the old church.

One of the chancel aisles contains a choir organ, recently enlarged and altered by Mr. Bevington, of London, assisted by Mr. Prangley, of Salisbury. In the apse of this chancel aisle is a large and massive parish chest of ancient workmanship; and the opposite chancel contains several large and handsome monuments of members of the Pembroke family, removed hither from the old church.

The country owes thanks to the Right Hon. Sidney Herbert for the erection of this costly structure, and we congratulate him on the manner in which his intentions have been carried out by his architects, Messrs. Wyatt and Brandon. The builders are Messrs. D. and L. Jones, of Bradford. Mr. Edmund Spurr was clerk of the works. The coloured decorations were executed by Mr. Willement.

THE NEW THEATRE ROYAL, MANCHESTER.

This building, erected in Peter-street, in place of that in Fountain-street, lately destroyed by fire, was opened on the 29th ultimo. The architects are Messrs. Irwin and Chester, of Manchester, and the building has been constructed by Messrs. Pauling and Henfrey. The external dimensions are 200 feet in length, on the longest, and 171 feet on the shortest side, and 69 feet in width. Exclusive of the rooms and hotel, at the back, the theatre is about 155 feet in length. Though the area little exceeds 1,400 square yards, the space is more available than that of the late theatre, which was nearly 1,800 square yards.* The internal dimensions are:—from the back wall of the centre box to the back wall of the stage, 120 feet, and between the side walls of boxes 55 feet. Mr. Beazley has expressed his opinion,† that a theatre should not exceed 50 feet in diameter from box to box, or 55 feet from the curtain to the front box, considering this size the best for sound, and scenic effect. He prefers the form approaching the horse-shoe. In the new theatre, from the curtain to the balcony of the centre box is 45 feet, nearly 4 feet less than the old theatre; and across the pit, between the boxes, the distance is 40 feet. The centre boxes are 15 feet deep, with six rows of chairs:—the upper tiers of boxes have seven rows of seats. The ceiling of the theatre is 48 feet above the floor of the pit. The stage advances towards the house in a curved form on the plan, 15 feet in advance of the curtain, and is 75 feet from the "float" to the back wall. The form of the horse-shoe is very slightly contracted at the proscenium, as in the English Opera House, and is presumed to be very favourable for the effect of vocal performances. The theatre is built of brick, with a lofty stone front in Peter-street. This consists of two Corinthian columns *in antis*, inclosing a recessed portico, and supporting an arch. The entablature returns round the back of the portico, in the centre intercolumn. The whole is surmounted by a plain pediment, not forming part of the order. The building, being isolated, has better arrangements for ingress and egress, than often we find in London theatres. The audience part of the house consists of four tiers, and the pit floor. On the floor, which has a fall, towards the stage, of 2 feet 6 inches, are the stalls, the orchestra, and the pit, which last extends under the boxes. There are two tiers of boxes, with the slips, and lower gallery above, and an upper gallery in the centre, formed within the roof. The supporting pillars to these tiers are placed at the back of the boxes, so that there is no impediment to the view, and it was here that all the skill of the architects was called for. Iron girders are employed to support the overhanging fronts of the boxes, tailing into the work an equal distance in the opposite direction, and being firmly screwed down at this extremity, and tied by a rod of iron to the lower part of the work, and further weighted down by a pile of brickwork. Omitting the hotel, the rooms in the theatre include two green-rooms, dressing-rooms, wardrobe, and costumier's room, treasury, manager's room, and others. The carpenter's workshop is in the roof over the pit: the property-man's room, the painting-room, 54 feet long, by 15 feet wide, with its two large "frames," each 40 feet by 22 feet, are above the stage and rooms at the back: the gas-fitter's and smith's places, and rooms of the supernumeraries are in the lower floors; and beneath the green-room is a tuning-room, where the band can practise, without being heard by the audience. The building has taken longer to complete than was expected, being commenced in October 1844: it should have been completed by the 1st of July last, and even now the saloons are incomplete. Adjacent to the saloon of the dress circle, is a cloak-room for gentlemen, and retiring rooms for ladies. These apartments are to be fitted up, in a costly manner, with marble chimney-pieces, with black and gold, and will be lighted by handsome cut-glass chandeliers. The dimensions of the saloon of the upper boxes are 30 feet by 17 feet, and in the centre the roof is vaulted in a semicircular arch, springing from an entablature, which is supported by Corinthian columns. The ceiling is panelled, and enriched with ornaments. The accommodation in the audience part of the house is as follows:—The stalls will seat seventy-seven persons; the seats in the pit, in eleven rows, will seat 500 persons. The dress circle contains 300 chairs, and is entered by nine doors. The next tier will accommodate about 350 persons, exclusive of two private boxes, which are on the same level. Neither of the tiers have the usual box barriers. The next tier comprises the lower gallery, and the slips: the former will hold about 450 persons, and the latter 110 persons. The upper gallery will seat about 300 persons. The private boxes are eight in number,—four on each side the house. The larger boxes are furnished with twelve chairs each, and the smaller with six chairs. Three boxes on each side are in the proscenium. One of these is the proprietor's box, having a stair adjoining, leading to near the station of the prompter, and a window, looking on to the stage. Each of the six proscenium boxes has an ante-room with fire-place. Though the number of persons able to be accommodated has been stated, as above—in the total 2,147 persons,—the number present on the opening night was 2,468 persons.

The stage has a rise of 2 feet 9 inches in the 75 feet, from front to back; and in this part of the house are many improvements in mechanism. The side scenes or "flats," which at Drury-lane Theatre are preserved in the large space at the back of the stage, are here so contrived as to ascend or descend, and the ground has been excavated 21 feet below the level of the stage for the purpose. About 8 feet below the stage is a mezzanine floor useful in the working of the "traps" required in pantomimes, and for the disappearance of spectres. The traps are all on an improved plan, and are worked by counterbalance weights. The largest trap is 30 feet in length, and will ascend above the stage;—it is worked by a large windlass in the basement floor. The whole of this part of the building is admirably contrived. The whole of the interior decorations were from the designs of Mr. Chester, and were executed by Mr. George Jackson, of Manchester. The style is Italian with a character of *renaissance*. The fronts of the different tiers are enriched with scrolls of excellent design, executed in *carton pierre* and gilded. There is great variety in the designs, and they are well relieved. The colours employed are almost exclusively white and gold. The proscenium is enriched with pilasters, surmounted by a circular pediment; its tympanum filled with elaborate decoration and having on each side a gilded statue. The whole of these decorations are of the richest description, and are in the highest degree creditable to Mr. Jackson. It is stated in the *Manchester Guardian*, that upwards of 2,000 books of gold leaf were consumed. The large chandelier, and the smaller ones, were all designed by Mr. Chester, and were supplied by Mr. Agnew, of Manchester. They are of excellent design. The largest cost about 150*l*. As a provision against fire, a large reservoir has been constructed on the roof of that part of the building, which is behind the stage. The roof itself—by means of parapet walls, coated with a species of asphalte, termed *Paraqua*, has been converted into one cistern which will hold a depth of water of 18 inches, in all about 20,000 gallons. A large iron pipe descends from this enormous tank, with openings, one on the level of the green-room, and the other on the stage, near the hall door. Each orifice is prepared to receive a long canvass tube or hose, which is suspended close by, and can be attached in a few seconds.

Thus a copious supply of water is obtained, which can at once be directed to any part of the theatre. From inquiries, from parties present in the pit, on the opening night, we find, that the warming and ventilating arrangements are there of the best description. From a visit to the upper and lower galleries on another evening, we can assert, that the ventilation is much more perfect, than usually found in such elevated regions. This part of the work was executed by Mr. Wm. Walker of Manchester. Cold air, being admitted into the basement, is there heated, and admitted separately to all the different parts of the house; the vitiated air is discharged by shafts, and apertures on every floor, and by a large aperture in the ceiling.—The cold air is admitted by two window apertures into the vault, in which is placed a large furnace. Over this is a water-boiler, with connecting pipes to heating boxes. There are five heating boxes, each of which contains upwards of 200 square feet of heating surface, within a comparatively small space; and to attain the same amount of heat, under the old plan, would have required a large chamber. Of this system we shall probably give some further account. From these boxes, five brick shafts proceed beneath the pit, in various directions, branching off to the different parts of the house and by means of perforations in the floors the warm air is distributed equally. There are internal openings, within the ceiling of each tier for the discharge of the vitiated air, and all these are connected with the main shaft, which is of considerable diameter, and passes out through the roof, above the aperture over the large chandelier.

The total cost, including land, building, furnishing, and fitting up, will reach 23,000*l*. The work is in the highest degree creditable to the architects, who have interested themselves in all the details with zeal and success. We are glad to hear that they were presented with testimonials on the opening night.

* We have to acknowledge the attention shown to us by the architects, during several examinations of the building, previous and subsequent to the opening. We suppose that their very arduous duties prevented their supplying us with the data, and dimensions, promised, and which we have here taken from the *Manchester Guardian*. But, we are assured by them, that the data given are substantially correct.

† Vide the Report of the Committee on Dramatic Literature. 1832.

TABLE

For facilitating the Computation of Cast-Iron Beams; such as are usually employed for Bearers in Buildings and on Railways.

ARGUMENT.—Inches and tenths in the depth of the section.

In.	·0	·1	·2	·3	·4	·5	·6	·7	·8	·9
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
0	0·0000	0·0038	0·0152	0·0342	0·0608	0·0950	0·1368	0·1862	0·2432	0·3078
1	0·3800	0·4598	0·5472	0·6422	0·7448	0·8550	0·9728	1·0982	1·2312	1·3718
2	1·5200	1·6758	1·8392	2·0102	2·1888	2·3750	2·5688	2·7702	2·9792	3·1958
3	3·4200	3·6518	3·8912	4·1382	4·3928	4·6550	4·9248	5·2022	5·4872	5·7798
4	6·0800	6·3878	6·7032	7·0262	7·3568	7·6950	8·0408	8·3942	8·7552	9·1238
5	9·5000	9·8838	10·2752	10·6742	11·0808	11·4950	11·9168	12·3462	12·7832	13·2278
6	13·6800	14·1398	14·6072	15·0822	15·5648	16·0550	16·5528	17·0582	17·5712	18·0918
7	18·6200	19·1558	19·6992	20·2502	20·8088	21·3750	21·9488	22·5302	23·1192	23·7158
8	24·3200	24·9318	25·5512	26·1782	26·8128	27·4550	28·1048	28·7622	29·4272	30·0998
9	30·7800	31·4678	32·1632	32·8662	33·5768	34·2950	35·0208	35·7542	36·4952	37·2438
10	38·0000	38·7638	39·5352	40·3142	41·1008	41·8950	42·6968	43·5062	44·3232	45·1478
11	45·9800	46·8198	47·6672	48·5222	49·3848	50·2550	51·1328	52·0182	52·9112	53·8118
12	54·7200	55·6358	56·5592	57·4902	58·4288	59·3750	60·3288	61·2902	62·2592	63·2358
13	64·2200	65·2118	66·2112	67·2182	68·2328	69·2550	70·2848	71·3222	72·3672	73·4198
14	74·4800	75·5478	76·6232	77·7062	78·7968	79·8950	81·0008	82·1142	83·2352	84·3638
15	85·5000	86·6438	87·7952	88·9542	90·1208	91·2950	92·4788	93·6662	94·8632	96·0678
16	97·2800	98·4998	99·7272	100·9622	102·2048	103·4550	104·7128	105·9782	107·2512	108·5318
17	109·8200	111·1158	112·4192	113·7302	115·0488	116·3750	117·7088	119·0502	120·3992	121·7558
18	123·1200	124·4918	125·8712	127·2582	128·6528	130·0550	131·4648	132·8822	134·3072	135·7398
19	137·1800	138·6278	140·0832	141·5462	143·0168	144·4950	145·9808	147·4742	148·9752	150·4838
20	152·0000	153·5238	155·0552	156·5942	158·1408	159·6950	161·2568	162·8262	164·4032	165·9878
21	167·5800	169·1798	170·7872	172·4022	174·0248	175·6550	177·2928	178·9382	180·5912	182·2518
22	183·9200	185·5958	187·2792	188·9702	190·6688	192·3750	194·0888	195·8102	197·5392	199·2758
23	201·0200	202·7718	204·5312	206·2982	208·0728	209·8550	211·6448	213·4422	215·2472	217·0598
24	218·8800	220·7078	222·5432	224·3862	226·2368	228·0950	229·9608	231·8342	233·7152	235·6038
25	237·5000	239·4038	241·3152	243·2342	245·1608	247·0950	249·0368	250·9862	252·9432	254·9078
26	256·8800	258·8598	260·8472	262·8422	264·8448	266·8550	268·8728	270·8982	272·9312	274·9718
27	277·0200	279·0758	281·1392	283·2102	285·2888	287·3750	289·4688	291·5702	293·6792	295·7958
28	297·9200	300·0518	302·1912	304·3382	306·4928	308·6550	310·8248	313·0022	315·1872	317·3798
29	319·5800	321·7878	324·0032	326·2262	328·4568	330·6950	332·9408	335·1942	337·4552	339·7238
30	342·0000	344·2838	346·5752	348·8742	351·1808	353·4950	355·8168	358·1462	360·4832	362·8278
31	365·1800	367·5398	369·9072	372·2822	374·6648	377·0550	379·4528	381·8582	384·2712	386·6918
32	389·1200	391·5558	393·9992	396·4502	398·9088	401·3750	403·8488	406·3302	408·8192	411·3158
33	413·8200	416·3318	418·8512	421·3782	423·9128	426·4550	429·0048	431·5622	434·1272	436·6998
34	439·2800	441·8678	444·4632	447·0662	449·6768	452·2950	454·9208	457·5542	460·1952	462·8438
35	465·5000	468·1638	470·8352	473·5142	476·2008	478·8950	481·5968	484·3062	487·0232	489·7478
36	492·4800	495·2198	497·9672	500·7222	503·4848	506·2550	509·0328	511·8182	514·6112	517·4118
37	520·2200	523·0358	525·8592	528·6902	531·5288	534·3750	537·2288	540·0902	542·9592	545·8358
38	548·7200	551·6118	554·5112	557·4182	560·3328	563·2550	566·1848	569·1222	572·0672	575·0198
39	577·9800	580·9478	583·9232	586·9062	589·8968	592·8950	595·9008	598·9142	601·9352	604·9638
40	608·0000	611·0438	614·0952	617·1542	620·2208	623·2950	626·3768	629·4662	632·5632	635·6678
41	638·7800	641·8998	645·0272	648·1622	651·3048	654·4550	657·6128	660·7782	663·9512	667·1318
42	670·3200	673·5158	676·7192	679·9302	683·1488	686·3750	689·6088	692·8502	696·0992	699·3558
43	702·6200	705·8918	709·1712	712·4582	715·7528	719·0550	722·3648	725·6822	729·0072	732·3398
44	735·6800	739·0278	742·3832	745·7462	749·1168	752·4950	755·8808	759·2742	762·6752	766·0838
45	769·5000	772·9238	776·3552	779·7942	783·2408	786·6950	790·1568	793·6262	797·1032	800·5878
46	804·0800	807·5798	811·0872	814·6022	818·1248	821·6550	825·1928	828·7382	832·2912	835·8518
47	839·4200	842·9958	846·5792	850·1702	853·7688	857·3750	860·9888	864·6102	868·2392	871·8758
48	875·5200	879·1718	882·8312	886·4982	890·1728	893·8550	897·5448	901·2422	904·9472	908·6598

DESCRIPTION AND USE OF TABLE,

FOR CALCULATING STRENGTH OF CAST-IRON BEAMS.

THE numbers in the foregoing table are of e greatest use in estimating the strength and mensions of cast-iron beams, when employed girders or breastsummers in large and impor- nt structures. They have been computed for e limit of safety, from the results of experi- ents performed on a medium quality of the aterial, and may therefore, be considered as tter adapted for general practice, than if they d been obtained from metal approximating either extreme of hardness or softness, and consequence possessing a higher degree of idity or flexibility, according to the nature the approximated extreme. The numbers the body of the page are expressed in tons d decimals of a ton; those in the left-hand lumn are inches in the depth of the trans- rse section, and those at the top of the co- mns, numbering from 0 to 9, are tenths of an ch also in the depth of the transverse sec- n, so that the table embraces a depth of sec- n for every tenth of an inch from zero to ty-nine inches, and is, consequently suffi- ntly extensive for every practical purpose, it seldom happens, even in the very largest rks, that a section is required exceeding four t in the direction of the strain.

The chief advantage which this table pos- ses over others of a similar character that ve long been in use, consists in its brevity and extent of its application; and these advan- es it derives from the circumstance of being nputed for one inch of thickness or breadth section, and one foot in the length of bearing distance between the supports; this in ne respects, is a very great convenience, and re especially, where extensive calculations necessary; but it is in some degree objec- nable, as it requires a subsidiary multipli- ion and division to obtain the final result; s objection however, has very little force en placed against the advantages which are erwise afforded by the arrangement.

The following examples will elucidate the use he table under various circumstances, and, being of a practical nature, it is hoped they will be found of value to the mechanic, in guiding him to the calculation of similar cases that may happen to present themselves in the course of his practice.

Example 1.—A cast-iron beam of a regular rectangular form both in elevation and section, is loosely supported in a horizontal position on two walls at the distance of 26 feet from each other; what load will it sustain with safety applied at the middle of its length, or at an equal distance from each wall, supposing the breadth of the section to be $2\frac{1}{2}$ inches and the depth 30 inches?

Now, the arrangement indicated by this example is perfectly obvious, and therefore requires no diagram to illustrate it; and the argument with which the table is to be entered is simply the depth of the section in inches; consequently, under zero or 0 at the top of the table, and opposite 30 in the left-hand column we find the number 342, which is the number of tons that a beam of the same depth as that which is given will support, when the breadth is one inch, and the length of bearing one foot. But, according to the laws of resistance, the strength is directly as the breadth when the depth is given, and inversely as the length of bearing; that is, *multiply the tabular strength by the given breadth of section, and divide by the length of bearing for the weight which the beam can sustain with safety under the given conditions.*

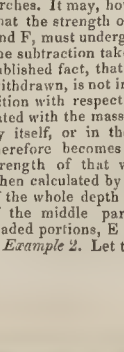
Hence we have $342 \times 2\frac{1}{2} = 855$, and this divided by 26, gives $855 \div 26 = 32\frac{23}{26}$ tons, the load that the given beam can sustain at the middle of its length; but this includes the effect produced by the weight of the beam itself, which ought always to be taken into consideration; for when omitted, as is too frequently the case on many important occasions, the omission may be attended with very serious consequences.

It is demonstrable by the principles of mechanics, that the effect produced by the weight of the beam itself in augmenting the strain, is the same as if one-half that weight were applied to the middle of its length, and in consequence of this mechanical condition, the calculated strength must always be diminished by half the weight of the beam, whe that weight itself can be determined, which indeed can always be done when the dimensions of the beam are known. Now in the present instance, the area of the middle transverse section is 75 square inches, for $30 \times 2\frac{1}{2} = 75$, and since the section is uniform throughout the length, the weight of one foot in length for cast-iron of medium specific gravity may be taken at 240lbs., that is, 3·2lbs. for a bar one inch square and one foot long; consequently, for 13 feet or half the length of the beam, it is $240 \times 13 = 3{,}120$lbs. or $1\frac{1}{7\frac{1}{2}}$ tons, for the effect produced by the weight of the beam, therefore, by subtracting this from the calculated strength, we get $32\frac{23}{26} - 1 = \frac{1}{2}$ $31\frac{1}{2}\frac{7}{6}$ tons, the safe load on the middle of the beam.

Now, all this is perfectly obvious when a beam of the given form is supported at the ends and loaded in the middle of its length, but when the load is uniformly diffused between the points of support, the load as calculated above may be doubled without producing any difference in the effect of the straining force as referred to the central rupture, the deflection only being varied in consequence of the uniform load. But if the ends of the beam be firmly fixed into the walls, instead of being merely supported on them, the load which it can safely sustain under this latter condition, when applied at the middle of the length, is one-half more than when the ends are loose, and the same thing holds when the load is uniformly diffused throughout the length.

However useful the foregoing table may be when applied to the calculation of beams of which the transverse section is simply rectangular, it becomes much more so when applied to beams of that form of section now so generally employed in flooring and in the construction of railways, viz., those which have a flange or feather on the upper and the lower side, known as the *double flanged*, or I *formed section.*

The formula which supplies the rule for this form of beam is of rather a complicated character, and in consequence is somewhat difficult to apply; but when we consider the section as being equal to the difference between two rectangular sections, the difficulty disappears, and the calculation is performed by our table with the greatest imaginable ease.



The section thus constituted is represented by the dark shaded part of the marginal figure, the lighter shaded parts E and F being left out to form the feathers or flanges at the upper and lower sides of the beam.

Here then it is obvious that if we consider the section to be an entire rectangle, as denoted by ABCD, the strength of that section may be calculated as in the preceding case. And, in like manner, the parts marked E and F may either be considered as forming two independent rectangular sections, or they may be brought together and considered as one section only, being of precisely the same value as to strength in either case; then, if the strength of the rectangular section, which is made up of the parts marked E and F, be subtracted from the strength of the entire section ABCD, the remainder will be the strength of the double flanged or I formed section so universally employed in the construction of railway arches. It may, however, be proper to remark, that the strength of the section denoted by E and F, must undergo some modification before the subtraction takes place, for it is a well established fact, that the metal which is to be withdrawn, is not in the same mechanical condition with respect to strength when incorporated with the mass, that it is when considered by itself, or in the state of detachment; it therefore becomes necessary to reduce the strength of that which is to be subtracted when calculated by the table, in the proportion of the whole depth of the section, to the depth of the middle part denoted by the lighter shaded portions, E and F.

Example 2. Let the whole depth of a double

flanged beam of uniform section throughout the length, be 38·7 inches, and the depth of the middle part, or that between the flanges 2·5 inches; what weight will it sustain at the middle of its length, supposing it to be supported on two props 36 feet asunder, the whole breadth being 9·3 inches, and the thickness of the middle part 3·1 inches?

Referring to the table opposite 38 inches in the left hand column, and under ·7 at the top, we find the number 569·1222, which being multiplied by 9·3, the whole breadth of the section gives 5292·83646 tons, for the strength of a beam of the given section considered entire, one foot long.

From the whole breadth of the section, subtract the thickness of the middle part, and we get 9·3—3·1=6·2 inches, for the breadth of the section composed of the two portions marked by the letters E and F, of which the depth is 32·5 inches; then opposite 32 in the left-hand column and under ·5 at the top of the table, we get 401·375, which being multiplied by 6·2, gives 2488·525 tons, for the strength of a beam of the section 32·5 by 6·2 inches, and 1 foot in length; but before this strength be taken from that of the whole section previously calculated, it must be reduced in the proportion of the depths; thus we have

38·7 : 32·5 : : 2488 525 : 2089·84657 tons.

Let this therefore be taken from the strength of the whole section, and let the remainder be divided by the length of bearing, and we get (5292·83646 — 2089·84657) ÷ 36 = 88 972 tons nearly.

And in this way may the strength of any other beam of the same form be calculated; thus avoiding the difficulty incident to the formula and the rule deduced from it; and by reversing the operation, the dimensions may be found to sustain any required load, when certain other dimensions are given. T.

REMAINS OF THE FRANCISCAN FRIARY AT READING.

At the late meeting of the Archæological Institute, Mr. John Britton, architect (of Reading), read a paper on the history and present state of the friary in that town, the interesting ruins of which building are seen on approaching Reading by the railway. The following is the substance of the communication:—

At the north-west extremity of the town of Reading stands what was formerly the house of the Friars Minors. It was a religious foundation of the Order of St. Francis, which was introduced into England in 1224—the eighth year of Henry III.,* and was founded in Reading in 1233.

By a deed, dated that year,† July 14, Adam de Lathbury, then abbot, and the convent of Reading granted to the Friars Minors in Reading "a certain piece of waste ground near the King's highway leading to Caversham-bridge, containing thirty-three perches in length, and twenty-three in breadth, with a permission to build and dwell there so long as they should continue without acquiring any property of their own;"—but as the deed recites—"if at any time, by any accident, or by any means, it should come to pass that the Friars Minors should have any property, or any thing of their own, they have agreed for themselves and their successors for ever, that it should be lawful for us and our successors, by our own authority, to expel them from every part of our land, without the hinderance of any contradiction or appeal."

Under the same penalty of expulsion, the friars "were bound not to seek any other habitation on any part of the abbey lands; nor to extend the limits of what was already granted them; nor to request any thing but what was gratuitously and spontaneously allowed them; nor to receive any oblations, tithes, or mortuaries due to the abbey. If the friars should be expelled by the monks of Reading Abbey for any other causes than those above-mentioned, it was agreed that they should be reinstated by the King's authority, and enjoy in their own right what had been granted them by the abbey. If the friars should voluntarily relinquish their habitation, the buildings and site of the edifice should belong to the abbey."

* Leland's Colectanea, vol. iii., p. 341.
† Cotton. Library. Vespasian, E. 25.

By a subsequent deed, another piece of ground was granted them, immediately contiguous to the area already occupied by them; the conditions are the same as in the former grant, except the addition of a clause restraining them from interring in their cemetery, church, or any other place, the bodies of the parishioners of the monastery, or of any other of the churches belonging to the abbey in the town of Reading, or elsewhere, without special licence. This deed is dated the 7th before the Kalends of June, in the year 1285.

In 1288‡, Robert Fulco left by will to the Friars Minors in Reading, certain void pieces of ground in New-street, now Friars-street, adjoining to their former possessions. Edward I., in his thirty-third year, 1306, issued a precept to John de London, clerk, constable of his Castle of Windsor, to this effect—"Whereas our beloved and faithful subject, Robert de Lacy, Earl of Lincoln, hath given to our beloved in Christ, the friars minors residing at Reading, fifty-six oaks of the most proper for building timber in his wood of Asherigge, which is within the limits of our forest of Windsor, we command you that you permit the said friars to cut down the said oaks, and carry them wherever they please, and consult their own convenience in the same. Witness, the King at Odyham, the 11th day of January. The buildings for which this timber was required were not completed before 1311, as Alande Bannebury, who died at Reading in that year, bequeathed by will "*operi fratrum minorum*," to the work or building of the Friars Minors, five shillings.

We have no account of the building, nor of the number of the friars who resided in it; from the small extent of the ground, it was neither roomy nor elegant, content, agreeably to the spirit of their order, with the meanest accommodation for themselves, their principal care seems to have been to erect a house of prayer suitable to the religion they professed, which from its being more substantially built is the only part of their possessions which has withstood the ravages of time.

DESCRIPTION OF THE RUINS.

The church as it now stands consists of a nave with north and south aisles. Originally there was a chancel and a tower, as we are informed by Dr. London in a letter to Thomas Lord Cromwell, dated Sept. 17th, at Reading, in the 30th year of Henry VIII., that "as soon as he had taken the friars surrender, the multitude of the poverty of the town resorted thither, and all things that might be had they stole away, insomuch that they conveyed the very *clappers* of the *bells*." All that now remains of the chancel is the arch and pillars, and this is partly bricked up in the wall of an adjoining house. There are no remains of a porch, but it is not probable that so large a church could have been destitute of this essential feature. The south doorway is of two orders, deeply recessed, and consists of a succession of deep hollows with two members of what has been called the "pear-shaped moulding." There are no jamb shafts, but the mouldings continue down the jambs and die away on the plinth.

The walls are built of flint with stone quoins, and plastered inside. Externally the flint work is laid in regular courses and the flints split and squared. The skill and management of the old builders, and the ease with which they made the most rugged materials bend to their purpose, was never better displayed than in the construction of these walls; the thin, narrow joints, sharp surface, and beautiful appearance of the flint work far surpasses the best attempts of modern days, and proves, whatever else the church might have been, that it was at least the school of sound architects and good workmen. The aisles are separated from the nave by a stone arcade of five compartments, the two nearest the chancel being narrower and more acutely pointed than the others. The mouldings of both pillars and arches are very well worked and in tolerable preservation, and belong in common with nearly every other part of the church to the style of architecture prevailing in the early part of the fourteenth century, now perhaps better known as the "Decorated."

The west window is by far the finest part of the whole edifice, and even now, worn and dilapidated as it is, presents a beautiful appearance. The tracery is of a flowing character, simple but elegant, and when the west front was in its original state, the east roof complete, and the lofty tower in the background completing the picture, must have been as perfect a composition as any of its kind.

The aisle windows are of three lights with segmental heads; the mouldings are remarkably plain, but in this style we frequently find very beautiful and sometimes intricate combinations of tracery, with but meagre and shallow mouldings; the heads are divided similarly to the west window, feathered and cusped. The label mould to these windows, to the west window and arcades, is precisely the same in contour, differing only in size.

The aisles terminated with the nave, and were pierced with one east window in each; of what kind we can scarcely tell, one end being so completely covered with ivy, that it defies penetration, and the other bricked up shews nothing but the mere outline of the window, which differs from the aisles, inasmuch as it is longer and acutely pointed. There do not appear to have been any west windows to the aisles. No traces of the floor are visible, neither could we on digging discover any remains of pavement or tiles—the floor probably was taken up when the church was converted into a bridewell, the nave being divided off into airing yards.

It is to be lamented that this fine relic of ancient art is devoted to no better purpose than that of a prison. The present scanty church accommodation would be an ample reason for restoring it to a somewhat more decent state, and as the walls and arches are undisturbed, a small expenditure would render it at once fit for worship and an ornament to the town. As before remarked, the style is "decorated." The building was commenced in the reign of the first Edward, during whose dynasty, and that of the two succeeding monarchs of his name, Gothic architecture having worked itself free from the Norman, and the somewhat stiff though still elegant characteristics of the Early English, attained a degree of beauty and splendour unrivalled either before or since.

After existing for rather more than two hundred years, this friary, in common with the possessions of the monks of this place, fell a prey to the rapacity of Henry VIII., to whom, according to the deed of surrender bearing the date of September 13th, 1539, the monks gave up the house with all its advantages and finally relinquished their order.

After the surrender, Dr. London, in a letter to Thomas Lord Cromwell (Sept. 17th), said that the "honest men of Reading" had no place for properly administering justice, and begged that they might have part of the friary for that purpose:—"Ther town hall ys a very small house and standeth upon the ryver where is the comyn wasscheing place of the most part of the town, and in the session dayes and other court dayes ther ys such betyng of bateldores as one man cannot hear another, nor the gues here the chardg gevyn. The body of the house of the grey friers, wich is seyld with lath and lyme, would be a very commodious room for them, and now that I have ridden all the fasschen of that church in parcleses, ymages and awltars, it wold make a gudly town hall. The mayer of that town, Mr. Richard Turner, a very honest gentill p'son, wh many other honest men hath exp'ssyed unto me ther gref in thys behalf, and have desyred me to be a hu'ble sutar unto yor lordeschippe for the same. If it sholde be solde the wallys besyde the coyn stones be butt chalk and flynt and the cov'yring but tile. And if it please the king gr. to bestow that house upon any of his s'vants he may spare the body of the church wich standeth next the strete very well, and yet have rowme sufficient for a great man." This application of Dr. London met with success in opposition to a request of his brother commissioner Richard Pollard, who in a letter dated "Oxon ultimo Auguste," had thus written to Cromwell:—"A frynde of myne, the warden of the grey friers in Reading, hath also desyred me to be an humble sutar for hym and his brethren, that they may, with your lordeschippe favor, also chainge ther garments with the papistical manner of livinge. The most part of them be very agede men and be not

‡ Cotton. Library. Vespasian, E. F. fo. 55,

strengh to go much abrode for their livinge, wherer ther desyre ys that yt myt please yr lordschippe to be a mediator unto the king's grace for them, and that they myght during tier lyves enjoy ther chambres and orcharde, and they would assuredly pray unto almyetie godde long to p's've the king's gr., and yr lordschippe to his most blessed pleasur." The king, in the 31st year of his reign, granted to "Robert Stanshame, one of the grooms of his chambre, and to his heirs and assigns for ever, the whole house and the site of the house of the Friers Minors, commonly called Grey friers, in Readyng, in the county of Berks, the whole burial place, houses, buildings, orchards, gardens, lands, tenements, trees, woods, lakes, vineyards, with all and singular the appurtenances thereunto belonging, and also the site, extent, and precinct walls and ditches of the aforesd house of the friers minors, late so called, being round about and adjoining to the same, and the site and precinct of the house, including and containing in the whole by estimation six acres." The body and side aisles of the church were granted by Henry VIIIth, by letters patent bearing date at Westminster, the 24th day of April, in the 34th year of his reign, 1543, "to the then mayer and burgesses of the borough of Reading and their successors in future," with liberty "to have, possess, use, and enjoy a competent and sufficient way to the said body and side isles of the late church aforesaid, rendering and paying yearly on the feast of St. Michael, the Archangel, the hundredths part of one knight's fee, and one farthing into the revenue of the late augmentation court of the crown for all services, levies, or demands whatever to the intent that the mayor and burgesses of Reading aforesaid might, at at their own proper costs thereof make and build, or cause to be made and built out of the same, one sufficient house there, commonly called the Guildhall." This grant is confirmed by Queen Elizabeth's charter, with authority to the mayor, burgesses, and their successors, "to give, grant, alienate, convey in fee, exchange, or yield up the aforesaid body and side aisles of the said late church, and the way aforesaid belonging to the same to any person or persons whatever, or to convert, alter, and dispose of them to any other use." Some part of the building was probably converted into a Town-hall, and another part was made an hospital, or workhouse for the reception of children and old persons.

It is now used as a house of correction for the town.

We cannot avoid repeating Mr. Billing's suggestion, that the building should be restored as a church, the more so, because accommodation in this respect is much needed by the town.

We shall shortly put before our readers some notes on other buildings in Reading, the results of a recent ramble there.

HISTORICAL ART AND FRESCO PAINTING

Sir,—You have taken a pretty considerable liberty with me, for you have actually chopped off my head and clapped on another that does not belong to me; at least, it is so that you have treated my name, making it begin with an *R* instead of a *B;* you must therefore now *B-head*, and then it will be right. And pray is not *Budownik* a name honest and good enough for you? methinks it might be, since it is nothing more nor less than that of your journal, viz. The Builder, only a little *polished* up by being dressed *à la mode de Pologne.*

By your treatment of my poor head you have nearly put out of it what I had intended to say—*n'importe*—I have pen in hand and must say something, any thing, so that it be not about railroads and shares. That awful epidemic of the day,

"When infants learn to lisp 'bout railway trains,"

I leave to others. But besides that, there is another mania which we are now endeavouring to rear up to the state of full-grown popularity. I mean that for historical art and fresco painting. Your correspondent B.'s scheme for perambulating exhibitions of cartoons, is, no doubt, a mighty pretty one, and might answer very well for a few seasons; yet what would be the consequence even supposing the requisite talent were to come forth at bidding? if after going so for a while in such preparatory exercise, both artists and the public were afterwards to discover, that further and permanent employment could not be furnished for the followers of fresco? What buildings, either public or private, have we at present that are at all calculated to admit of fresco painting on a grand scale? Are there half a dozen mansions in all London, is there a single one among our political club-houses, suitable for the display of such decoration? There is, indeed, the Hall of Commerce, in Threadneedle-street; yet whether Mr. Moxhay would allow any of our *frescanti* to exercise their pencils upon its walls, may be questioned. Sir Robert Smirke, too, has taken especial good care, that they shall not think of contaminating with their brushes the purity of his own architecture, under the pretence of adorning the façade of the British Museum with "storied" compartments in fresco, as at the Berlin Museum, since he has made his colonnades far too shallow for shelter, and further, cut up the surface of the walls behind the columns with windows, though he might so have planned his building as to have no occasion for any at all in that front.

If we are ever to have edifices adorned with frescos, we must rear the buildings themselves first. Or is it, after all, only a miniature sort of fresco painting that is contemplated for us? works on no larger scale than what would be suitable for panels in superior-sized drawing rooms. Were such to be the case, fresco would not rise at all above the level of mere decorative painting; neither would such mode of embellishment at all be relished by our professional decorators, who find their account better in a constant succession of new fashions for rooms. Unless they were owners as well as occupiers, few even of the opulent would care to adorn the walls of their residences with works of sterling art, so circumstanced as to be incapable of being removed from one habitation to another. And as to mediocrity, mere namby-pamby figure-painting in fresco, neither taste nor art would be benefitted by our adopting it instead of fancy paper or silk hangings. Large historical subjects in fresco are fit only for exceedingly spacious apartments, and they should be unfurnished ones or nearly so, and not intended to be occupied as permanent sitting-rooms.

As to the beneficial influence likely to be exerted upon public morals by the cultivation of high art amongst us, I must confess that I am exceedingly sceptical upon that point. Was Italy a pattern-land to all countries for morality during the palmy days of art? History certainly does not favour any such a notion. On the contrary, the love of art has almost invariably tolerated a very great deal that is repugnant to correct moral feeling, and sometimes to decency. And though the more exceptionable productions of art, may not be injurious to those who can separate art from the impurity mixed up with it, the public are not yet arrived at that stage of exalted mental refinement which is requisite for such *innocence.*

Do, too, what we may, high historical art is not to be secured by any forcing process. Unless it is to be no more than an exotic hot-house plant in this country, it must have time to grow up naturally, and that will be work not of a few years, but of generations. It is true a beginning must be made, and the present period may seem a tolerably propitious one; but it is idle to talk as if, so we be but resolute, the desired consummation cannot fail of immediately following the mere beginning.

Now that I have scribbled thus far, I recollect one matter connected with the subject of architectural publication, touched upon in my first epistolary communication. It is probably supposed that the British Museum is well stocked with architectural literature,—that there, if no where else, almost every work of any note or merit at all, foreign as well as English, in that department of study may be consulted. This is so very far from being the case, that that department is most shamefully defective,—I do not mean as regards scarce books of the kind—some of which, by the bye, are quite worthless, except as curiosities, but such as are procurable. I have sometimes made out a list of a score, or thereabouts, and on going to the museum, have not been able to find even one of them. To give you merely one instance, and if you are not already aware of the fact, you may be inclined to set me down for "a liar of the first magnitude,"—though the mile-long shelves of the British Museum, our national repository of literature, groan with loads of the veriest trash that ever issued from the press, it does *not* contain a work—an English one too—that made some noise in its day, and which was of no small influence in the regions of fashion and taste;—it does *not* contain—but no, you won't believe it, I don't believe it myself—I can't believe either the catalogues or the museum people, when they assure me that their library does *not* contain Thomas Hope's publication on "Household Furniture," a work of exquisite taste, and *chef d'œuvre* of outline engraving. Alas! poor British Museum! verily, thy condition is literally *Hope-less!*

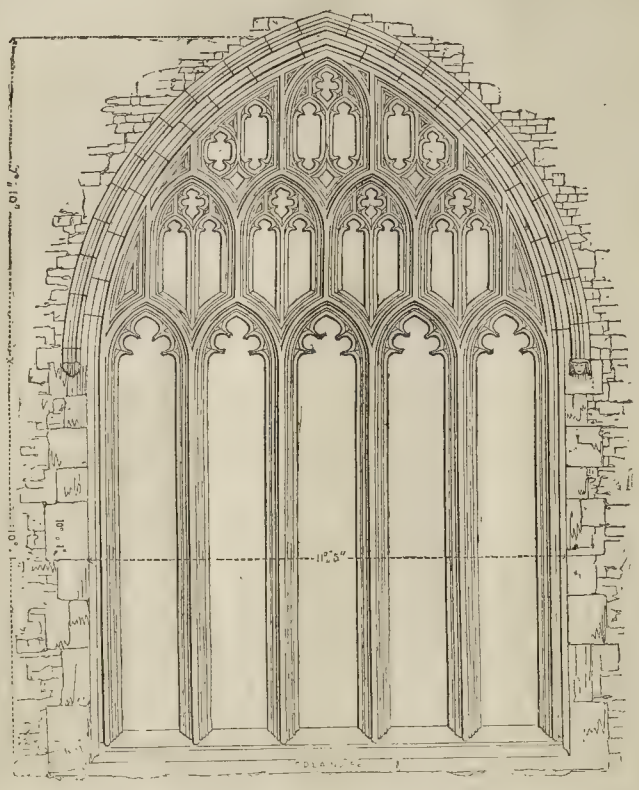
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THE STUDY OF GOTHIC ARCHITECTURE.

A writer in the last number of the *Athenæum*, referring to the question lately mooted in our journal, as to the present exclusive study of Gothic architecture, has the following remarks:—

In the present rage for Gothic churches there is too much of *ecclesiolatry*—of a maudlin sort of devotion towards the buildings themselves as edifices mystically sanctified, and which require to be mystically planned, in as strict accordance as may be with the religious fancies of our forefathers. Now if this imitative folly is to be persevered in, then instead of attempting to revive defunct architectural mysticism, we should study the general character and spirit of the style itself, whereas in modern Gothic churches we seldom obtain more than poor, tame, flat copies of good originals, and our modern Gothic architects are in general all the more prosaic in proportion as they attempt the poetry of the art. They have got into a wrong, perverse and unnatural course, inasmuch as they strive to substitute re-production for production, and pique themselves on fidelity, or what they take to be fidelity of imitation; which unlucky ambition may render them clever mimics, but never great performers. So long as they imitate, their works must remain not only in the rear of, but also at a considerable distance behind models whose artistic excellence arises in a great degree from the geniality of treatment which they display; whereas in imitations there is always something forced and artificial; and though individual parts may be all and each according to precedent, the *ensemble* will betray ignorance or neglect of the real idiom of the Gothic style. And such is too frequently the case with our modern mediæval churches: in scarcely any of them do we discover the manifestations of a taste not only formed upon, but inspired by, a sincere study of the great works of the middle ages, and an intelligent apprehension of their merits. The barren and passive taste that will serve for the antiquary becomes little better than artistic impotence in the architect; while the one can give himself up with a sort of busy indolence and do-nothing industry to implicit admiration of whatever belongs to the olden time, the other has to look upon the mediæval edifices not as express models, but as studies which may help him to the attainment of rival power and mastery of his own. Instead of so doing, our architects seem content either to hobble along upon antiquarian crutches—possibly very good crutches in themselves, yet merely crutches after all. In art, antiquarianism is like fire,—a good servant but a bad master; and unluckily, as we think, for architecture, antiquarianism seems just now to be arrogating to itself a control over it—certainly the ecclesiologists display a degree of enthusiasm, and of policy also, that contrasts very forcibly with the apathy of the architectural profession, who seem nearly deficient in that generous attachment to their art for its own sake, which would impel them to consult its best interests by encouraging the study of it. The opposite course of policy has been adopted by antiquaries and ecclesiologists, and so far with success that it has given them a *status* in the literary and artistical world. Not only have they formed a public for themselves, and diffused a taste for studies hitherto regarded as either very trifling or very dull, but they anxiously minister to and cherish that taste.

PERPENDICULAR WINDOW AT BIRCHINGTON CHURCH.





Plan of Jamb.

PERPENDICULAR WINDOW FROM BIRCHINGTON CHURCH, THANET.

This church (which is dedicated to All Saints) contains little worthy of notice with the exception of the perpendicular windows, which are of good design. The best of these, the east window of the chancel, is the subject of the present illustration and by far the finest window in the church: the mouldings are better than those in many windows of even greater pretensions. The illustration consists of an exterior elevation of the window, with an enlarged plan of the jamb.

SUGGESTIONS FOR THE IMPROVEMENT OF SEWERS.

BY JOHN PHILLIPS.*

Previous to the commencement of the present century many miles of sewers, which are designated old in contradistinction to those which have been built since, were constructed with wide horizontal bottoms formed of bricks laid flat, or on edge, with thick upright side-walls and semicircular arched crowns; and both the materials and the workmanship are of the worst possible description, and they are in a state of great dilapidation. Nearly the whole of these sewers, however, were put in at a time when the authorities did not exert much if any influence over their arrangement and construction, and when the subject was not considered to be of such paramount importance to the public as it is now held to be. Moreover, when these sewers were built, a system of good and efficient drainage and sewerage, based upon sound principles of science, seems not to have been understood or practised, consequently many miles in length have been put in without the least attention being paid to placing them in a proper position at their outfalls, or reference being had to their extension to the more distant parts of the districts. Indeed, it is manifest that many of them have been placed in the ground merely for the purpose of suiting their own immediate localities requiring to be drained; and even then (from their form being the worst that could possibly be devised), not with a view to providing good and proper facilities for assisting the discharge of the drainage and sewage carried into them from the surface and premises contiguous; besides they have been built so carelessly and irregularly, that the falls in many instances are arranged contrary to their discharge. The extraordinary large size and improper form of these old sewers are the cause of much of the great evil which still exists, for nearly the whole of them retain the matter discharged into them instead of affording means for carrying it off, consequently they are a vast system of stagnant cesspools, and a great pest, nuisance, and expense to the inhabitants.

Although some improvement has taken place in the formation of sewers during the last thirty years, still many miles have been constructed, both as to arrangement and form, nearly, if not quite as bad as the old flat-bottomed sewers themselves, for vast numbers of those that are termed new are actually in the same abominably filthy condition as the old ones. The inverts of the form which superseded the old are curved; yet from these curves being exceedingly flat, the very diminutive and slender streams become spread over their surface, and therefore have not sufficient velocity or power to lift up and carry off the matter: consequently, these hollow channels very soon become filled with soil, the flat surface of which as it accumulates, forms the artificial beds for the water to run or lie on.

Regurgitations, eddies, and retardations are caused in all streams which flow or strike into each other, where collateral channels are formed at right angles to recipients, and this irregularity produces considerable deposits of heavy matter and silt at those parts. Whenever the channels of sewers are formed in this manner, the deposits which will accumulate from the improper arrangement entirely destroy their efficiency, and that too for some distance on the up stream sides, according to the height of the accumulations, and the inclinations of the channels. Nearly all the old sewers, *as also house drains*, are connected with each other at right angles or nearly so, and indeed so are many sewers which are com-

See p. 475 *ante*.

paratively of modern construction; it has, however, been the practice during the last few years, to form the junctions with cants, and in some instances with curves, both being in a direction in accordance with the flow of the streams. From the very frequent opportunities I have of examining the condition of sewers, I have found vast numbers, indeed I may say, as before observed, whole districts of them more or less choked with decomposed matter, and this naturally led me to inquire into the probable causes of their inefficiency; and from having well examined into the causes of these deposits and accumulations, I am convinced that they are produced almost entirely from the improper form, arrangement, and exaggerated sizes of the sewers.

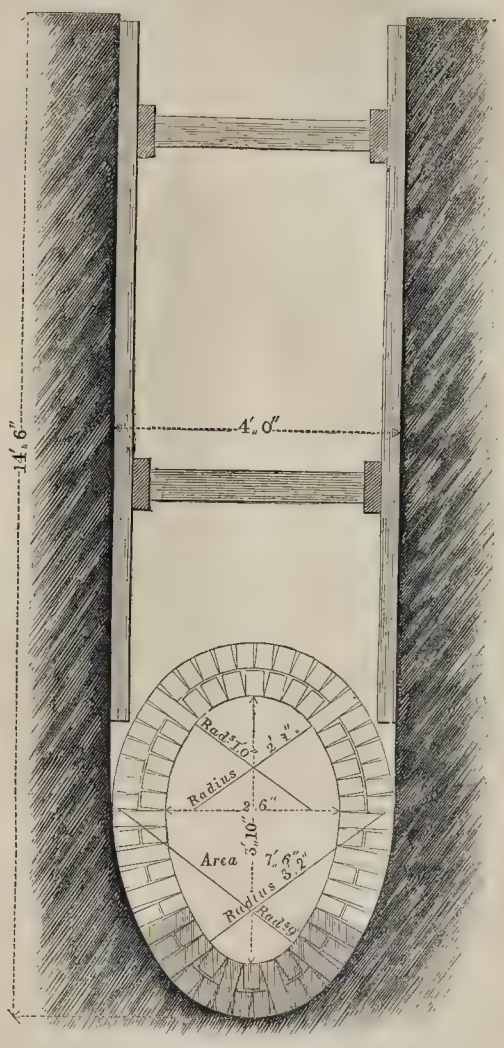
It has been the practice to build what are termed first and second class sewers; and it would appear that precisely the same size and form of sewer has been laid down in numberless instances for draining short streets containing from twenty to fifty houses as have been built for the purpose of receiving the whole of the drainage from collateral districts. The great absurdity of this regulation has long been apparent and has frequently formed a proper cause of complaint. This system has been the cause, by the great and unnecessary expense, of preventing many densely populated localities from being properly drained, many persons being led to seek drainage either surreptitiously or by cesspools, and the permeability of the adjacent ground. Nearly the whole of the water which is discharged into these disproportionately large and short sewers, from the number of drains being few, passes off very slowly, leaving the soil behind, which, as it accumulates from time to time, ultimately stops up the sewer and the private drains as well; consequently the soil has to be removed from them at great trouble and expense; which process has again and again to be repeated as they become choked up. It has been a regulation never to build sewers of less size than is sufficient to allow a man to pass freely along them; and it would appear that this has been the cause in a very great degree of the large sizes which have been adopted and continued for so long a time, consequently the form which would have accelerated the flow and prevented soil from accumulating within them, has not been generally adopted. Now, by judicious arrangements, a proper size can always be retained for that purpose, and, at the same time, the form and width of the inverts may be enlarged or contracted suitable to any exigency or discharge of water and sewage that may be required for any particular locality.

Much controversy has arisen at various times respecting the best and proper transverse form for a sewer, and several forms, both rectangular, elliptical, and circular, with sometimes portions of these shapes blended together, have been suggested and used accordingly. But it would seem that the main question as regards strength and efficiency for discharging the sewage, has been by many persons, either misunderstood or entirely overlooked. Now it must be manifest to all that sewers should be arranged and constructed so as to facilitate the rapid passage of the soil to their outlets, and should therefore always be a question, whenever a sewer is required to be put in, whether its arrangement of size, form, and fall, is calculated to impart sufficient velocity and scouring action to the water so as to carry off or prevent the soil from becoming deposited upon its bed. Now, if the data for the proper size, form, and fall for a sewer be not ascertained, and these properly proportioned to the volume of water likely to find its way into it, the chances are that the force of the stream, from being extended, will not be sufficient to remove the soil, consequently it will accumulate, and the sewer will ultimately become choked, and close up each house-drain.

Economy combined with the utmost efficiency are the principal considerations which should be observed in the formation of sewers; and it is remarkable that the best form that can possibly be adopted is not only the most economical and durable, but is also the most efficacious in carrying off the sewage matter. Besides it combines in its formation the greatest strength with the least consumption of material, and is at the same time strictly conformable to both static and hydraulic principles. I strongly recommend for adoption the annexed section for sewers, being persuaded from a strict examination of the principles of such structures, that it combines in its form great strength and power of resisting vertical and lateral pressure, economy of labour and materials, and facilities for ensuring good, sound, and durable workmanship; but above all, and which is of the utmost importance, it affords great advantage to the velocity and scouring action of water, even when its quantity may be small; and without which advantages no structure of this nature can be effectual for the purpose of carrying off the drainage and sewage. Although this shape is an approximation to the form of sewer now in use in the Holborn and Finsbury divisions, still I believe it is rather better calculated to sustain pressures from the ground, and to impart greater velocity and inciting force to a given body of water; for the frictional surface of its invert is less, consequently the hydraulic mean depth of the water would be greater than is afforded by that form; and, according to the principles of hydraulics, the velocity and power to scour increases in proportion to the square root of the height of the water. From being subjected to considerable forces, and in order to sustain them, sewers should always be of the annexed form, or arranged upon similar principles. I shall now proceed to examine the nature of those forces and their mode of action.

When an upright cutting is made in the ground, the adjacent earth at the sides is dependent for its stability upon the nature of the soil and the power of cohesion which binds the aggregated particles to each other, as also on the dip or natural inclination which each succeeding underlying joint and stratum take with the horizon. The particles of ground from the surface downward differ more or less in their relative sizes and shapes, and are upborne and supported by those which lie directly underneath and contiguous to them, consequently their pressures are diffused in lateral, oblique, and perpendicular directions. Now, the lateral pressure which was afforded by the ground in the trench to that at the sides before it was excavated, becomes entirely destroyed, and if the tenacity or cohesive power which connects the particles together be not equal to the lateral force acting *from* them, the masses will break and crumble

IMPROVED FORM OF SEWERS.



The dark portion of the brickwork to be in cement.

away, or slide down into the cutting, and the static line or slope formed by the fracture varies with the strata, and according to the nature and cohesion of the particles of earth; for all soils will stand at some angle or inclination peculiar to their character or formation. And when ground is cut into and left unsupported, that at the sides will not cease to crumble and slip until the lateral forces become destroyed, or until the power of cohesion and friction of the ground be in equilibrio with the forces acting upon it, the soil having then attained its natural slope, which is the angle of repose.

The earth contained within the triangular prisms on each side of the trench of a sewer, becomes detached in consequence of the natural or re-acting support being withdrawn by the cutting, and by the force of gravity each prism has a tendency to slide down the planes of natural inclination. These bodies of earth, therefore, in all cases require to be supported, for which purpose it is essential that the resisting force be somewhat greater than the pressure, for if the latter predominate, the structure will either be displaced or thrown down. From it being necessary to construct sewers at considerable depths in the ground, it is essential that they be of a form capable of offering a powerful and efficient resistance to both lateral and vertical pressures; but these are liable to much variation, being dependant upon the nature and compactness of the earth, and the angles at which they will stand.

It is desirable, therefore, that the walls of a sewer be arranged so that the lines of pressure fall within their substance, and not to touch the intrados; for if the pressure from the ground at a side be so great that its direction touches the interior surface of the wall placed against it at any point, nearly the whole of such pressure becomes concentrated, and acts at that point, and if the resistance of the wall be not greater than the pressure it will yield, and be forced from its position. For when a body is subjected to the pressure of another body, the conditions of equilibrium require that the reaction afforded by the former be equal and in an opposite direction to the pressure of the latter, otherwise motion will ensue.

Reclining curved walls, whose bases abut against each other, are considerably stronger for the bottoms and sides of sewers, and afford greater resistance to lateral pressure than walls that are built upright, at some distance apart, and parallel to each other. *For according to the well known principle of mechanics, that when a body at rest sustains another body by one or more forces acting at given points, the re-action of the forces will be in directions perpendicular to those points, or to the surfaces of contact, and these perpendiculars must meet either at the centre of gravity of that body, or in the vertical line which passes through it.*

Now, according to the foregoing principle, it is easily ascertained, by trigonometry or the composition and resolution of forces, that the rectangular wall, compared with the curved wall, has nothing like the same resisting power to counteract the pressure from the ground, consequently it would be overturned or slide off its bed where the other would remain uninjured. Hence the necessity for adopting the curved form for the side walls of sewers in order to ensure strength, durability, and adequate resistance to lateral pressure. And where ground is of a clayey or slippery character the greatest pressures arise from that adjacent to the sides, therefore it is at those parts the greatest resistances should be placed, otherwise the walls must of necessity give way and be forced off their seats into the sewer. The quick curved form of the ground itself under the invert and sides, assists very considerably in preventing that above from becoming displaced, and when the ground is liable to slip, this form keeps the line of fracture of the ground much higher, or causes the force from it to act where the sewer has the greatest power of resistance, namely, across its broadest part, or where there is most curve; and the inclination of the ground, as also the side walls, should be as obtuse as possible, as then these are better able to resist the lateral pressure. The greater external periphery of curved walls prevents them from being fractured by the pressure of the ground acting against them; for as the radiating joints form an angle with the horizon, when lateral pressure is so great that the wall is liable to be displaced, that portion of it above the line of fracture must be lifted upwards off its bed, while a rectangular wall, under the same pressure, would be forced forwards.

From their superior strength in resisting pressure, battering curved walls are always adopted for retaining walls where stability and sound construction is sought for. And there being a direct similarity between ground pressing laterally against a sewer and that pressing against a retaining wall, it is evident that in order to afford the greatest resistance with the least consumption of materials, curved side walls for sewers are of necessity the best and strongest; besides, the arch thrown across them form abutments which afford forcible counteracting resistances to the pressures from the ground at the sides. Another great advantage of battering curved walls is, that when the ground at either side has a tendency to slip, before it can do so it must upheave the side wall and the arch, with the ground upon it, the whole mass turning round like a hinge at the point of fracture, while a rectangular, or slightly battering straight wall would collapse or be forced forwards off its seat with much less pressure.

The ground adjacent to sewers, as well as that on the top of them, forms their *natural abutments*, for the pressure from one side re-acts against the pressure from the other, and the super-imposed weight on the crown counteracts the pressures from both sides, and thus the lateral pressures prevent that on the arch from forcing *it downwards*, and the side walls *outwards*; and the pressure of the arch and the load upon it prevents those from the sides forcing the side walls *inwards* and the crown *upwards*, and, therefore, when the sewer is of a proper form it is then capable of effectually resisting those pressures; provided the ground be properly excavated for the bed, the brickwork soundly executed and built to the proper curvature, and the walls efficiently protected by the returned ground being well and soundly rammed down around them, as then the sewers and the earth adjacent to them will be in a state of equilibrium with each other.

Under scarcely any circumstances should rectangular or straight battering walls enter into the construction of sewers, because, from being exposed to very great external pressures they are liable to be forced off their seats and to crack or collapse at the points of fracture, that is where the lines of pressure touch the inside of the sewer; and the resistance afforded by rectangular walls is dependent upon their own weight, the load upon them, and the cohesion and friction of the joints where the pressures act, consequently the effect of pressure at any point would be to cause the walls either to slide or turn round on an axis; and their power of resistance is merely that of *extension* only, whereas curvilinear brick walls are made up of a series of wedges, which tend to a central point, and contain outside the neutral axis a greater amount of material than there is inside of it, and which must be *compressed*, whilst the lesser quantity of material inside the neutral axis must be *rent asunder or extended* before the walls can give way, that is when the external pressure is equal at every part. Therefore the curved form not only affords greater resistance but bears transverse strains much better than rectangular walls, and consequently are better adapted to support earth, and that too with much less quantity of material because the perimeter of a circular wall is much less and contains within its circumference a greater area than that of any polygonal or rectangular figure. It would add much to the strength and durability of sewers were radiating bricks used in their construction instead of rectangular bricks, as bond could then be produced which would tie the walls together transversely much better than is done with half-brick rings and heading courses, when these can be got in. The expense of making and burning this description of brick would not be more than 3s. or 4s. per thousand above the cost of common rectangular bricks, and were a large order given, the cost probably would not be more than 2s. 6d.

The crown of a sewer with the weight of the superimposed ground, together form a great connecting link to the stability of the side walls, by enabling them from the increased weight thrown on them to sustain with greater security the ground at the sides. The weight of the ground on the arch is almost always sufficient to prevent the pressure at the sides from upheaving or disturbing it; but when the arch is too flat the pressure upon it will force the side walls outwards *if these be not properly protected*. And again, if the arch rise too much, the lateral pressure will cause it to collapse at the sides or springings, and it will crack and rise upwards at top, but the pressure upon the arch is almost always sufficient to prevent this from occurring. A semicircular crown for a sewer appears to be a mean between that which is too flat and that which is too high. But the semicircle is not the best form for supporting vertical pressure, for it has a considerable tendency, when the ground is not sufficiently firm or compact, to sink at the top and rise or spread at the haunches; and I have noticed that a great many arches of sewers of a semicircular form have gone exactly in this manner. Under these circumstances, therefore, I think it is desirable to make the arch or crown of a sewer somewhat of an elliptical shape, with the longer axis upwards or approaching to the form of the equilibrated arch, as then the lines of pressure from its weight and the load upon it, are distributed more equably within its substance, and the resistance that this pressure affords is then thrown where it is mostly required, namely, across its broadest part; besides, by giving the arch this form, an opportunity is afforded for making the side walls more obtuse and of greater curvature, which greatly improve their power of resistance.

It is considered that a form of sewer which is suitable for one locality is not adapted for another. This principle holds good only where ground differs considerably in its character; and attention need not be paid to it except on extraordinary occasions. Greater width and lateral resistance is needed where ground is very soft, clayey, or of a slippery nature, when it is desirable to conform to the shape of the circle; for a cylindric ring under every condition is the strongest form for resisting transverse pressure when it is equally divided around it. But the circle, although it is the strongest, is not the best and most efficient form for a sewer, as other conditions besides strength are connected with the subject; for the whole object of sewerage is to effect in a speedy manner the discharge of the drainage. Whatever may be the character of ground through which a sewer has to pass, its form should never depart from the principle of the arch whose properties should be the genises on which to design every hollow structure that is to have pressure acting around it.

In performing the practical operations of sewer work, it is essential that great pains should be bestowed upon the excavation of their bottoms. For in order that the brickwork of the invert may be constructed to the proper curvature, it is extremely desirable that the bed of the sewer should be brought as near to the form of its outer periphery, and as correct as it is practicable to make it.

The discharge of drainage and sewage is wholly dependant upon the velocity, inciting force and energy of flowing water, which must in all cases have sufficient power to overcome the inertia or force of gravitation of the sewage matter, as also to sweep and carry it forward in mechanical suspension. Now the greatest amount of velocity and impelling force to which a descending stream, with a given inclination, can attain, depends on the least width of the development of the surface of contact; it is therefore of the greatest importance always to make the channels of sewers of a shape conformable to that which produces the utmost velocity and the least amount of friction or rubbing surface for the water to flow in. I shall hereafter proceed to examine the forms, arrangement, and construction of sewers with reference to this all-important point.

THE WROUGHT NAIL TRADE.—The workmen of this trade, upwards of 15,000, made a stand last week for an advance of 10 per cent upon their wages. Messrs. Caddick, of Coseley, at once told their workmen they would give it to them, and that they must not stand a single hour. Messrs. Caddick paid them the advance on Saturday last, and stated they hoped in a short time to be able to give a further advance.

EFFLUVIA FROM SEWERS.

Sir,—Despite the importance of the subject, I fear you must begin to nauseate the very name of, much less the effluvia from, sewers. I can only hope the old proverb vulgarly condemning too much stirring, will be reversed as regards our present subject; and as a proof thereof, I would fain hope some one of the Metropolitan Sewers Commission will at once take up the subject of sewer purification—and test the value or otherwise of the various propositions which have recently been put forth. With respect to the plan proposed in your number for the 4th instant, I cannot believe that any apparatus with gratings in connection with the carriage-way would be found to answer the purpose practically; and as respects the *modus operandi* of the machinery itself, I confess that, to my mind, the scheme lacks practicability, or, at least, a more lucid explanation, and I must still think that the air-flues or columns, with whomsoever the idea originated, are infinitely better calculated to ensure a permanently satisfactory result. And while on this point, without wishing to detract from "Mr. J. P.," or "Mr. J. L.," I would just observe, and it appears to have been overlooked by the writers on these matters, that there seem to be no good reasons (especially if a draft be created in their favour) why these outlets for the gases should be confined to the site of the sewer itself, when branch pipes or drains might conduct them to any available places, such as court-yards (for which a rental might be paid), the blank sides of houses situated at corners of streets, public mews, and the like situations.

Before dismissing the subject of sewers, I would hazard a few remarks on a point which I believe has in some measure escaped our rather too zealous reformers. "J. L." tells us not to fear the bursting as resulting from the pent-up gases, and assures us that this results rather from bad engineering and defective workmanship. Both these defects may exist in our sewers; but, verily, I believe, this time has been harped upon too loudly, and to a certain extent, unfairly (perhaps because the time is popular); and we should bear in mind that when explosion takes place, no work (or material), be it of the most cyclopean character, can altogether resist its force. I am at the same time free to admit that due attention should be given to the *shape* of the sewers; and there can be no doubt that the less straight work be admitted into their form the better will they be enabled to resist pressure. I think, however, that many of the complaints would not be heard of if greater care where taken in *building* the sewers; such as doing the work *in its place*, instead of on a bench in the street, and paying due attention to the perfect bonding of the work, using hoop-iron pretty freely, and above all, giving the green work something like a chance of setting, before either the contractor or the director of the works, proceeded to overwhelm it with the earth covering and backing. This earth backing should, in my opinion, be most carefully filled in and rammed, unless concrete, which would be much more efficient, were substituted for it.—I am, Sir, &c., Συνεργος.

Oct. 14th, 1845.

Furniture Woods.—The Lords Commissioners of her Majesty's Treasury have recently ordered that a parcel of partridge wood imported from Antigua be admitted free of duty as furniture wood. Their lordships have also ordered that a parcel of cherry wood recently imported from New Orleans be admitted duty free. These decisions, which are of very considerable importance to the importers of and dealers in wood used in the manufacture of furniture, have been communicated to the revenue officers at the various outports throughout the United Kingdom for their information and government with respect to future importations of these articles.

Tableaux Vivans.—Herr Keller with a number of models, male and female, is exhibiting at the gallery of Painters in Water-colours, Pall Mall East, a series of living pictures of extraordinary beauty. We advise all artists to see them; effects of light and shade are produced which will give them hints of no mean value. Keller is evidently an artist himself and sets his figures with a power rarely seen.

AMENDMENT OF METROPOLITAN BUILDINGS ACT.

Sir,—The announcement in your paper of last week, the 11th instant, headed "The Official Referees," must, I think, be gratifying to the building world; inasmuch as you state that it is intended to bring in a bill, early next session, to *amend* the Act,—that a third referee will be appointed, and that Mr. Higgins has consented to resume his office *pro tem.*

The necessity for an amendment of the present Act is more than generally admitted, and I trust a less vexatious, inquisitorial, and "Paul Pry" law will be enacted.

The original purpose of a Building Act was simply the prevention of extension of fire, and the framers of it may do well to bear in mind the legal adage, "*de minimis non curat Lex*," and not legislate on trifles, or interfere beyond what a wholesome care for the public weal requires, so that a man really cannot do what he likes with his own.

That a third referee is desirable, will, I dare say, be admitted, when we consider that two persons very frequently and fairly, differ in opinion; and a third person is required to decide. And as one of the understood advantages of the new Act was, that building matters would be referred to, and decided on, by persons professing that art, namely, surveyors, and not magistrates or lawyers, the necessity of calling in the registrar, who at present seems prominent, will not be required. The official forms, notices, and fees, may possibly also be abridged and lessened; they are now multifarious and heavy, pressing hard on the building public and all connected with the Act; who appear to have exchanged the rule of King Log for that of King Cormorant. At the same time it must be admitted, by the modifications that have in several instances been made, a right spirit seems to prevail.

That Mr. Higgins remains is, I think, gratifying, for a man more practically conversant with the subject, or fit for the duty, can hardly be found. He is not one of the mere Bureaucracy or martinet school, and his plain good sense and freedom from crotchets may tend to render the administration of the Act more practicable and less vexatious.

He is also well known, and has so little official hauteur—"*Procul hinc! procul este, profani*"—that his continuance in office will probably be hailed with satisfaction by all whom it may concern.

To whom, Mr. Editor, and yourself, these observations are respectfully submitted, by your obedient servant, C.

October 13, 1845.

ON THE HISTORY OF STAINED GLASS.

At the archæological meeting before mentioned, a paper by Mr. Winston, on the painted glass in Winchester Cathedral and other local buildings, was read. The writer remarked that the design and execution of glass paintings are as capable of convenient classification as architectural peculiarities, and that he should refer throughout to the three great mediæval styles of glass painting, by the terms Early English, Decorated, and Perpendicular, each style being nearly contemporaneous with the several styles of architecture as designated by Rickman. The term *Cinquecento* he should apply to any glass prior to 1540, which exhibits in its details the peculiar style of ornament known by that name. The earliest specimens of English glass that he had met with at Winchester, are the two fragments probably of a border, worked in with other glass, in the west window of the nave of St. Cross, and two other fragments of a border over the door leading into the refectory. All this glass is of precisely the same character; and to be referred, he was of opinion, to the beginning of the thirteenth century. A few small fragments of *later* Early English are at present contained in the cloister of the college. Two circles of Early Decorated glass are over the door of the refectory of St. Cross, and two or three more in the west window of the Cathedral. They are composed of plain pieces of coloured glass, disposed in a geometrical pattern, and prove how much of the *effect* of early glass is owing to the *texture* of the material. He would add here, that it appears to have been the practice formerly to glaze the windows according to the progress of the work. Thus at York, the decorated glass in the aisles is earlier than that in the west window of the nave; and the Perpendicular glass in the aisles of the choir is earlier than that in the great east window. All the present glass in the side windows of the College Chapel is modern, as well as that in the east, with the trifling exception of two small figures, the head of an angel, and four other little bits of glass in the tracery of the window. Considering the time when the glass in the east window was executed, it must be admitted to be a very good copy of the old. The art of making coloured glass was not so well understood then as now. Had the glass been copied now, it would only have been one degree better than it is. Its effect would still have been that of painted glass, exhibiting the drawing of the early part of the fifteenth century, and the colouring of the nineteenth instead of that of the sixteenth. The *texture* of all modern manufactured glass, *uncoloured* as well as *coloured*, is identical only with that of the sixteenth century, and is totally different from the texture of earlier glass. The principle of adapting the execution to the material pervades all ancient, and indeed all original manufactured work, and it is vain to imitate the drawing without also imitating the material in which the work is to be executed. Hence it is that modern encaustic tiles, whatever may be the date of the pattern impressed upon them, always appear to be of the date of the manufacture of the tile. The east window of the college library is of the time of Edward IV., and was moved to its present position from the south side of the college chapel. The arms in the refectory of St. Cross are of the latter part of the fifteenth century. Those of Cardinal Beaufort are uncommonly fine. The glass in the east window of the cathedral choir is perhaps a little earlier than 1525, and is the work of Bishop Fox, whose arms and motto, "*Est Deo gracia*," are introduced into it. This window must have been a magnificent one; but it is unfair to judge of it in its present state, when so little of the glass occupies its old position in the window. The top central light is filled with glass of Wykeham's time, and all the rest of the window with glass of Fox's time. In point of execution he apprehended the painted glass in this window was about as perfect as glass could well be. The library at the deanery contains some excellent specimens of heraldic glass of the time of James I., and Charles I., in which, however, the decline of the art of glass painting is very apparent.

FOREIGN ARCHITECTURAL AND COLLATERAL INTELLIGENCE.

Schinkel's Works.—The writings and designs of this *great* defunct architect (member of the Council of State of Prussia), are now publishing in a form worthy of his great genius. They are as follows:—1. Collection of all architectural plans and projections of Schinkel. (*Sammlung architektonischer Entwürfe.*) It consists of one hundred and forty-nine plates, which, in the *cheap* edition, cost about 10*l.* Supplement thereto, twenty-six plates with text, about 3*l.* But this is still surpassed by a really splendid work entitled—2. Works of high architecture—planned and designed for execution. (*Werke der höhern Baukunst.*) The *first* portion of the work contains—Plan of a palace for the Acropolis of Athens. Ten plates of the largest size compose this portion of Schinkel's work. The *second* portion contains—Plan for the Imperial Palace of Orianda in the Crimmea, with fifteen plates of equal size.—No library of any public institution ought to be without these works.

The Scientific Congress at Naples is progressing well. Persons of the highest rank (dukes and such like) vie in rendering every assistance and service, a thing quite unusual with the hitherto Italian *grandezza*. On the 28th ult. took place the festival inauguration of the meteorological observatory on Mount Vesuvius—one of the most *original* institutions in the known world. The next will be the inauguration of the colossal statue of *Religion* (!!) on the new Campo santo at Poggio Reale.

On the 2nd Oct. the men of science will be gratified by the unusual sight of two excavations, which will be made at different places at Pompeii. Of the memoirs read we cannot state, at present, more than that, that of Pro-

fessor *Thiersch*, of Munich, on a MS. codex found at Bamberg, contains the conclusion of Pliny's natural history, hitherto considered lost.

Undermining of Streets at Paris.—Subterraneous Structures.—About a year ago, the district of Montmartre was thrown in great consternation, as on its east side several buildings seemed more or less menaced by a sinking of the ground. It was asserted, that the slope of the hill of Montmartre had been undermined by the works for quarrying stones, which are carried on to a great extent in and about the French metropolis. The affair became so serious, that the Préfet de la Seine, assisted by the chief engineer of mines (!) the chief inspector of quarries (!!) went on the spot to inquire what was to be done. The inquiry, however, shewed that the sinking of the soil was ascribable to the unsystematic quarrying carried on at a previous period. Still, several proprietors received orders to execute immediately some works for staying the damage done. During this and other similar inquiries, the actual state of the *Catacombs* (this subterranean Paris) has been ascertained, the details of which are very curious. The greatest length of these excavations, counting from their entrance at the Barrière d'Enfer, is one kilometer (two miles.) But from this main line branch off a great many other shafts and quarries; and extend under a large portion of Paris. Some of these works are 5 or even 600 years old, and for ventilating them pits are pierced into the open air. This quarrying is now (very properly) under the *surveillance* of Government, and no quarry can be abandoned, without proper measures being taken for the safety of the superincumbent earth. In places where there are no houses, the quarry is sunk into itself, if we may say so, by the supporting pillars being cut off, when the roof falls down, and then only the soil thus disturbed is smoothed and planned. If houses exist above, then, of course, the pillars are to be strengthened. The budget of the city of Paris bears every year a sum of 100,000 francs for these works of *consolidation*. This applies only to quarries, which lie underneath public roads; but if any sinking of soil is to be apprehended on the spot where houses are built, then the proprietors must bear the expense. To find one's way in these galleries, is rather difficult now, although they bear the names corresponding to the streets, and numbers similar to those of the houses above. But their is now a plan in preparation which is expected to be completed in about two years, which will faithfully represent all the ramifications and *ganglia* of the huge network of *subterrancous Paris.—Gazette des Tribunaux.*

Street-cleanliness; Regulations at Paris.—Although we know full well, that to lay down regulations and to have them *observed*, are very different things—still, we believe, that the following notification, issued at the beginning of the present month, by the Préfet de Police of the French capital, will shew what attention is paid to these matters by the French authorities. The *Ordonnance* begins by stating, that the sweeping of the public thoroughfares has to take place from the 1st of October to 31st of March—between seven and eight A.M., and at no other time. The footways are to be scraped, swept, and washed; and the conduits to be kept free from all impediment for the efflux of water, &c. After some other points of usual purport—the Paris authorities say: "For the sake of reforming the habits so contrary to cleanliness and decency, the administration has authorised or caused the construction of urinals in several public thoroughfares, especially on the Place de la Concorde, the Boulevards, and many of the Quays."

Public Recognition at Berlin.—On the retirement of the actual privy councillor, *Beuth*, the professors and teachers of both the institutions, which owe him their creation, at least vigorous re-organization—viz., the general building school (*allgemeine Bau-Schule*), and the industrial (artisans) institution, have resolved on presenting to that worthy statesman and man a token of their respect and love.

Ancient Canal and Tunnel of the river Kuran, in Persia (*Susiana*).—The design of those stupendous hydraulic works,—derived from Oriental authors and a minute personal observation by Major *Rawlinson* (as contained in one of his communications to the Royal Geographical Society), seems to have been the following. It would appear that Andeshir Bábegán, or his son, excavated a deep and wide canal to the east of the city of Shuster, and thus divided the waters of the river. The artificial stream was derived from the Kuran immediately above the town; but the city, situated on rising ground, between the two arms, could have been but indifferently supplied with water, and a further undertaking, therefore, was necessary to remedy this evil. A massive band or dyke, accordingly, was thrown across the original bed of the river, at the distance of about half a mile from the mouth of the canal, narrow outlets or sluices being left for the passage of a certain portion of the water. The consequence of this was, that the great body of the river was forced back into the artificial derivation. Another band was then thrown across the mouth of the canal, forming, as it were, a continuation of the line of the original bank, and raised precisely to the same height as the lower dyke. Here, too, the passage of the water was regulated by sluices; and the entire bed of the stream being now formed, as it were, into a vast reservoir, the mouth of a tunnel was opened into it (!), which had been excavated directly through the hill of sandwork forming the left bank of the river, between the two bands, and below (!) the level of the water thus artificially elevated. A copious stream, of course, immediately ran into the tunnel, and sufficient water was thus obtained for the supply of the town and the cultivation of a vast tract of country. Before either of the bands, however, were undertaken, and when the whole body of the river must have flowed in the artificial canal, the mouth of which had probably been deepened for that purpose, that part of the original bed between the two dykes which was intended to form the great reservoir was paved throughout with massive hewn stones, fastened with metal clamps, to prevent the further deepening of the river, and to give additional strength and security to the whole work.* Such was this great work in its original conception. But as the course of the river has constantly changed, as either of the dykes became impaired and yielded a free passage to the water, the level of water in the great reservoir must, in that case, have fallen below the orifice of the tunnel, and thus, of course, it has become entirely useless.

* Such of our readers as may study these matters, have to observe that Major Rawlinson says, that the courses of the river and canal are *reversed* in the otherwise accurate map of Kinneir.

CAUTION TO WORKMEN.

A journeyman copper-smith, named Evans, was summoned before Mr. Hardwick, Marlborough-street, for breach of contract with his employer, Mr. Styles, copper-smith, Lisle-street, Leicester-square. Mr. Styles proved that the defendant entered into a written contract to engage himself for six months at the wages of 23s. weekly. The defendant came to work two or three days, and then left him entirely. The nephew of the complainant proved that he was the means of procuring the defendant employment at his uncle's place of business. He had met the defendant accidentally one morning; the defendant had applied to him to get him a job, alleging that he had left his situation at Messrs. Pontifex's on account of disagreement about money matters. He had taken the defendant to his uncle's shop, and the defendant had obtained an engagement at advanced wages. Mr. Pontifex said the defendant had some time previously engaged himself to him for some months. He had been at work at his shop, and had only gone away for a periodical "fuddle," which generally lasted a week, and it was while on his drunken ramblings that he had been apprehended by Mr. Styles.

Mr. Pontifex said the railroads made the trade so busy, that it was of importance not to lose the services of even one man. He hoped the defendant would be obliged to fulfil his original engagement. Mr. Styles said he had no vindictive feeling towards the man, who was otherwise a good workman, and, when not drawn away by liquor, a steady man. But it was important to teach journeymen that they must not, after having engaged themselves to an employer for a stated time, leave their work and upset business with impunity.

Mr. Hardwick said the plea of intoxication, even had it been established, would not have excused the defendant's reprehensible conduct in forming engagements and breaking them at his pleasure. In order to teach him that he must not enter into engagements and break them capriciously, to the great injury of employers, he (Mr. Hardwick) would send him to prison for one month. The solicitor said Mr. Styles would of course pay the man his wages all the time he was in prison. Mr Styles said he would do whatever the magistrate required. Mr. Hardwick looked over the Act, and came to the determination, instead of directing Mr. Styles to pay a proportionate amount of the wages, of cancelling the contract altogether. The defendant was then committed to hard labour for a month.

Correspondence.

BUILDERS' TENDERS.

SIR,—I beg to submit to you the following tenders which were opened on Saturday morning, the 11th inst. at the architect's, Mr. Isaac Bird, 72, Seymour-place, Bryanstone-square; they are for alterations at the White Hart, Walworth-road, for Mr. Wm. Williams; the difference is surprising in so small an amount, especially when you consider that the plate-glass will cost 50*l.*

Cooper and Davis	£225
Cooper	198
Ashby	197
Lawrence	188
Whitaker	138

You see the difference between highest and lowest is 87*l.* and the *accepted*, as he intends doing the job, is 50*l.* under the next lowest.

Would it not pay builders generally, to employ competent persons to make out their estimates rather than guess at their amounts?

Oct. 13. A CONTRACTOR.

The following letter on the same subject is almost beyond belief: we have, however, received the same figures from four different quarters, so that we cannot doubt their correctness.

SIR,—I take the liberty to forward you the amounts of tenders delivered for finishing ten houses at Mile-end: Mr. Single, architect.

Croast	£1,477
Knight	1,305
Smith	1,250
Rivett	1,194
Johnson	1,192
Simmons	1,150
Cooper	1,129
Hughes	1,124
Cliff	1,060
Keeth	1,060
Symons	1,050
Hume	905
Reed	847
Hawkins	595
Westbrook	589

The tenders were opened in a private room. Mr. Westbrook was called, and, fortunately for him, he was not present; Mr. Hawkins was then called, and told his tender was accepted, leaving him to guess whether he was 3*l.* the lowest or 300*l.*; the other tenders were then returned to the several contractors, who, like men of business, opened them amongst themselves. So much for competition.—I remain yours, &c. W.

ORNAMENTAL PLASTERING.

SIR,—In reply to your correspondent, on this subject, he is referred to a work "Practical Masonry, Bricklaying and Plastering, both plain and ornamental," published by Mr. Thomas Kelly, Paternoster-row, London.

The letter-press and drawings for the plastering portion, were supplied by one of the practical stucco workers engaged at Windsor Castle, and therefore can be relied on, the information having been obtained from an experience of several years.

Your correspondent will find, under the head of "materials used for internal finishings," in the work alluded to, the information he required regarding a good composition to work foliage in by hand.—I am, Sir, &c.,

FRANK TYRRELL.

Newcastle-upon-Tyne, 10th Oct. 1845.

[Advertisement.]

TO THE EDITOR OF THE BUILDER.

32, Kirby-st., Hatton-garden, 15th Oct. 1845.

SIR,—Being fully aware of the interest you ake in every invention that appertains to the dvancement of science, and particularly at a ime when your columns are strongly advo- ating a pure and efficient system of ventila- ion, it may probably not be considered too ntruding my soliciting you and your readers' ttention, to a newly invented and patented tove. My practical experience in the ormation and superintendence of pub- c and private gas works, as well as fire laces and flues, combined with ventilation, herein a strict attention to the generation of aloric, its distribution, &c., has applied to eating and its various purposes, warrants ie in a great measure to state my opinion, hat Mr. Allen's stove for public and domestic urposes excels every other I have seen, or I elieve has hitherto been produced. I am onvinced, that it only requires to be inspected, be properly appreciated; it may be seen, ith all its various ramifications, at the paten- ee's residence, 21, Worship-street, Finsbury- quare, at any time, but in operation from two to ur o'clock daily.—I remain, Sir, &c.,

S. H. BROOKS,

uthor of "Cottage and Villa Architecture."

Miscellanea.

EXPERIMENT WITH FIRE-RESISTING TIMBER.—On Monday week, Mr. James B. Reay, f Dublin, the inventor of a preparation for ndering timber, to a great extent, fire-proof, sted the experiment at the Commercial Hall, loucester-street, in the presence of the Mayor, Mr. D. Hodgson, Mr. H. Booth, lessrs. Milner and Son, and other gentlemen. wo piles of timber, the one consisting of tch pine, which had undergone the process preparation, and the other consisting of emel which was unprepared, were elevated the form of the rafters of a house. Shavings ere placed underneath, and fire was com- unicated. In a few moments the memel was flames, and very speedily it was consumed. he pitch pine, which was three several times xposed to the action of 800 degrees of heat, ood the test admirably. Some of the tim- ers were more or less charred, but very ttle injury was effected; and a remarkable art of the experiment was, that the prepared mber upon which the lighted shavings were aced was very slightly damaged by the fire. he mayor, and other gentlemen present, ex- ressed themselves satisfied with the experi- ent so far as it had gone.—*Liverpool Times.*

FREEMASONS OF THE CHURCH.—Oct. 14th, r. J. W. Archer in the chair; Mr. John ane was elected a vice-president; Mr. W. Whitehead, of Paris, was elected a corre- ondent delineator for that city; and Mr. C. Hall, F.S.A., was elected a member. r. Archer presented a rubbing from a ass executed by him, and placed in the urch at Wargrave, near Reading, by the ficers of the Enniskillen Dragoons, to the emory of their late commander, Lieut. Col. aymand White. Mr. W. H. Rogers then livered a discourse on illuminated books, herein the history of illuminating manu- ripts was both theoretically and practically eated of, and giving a preference to the East r its origin; Mr. S. Woodburn exhibited a all and delicate missal of the fifteenth ntury, with gold borders; Messrs. Hunt d Co., of Bond-street, a French MS. of the teenth century; Mr. G. Isaacs contributed extraordinary reliquary, called a "Rota," the thirteenth century; The Rev. H. owe, Vicar of Buckingham, contributed a alter of the twelfth century, and Mr. Leake urious printed book of the fifteenth century, ing one of the ancient choral books of Salis- ry Cathedral. Capt. V. Anson laid upon e table two Egyptian deities, taken at the ge of Amoz in 1842; and Mr. W. Barton hibited an engraved book of prayers of the venteenth century. The next lecture was nounced for the second Tuesday in No- mber, being a continuation of the same bject.

OPENING OF THE NEW HALL, LINCOLN'S-N.—It is understood that her Majesty has ed the 30th inst. to open the New Hall, ncoln's-inn, at 2 o'clock p.m.

CITY OF WESTMINSTER LITERARY, SCIENTIFIC, AND MECHANICS' INSTITUTION.—The general meeting of this institution was held on Wednesday evening, when the chair was taken by Wm. Page Wood, Esq. (Queen's Counsel), vice-president. It appeared from the committee's report, that much attention had been given to the evening classes, as offering peculiar advantages to the mechanic, and that these comprised several especially adapted to his wants; as those for writing and arithmetic, geometry and its practical applications, and architectural, and ornamental, and general drawing. A very interesting series of lectures was announced for delivery during the quarter. A discussion ensued as to various proposals for reducing or liquidating the balance of the debt incurred for the erection of the premises, and a committee was appointed to examine and report on their several merits. Thanks were voted to the chairman, and the meeting adjourned.

IMPORTANT USE OF INDIA-RUBBER.—At an inquiry held in Galway a few days ago, by Captain Washington, the Tidal Harbour Commissioner, one of the Town Harbour Local Commissioners stated that the Board of Works had been allowed 100*l.* for India-rubber, to *keep out the tide* when the docks were undergoing repair.

FOR RAILWAY INTELLIGENCE, &c. SEE SUPPLEMENT.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the execution of two contracts on the Manchester, South Junction, and Altringham railway, being respectively of the lengths, 1¾ mile and 7¾ miles, including a viaduct of 1,000 yards in length.

For the execution of the entire works (with the exception of Rails and Chairs) of the Cockermouth and Workington railway, being about 10 miles in length.

For supplying her Majesty's Dockyards with Lift Pumps, for pumping water out of ships' holds.

For supplying the London Dock Company with Bent Wood Hoops for the year ensuing.

For the execution of Works on the East Lancashire Railway, being the Burnley contract.

For the supply of 90,000 Sleepers either Larch or Baltic Timber; also of 380,000 lineal yards of Larch Railing, and about 28,000 Larch Posts, to the East Lancashire Railway Company.

For the supply of Railway Sleepers conformable to specification, to the Liverpool and Bury railway.

For supplying the London and Birmingham Railway Company with twenty Passenger and ten Goods' Engines of the greatest power that may advantageously be employed, being not less than 1,000 square feet evaporating surface.

For the execution of the Works on the Hull and Selby railway, between Hull and Driffield, being a distance of about 19 miles.

TO CORRESPONDENTS.

"C. J." *may safely construct the external wall to a fourth-rate in the manner he proposes.*

"W. R. A." (Durham.)—*Messrs. Whittaker and Co., of Ave Maria Lane, London.*

"A Sub." (Nottingham.)—*Bruff's work on Engineering Field-work, published by Simpkin and Marshall.*

"J. M."—*The reply would depend on the terms of Messrs. Bunnett and Corpe's specification. We are disposed to think it would be an infringement.*

"Observator's" *letter in no way contradicts the remarks on the dreadful state of the sewers, which have appeared in our pages.*

"Plans on Parchment."—*A correspondent wishes to know the best way of colouring plans on parchment? What are the best colours to use? and what liquid is best for mixing the same? We have our own way, but shall be glad to receive the opinions of others.*

"R. C."—*Caen stone is used externally in the restorations at Canterbury Cathedral, Westminster Abbey, &c. In quality it is very various, containing vents and faults hardly discoverable 'till opened. It is a good stone, but must be selected with care: few people in England know much about it. We will shortly seek an opportunity to speak more at length.*

"S. H." (Paris.)—*We shall be happy to receive specimen and terms.*

"G. P." (Nottingham.)—*The design is not sufficiently good for publication. The classic lyre and wreath are out of place on a gothic monument. We are much obliged to "G. P." nevertheless.*

"W. S." (Keighley.)—*There is no new work on staircases. Michael Angelo Nicholson's book, on this subject, published ten or twelve years ago is scarce, but may sometimes be met with.*

"Q."—*The request did not reach us till it was too late to comply. We have altered the signature.*

"W. W." *will find a work on Railway Surveying recommended above. We should advise him to understand the subject before he accepts an engagement.*

"Quebec."—*A correspondent says 1,000 hands are wanted for works at Quebec, and wishes to know who has the engaging of them.*

"O."—*If the specifications be also made, an architect of standing would charge two-and-a-half per cent. The question is an unsettled one: previous arrangement would be the best course.*

"J. S."—*If the projections be in accordance with the Buildings Act, our correspondent may rest satisfied. The latter supersedes local Acts.*

"G. R. L.," "Ballantine and Allan."—*Next week.*

Other correspondents must excuse us till our next number.

ADVERTISEMENTS.

ROYAL POLYTECHNIC INSTITUTION, REGENT-STREET.

KITE'S PATENTED VENTILATING and SMOKE-CURING SYSTEM is daily explained by Mr. Phillips, the practical engineer, illustrated by models and a great variety of experiments, at a Quarter past Twelve and Half-past Seven precisely. Architects, Builders, Ironmongers, Gas Fitters, and the Public generally, are invited to investigate the merits of this new and scientific invention, the application of which may be seen in practical operation as applied to street lamps, at the entrance of the above Institution. All letters addressed to the Patentee, New North-road-bridge, Hoxton.

ROYAL POLYTECHNIC INSTITUTION.—Lectures on the Music of Spain, by Don Jose de Ciebra, with Guitar and Vocal Illustrations, on Tuesdays, Thursdays, and Saturdays, at Half-past Two o'clock. Dr. Ryan's Lecture on the Process for making Ice by Artificial Means, illustrated by Masters' Patent Apparatus, Daily, at Half-past Three o'clock. Also, Mons. Boutigny's experiment of making Ice in a Red-hot Crucible. Professor Bachhoffner's varied Lectures, with experiments, in one of which he clearly explains the principle of the Atmospheric Railway, a model of which is at work Daily. Coleman's New American Locomotive Engine, for ascending and descending Inclined Planes. A magnificent Collection of Models of Tropical Fruits. A new and very beautiful series of Dissolving Views, new Optical Instruments, &c. Experiments with the Diver and Diving Bell, &c., &c.—Admission, One Shilling; Schools, half-price.

BIELEFELD'S PAPIER MACHE.—The superiority of the Papier Mâché for the purposes of ARCHITECTURAL DECORATIONS is now so generally admitted, that it is needless to argue it. The introduction of Papier Mâché into most of the public and private buildings in the country is the best proof of its merits. Ornaments may be had in almost every style, and pattern-books, containing more than a thousand executed designs. Price 1*l.*

PICTURE FRAMES and other Articles of Furniture, either gilt or in imitation of the finest carved oak. An illustrated Tariff forwarded on the receipt of eight post-office stamps.

PATENT QUAQUAVERSAL GLASS-STANDS for the toilet, on an entirely new principle, of great elegance, and free from all the practical inconvenience of ordinary Glass-stands.

At the works, 15, Wellington-street North, Strand.

WALLIS'S PATENT LIQUID WOOD KNOTTING.—This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; a boy can use it as well and effectually as the best workmen: it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20*s.* per gallon.

VARNISH.—It has long been a desideratum amongst the consumers of Varnish to obtain a good and genuine article; brilliancy, facility of drying, hardness, and durability are the qualifications necessary, but these are seldom if ever found united. The experience of a life-time devoted exclusively to the manufacture of this article, the great and important discoveries of modern chemistry, and the daily improvements in machinery, have enabled Messrs. George and Thomas Wallis to produce Varnishes (both oil and spirit) unrivalled in every respect, and they confidently recommend them to the trade, as deserving of notice both in price and quality.

Builders, Coachmakers, Painters, and others may depend on being supplied with a genuine and unadulterated article. Fine Oil Varnish, from 10*s.* per gallon; best White Spirit Varnish, 21*s.* ditto; Best Spirit French Polish, 20*s.* ditto; White Lead, Oil, Turps, and Colours of every description at the very lowest prices.—WALLIS'S Varnish, Japan, and Colour Manufactory, 64, Long-acre, one door from Bow-street. Established 1750.

TO ARCHITECTS, BUILDERS, UPHOLDERS, BLIND MAKERS, &c.

E. SMITH, MANUFACTURER, 8, AVERY ROW, BOND STREET.—The Registered Archimedian Blind Roller possesses important advantages, such as the following:—It resembles closer than any other the spring in its rapid ascent, and short pull of cord, being only a quarter the length of blind, the tassel being retained in the hand during the entire ascent of a long blind, not liable, as the spring, to be deranged by want of care in using; much cheaper, and capable of application where the spring is not, as in long narrow windows. Parties will be waited on with models, by communicating the wish by post, or can see them at the Polytechnic Institution, and Adelaide Gallery.

Ends for wooden roller, complete . . . 4s.
Tin tube . . . . . 5d. per foot extra.

Orders by post, with measure between beads and length of window, will be executed, and sent to any part of the kingdom.

GRAINING COLOURS AND LIQUID WOOD STAINS.

HENRY STEPHENS begs to call the attention of Architects, Builders, House Decorators, Painters, Cabinet-makers, and all those engaged in the erection of churches where the appearance of oak is desirable, and those also who are employed in the revival of old carvings, faded furniture, or other ornamental wood work, to his GRAINING COLOURS and LIQUID WOOD STAINS.

The graining colours are prepared in a damp state, and upon so true a principle, that the workman cannot fail in obtaining the natural colour, nor of giving to the work the same effect and appearance at all times. The difficulty of producing a true colour and of preserving the same uniformity with the admixture of earths and oxides, which are the ingredients used in graining, has long been acknowledged. This difficulty is at once removed by these preparations, and the grainer is enabled to confine his attention to his art in graining, without being perplexed in proportioning and mixing his colour.

The LIQUID STAINS are solutions of colours which not only carry additional stain on to the various woods on which they are employed, but when used on the particular wood whose object it is to revive, it combines with and heightens the natural colour inherent in the wood, and is therefore a valuable acquisition to the DECORATOR and to the RENOVATOR of old oak or other carvings. They are also capable of giving colour to the sappy and defective parts of veneers and fine woods used by cabinet-makers and others.

In the decoration of churches, castles, baronial halls, and mansions, in which are often found beautiful specimens of ancient carvings; when the colour of the wood is changed and faded, these liquid stains will be found particularly serviceable.

They also impart to woods of inferior character and of soft texture, such as beach, birch, pine, deal, &c., the colour and appearance of such woods (whether oak, mahogany, rosewood, &c.) as it may be designed to imitate, and thus save the expense of more costly materials.

The above preparations for graining and staining for purposes of imitation and of revival, are prepared by HENRY STEPHENS, and may be obtained at 54, Stamford-street, where specimens of their application may be seen, and also at the Office of "The Builder."

HOLBORN AND FINSBURY SEWERS, MIDDLESEX.

THE COMMISSIONERS of SEWERS for the LIMITS give NOTICE, that their Office, Hatton Garden, is open daily between the hours of Ten and Four, where information can be obtained (gratis) by persons about to Purchase or Rent Houses or Property, or take Land for Building purposes, of the situation and level of the public Sewers, capable of affording sufficient Drainage, and which they recommend all such Persons to apply for at the above Office.

By the Court,
STABLE and LUSH, Clerks.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. (chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, or public way, or in any part intended to become a street, ane, or public way, or to carry or drain off water from any house, building, yard, or ground, into any sewer under their management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewer or sewers shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, upon application being made at this office previously to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, whenever the lower floors or pavements of buildings shall have been laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings must in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners will be cut off, and the parties making the same will subject themselves to a fine.

The provisions of the Metropolitan Buildings Act (7 and 8 Victoria, c. 84) do not supersede the authority of the Commissioners of Sewers in the above respects, but their powers are expressly reserved, and their regulations made subservient to the purposes of that Act. The execution of such works, under the superintendence of the district surveyor alone, cannot therefore warrant the making of any sewers or drains within this commission, nor relieve the parties making them from the penalties above mentioned.

By order of the Court,
LEWIS C. HERTSLET, Clerk.

PORTLAND CEMENT of best quality manufactured by J. B. WHITE and SONS, of Millbank-street, Westminster. To be had at their Warehouses; Druce's Wharf, Chelsea; Bell's Wharf, Paddington; and Earl-street, Blackfriars.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

Agent for Liverpool, Mr. WYLIE, 56, Gloster-street; ditto for Manchester, Mr. J. THOMPSON, Back King-street; ditto for Chester, Mr. J. HARRISON, Linen Hall-street.

KEENE'S PATENT MARBLE CEMENT.

THE PATENTEES of KEENE'S CEMENT beg to draw attention to the use of this material in the works recently executed at the COLOSSEUM, Regent's-park. The POLISHED COLUMNS in the Hall of Sculpture, the ornamental paving in the corridors and conservatories, and much of the stucco on the walls, are specimens of the very successful application of this cement. Patentees and Manufacturers, J. B. WHITE and SONS, Millbank-street, Westminster.

ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architecture and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

MARTIN'S FIRE-PROOF AND ORNAMENTAL CEMENT.

CAUTION.—Messrs. STEVENS and SON, Patentees, beg to caution their friends and the trade generally against confounding this invaluable Cement with others, erroneously said to be of the same description. S. and S. pledge themselves, that MARTIN'S CEMENT is totally dissimilar in composition and manufacture from every other, and, being a neutral compound, is not only free from chemical agency upon any substance with which it may come in contact, but completely resists the action of the strongest acids. They feel it a duty to direct attention to the following properties, which it exclusively possesses:—

1. It rapidly acquires the hardness of stone.

2. Unlike other internal cements, its hardness is uniform throughout its entire thickness.

3. Its surface (which may be made equal to that of the finest marble) never throws out any salt, and will receive paint in four days, without peeling, when put upon dry work.

It is peculiarly adapted as an internal stucco for walls, skirtings, architraves, mouldings, and enrichments of all kinds, to all of which purposes it has been extensively applied by Mr. Thomas Cubitt on the Grosvenor estate, &c.

For the above purposes, it possesses great advantages over wood, being more economical and durable, resisting fire, damp, and vermin.

For the floors of hall and fire-proof warehouses, its lightness, durability, and uniform surface give it an immense advantage over stone, being, at the same time, much more economical. The most satisfactory references can be given. To be had of the Patentees, Plaster of Paris and Cement Manufacturers, 186, DRURY LANE.

Agent for Liverpool and Manchester, Mr. R. PART, 28, Canning-place, Liverpool.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application to MANN and CO., SOLE AGENTS for the Patentees, 6, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOUR STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the suction, thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, producable by no other Paint whatever. It is cheap in its application,—and may be used by any Painter, in any climate, even in the most exposed Marine situations.

POLONCEAU'S BITUMEN PAVEMENT for paving Foot walks, Terraces, Garden walks, Stables, Coach Houses, Granaries, Corn Stores, and Salt Warehouses. For the exclusion of Damp and Vermin in Basements it is particularly adapted, and for Roofing Dwelling Houses, Porticos, Balconies, and Sheds.

Price 3s. 6d. per square yard.

BITUMEN for covering the Arches of Bridges, Culverts, &c. &c. on Railways and other places (with instructions for laying it down), may be had at the rate of 45s. per ton, by applying to JOHN PILKINGTON, 15, Wharf-road, City-road.

TO ARCHITECTS.

IN consequence of many complaints having been made to the Company, by Architects, of a spurious material having been used in the execution of Works where the SEYSSEL ASPHALTE had been specified for, the Directors, with a view to ensure the fulfilment of any such specification, have authorized CERTIFICATES to be granted to Builders where the

SEYSSEL ASPHALTE

has been used. For the purpose of securing the use of the Genuine Article, Architects and others are recommended to insert in their specifications the "Seyssel Alphalte, Claridge's Patent," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used, gas-tar and other worthless and offensive compositions have been introduced.

I. FARRELL, Secretary
Stangate, near Westminster Seyssel Asphalte Company.
Bridge, Jan., 1845.

Books of Instructions for Use may be had at the Office of "The Builder," and of all Booksellers in Town and Country, price 1s.

*** In proof of the necessity of the above advertisement, may be mentioned, that it has come to the knowledge of the Directors, that in certain works which have been executed by Messrs. CURTIS, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

Also in the case of a work at Lewisham executed by Messrs. ROBERT and DANIEL YOUNG, of 10, Crown-row, Walworth-road, where Seyssel Asphalte was specified for, a spurious article was nevertheless laid down by them.

RAIN WATER PIPES, Heads, Shoes, and Elbows, Half-round and O G Gutters, Sash Weights, Railing Bars, Sink and Stable Traps and Gratings, Air Bricks, Coal Plates, &c.; Gas and Water Pipes from ¼ in. to 12 in. in diameter, with Bends, Branches, Syphons, and Lamp Columns; also Hot-water Pipes, with all the usual connections. A large Stock of the above Castings at JONES'S Iron Bridge Wharf, and No. 6, Bankside, Southwark.

NOVEL PLAN FOR CURING SMOKY ROOMS.

THE SMOKE ELEVATOR, secured to the Advertiser by Act of Parliament, can readily be attached to any old or new pattern room stove, without disfigurement or removal of the stove, at a less cost than any patent chimney pot, and with a certainty of success beyond comparison.—Sold by C. RICKETS, patentee of the calorifere gas stoves, for warming churches, halls, rooms, shops, or any other kind of building, without a chimney.—No. 5, Agar-street, Strand, opposite Charing-cross Hospital.

TO ARCHITECTS, BUILDERS, BRICKMAKERS &c.,

PUMPS of Superior CONSTRUCTION, bored perfectly true by improved machinery, in various plain and ornamental patterns for Conservatories, Squares, Market Places, Roads, Gardens, and for Liquid Manure. BRICKMAKERS' PUMPS, in Wrought and Cast-Iron, HYDRAULIC LIFT PUMPS, and ENGINES for Wells of any depth. SINGLE and DOUBLE PUMPS up to 12-inch bore, kept for Hire.

BENJ. FOWLER, 63, Dorset-street, Fleet-street.

TO ARCHITECTS AND BUILDERS.

DOOR SPRINGS AND HINGES.—GERISH'S PATENT DOOR SPRINGS, for CLOSING every description of DOOR, consists of Single and DOUBLE-ACTION BUTT HINGES in Brass and Iron for Doors to open one or both ways, and Rising Hinges for the convenience of Doors opening on uneven Floors. Likewise Swing Centres, which consist of a combination of power unequalled by any made at present. Manufactured by F. W. Gerish, East-road, City-road; and sold by all respectable Ironmongers in the United Kingdom.

BUNNETT AND CORPE,
ENGINEERS,
26, LOMBARD STREET, LONDON,
AND AT THE WORKS, DEPTFORD,
Patentees and Sole Manufacturers of the
REVOLVING IRON SAFETY SHUTTERS.
METALLIC SASH-BARS, MOULDINGS, ETC., IN BRASS, ZINC, OR COPPER,
FOR
SHOP FRONTS, WINDOWS, SKYLIGHTS, &c.
STALL-BOARD PLATES MADE AND ENGRAVED.
And all kinds of Metal Work executed to any Design.
Estimates given for Patent Iron Shutters, Metallic Shop Fronts, Sashes, &c., Glazed complete, with best Plate Glass, in any part of the kingdom.
METALS ROLLED OR DRAWN FOR THE TRADE.

R. W. PIPES.

Messrs. NEILSON and MITCHELL beg to inform Builders that they have always on hand, at their premises, 15, Wharf-road, City-road, a large assortment of R. W. Pipes, Guttering, Sash-weights, &c., which they are disposing of at very low prices.

Castings of every description done to order.

BALLUSTERS.

The Builder.

No. CXLII.

SATURDAY, OCTOBER 25, 1845.

MANY bad measures are carried, and good measures kept back, by the mere spirit of party. Men are often led by *esprit de corps* to vote with reference only to the triumph of the section with whom they act, and not to the merits of the main question at issue. In numerous instances, improvements of the greatest consequence have been rejected simply because they were brought forward by parties opposed to a majority,—unwillingness to aid the views of one they disliked, envied, or feared, serving to close their eyes to the merits of a proposal, which under other circumstances would have had their earnest support.

It is much to be hoped, that no such feelings will be allowed to operate in the Westminster Court of Sewers at the present moment: still we have fears on the subject, as is evident from the expression of the hope. That the sewers within its jurisdiction are sadly inefficient, has already been made manifest in our pages. They are little better than one huge cesspool, filled with decomposing matter (tending materially to injure public health), and many of them, moreover, are in a state of great dilapidation, in consequence of the badness of the form employed, and other circumstances. Some of them are so choked up with solid matter as to be almost impassable; and we have heard of an instance (but can hardly believe it), where a new sewer, built to accord with what was considered the level of the sewer into which it was to discharge itself, was of necessity taken down and reconstructed, on discovering that what had been supposed the proper bottom of the old sewer was simply the surface of the accumulated soil, and was more than a foot above the right level.

A writer who addressed us last week, with a *desire* to say the Westminster Sewers were not in the deplorable state set forth in our pages, and in the commissioners' own "Book of Informations,"*—but who evidently knows that they are,—remarks:—

"One of the greatest evils now existing, and which is continually the cause of almost innumerable cesspools, is the large, old-fashioned grates over the gulley-holes in the public streets. The large divisions between the bars of these grates are continually admitting into the sewers great quantities of stones and rubbish, which immediately fall into the sewers, and form dams or obstructions to the passage of all the light soil, in some instances to the depth of two feet; this defect might be (and I hope will be) soon remedied by substituting new grates of smaller divisions, which would almost entirely prevent a recurrence of this intolerable nuisance, and ultimately would be a saving of very great expense, as all these obstructions are obliged to be removed by opening the sewers, and bringing up the stuff into the streets to be carted away: an annoyance most desirable to be practised as seldom as possible."

Now, we can mention another cause of obstruction and consequent deposition, and that is, the heap of gravel and rubbish, too often left on the bottom of the sewer by the workmen when putting in the connecting drains from houses. In one long sewer an eminent builder informs us, the houses in the street above, may be counted by these little hillocks, which dam back the water, and necessarily induce deposition.

These, however, are but local causes, and if prevented, which most certainly they should be, would not remove the whole difficulty. The general cause is the shape and level of the sewers. A form of sewer with upright sides (as bad as can well be imagined), was in use in the Westminster division for many years; it has, however, been recently abandoned, and another substituted for it, yet this new form is but a slight improvement upon that which it superseded. The greater curvature given to the invert certainly somewhat confines the stream to a narrower channel, and so increases its velocity and its cleansing power, but the increased velocity thus gained over that afforded by the old form, under the most favourable circumstances, is so very slight, that it is of little or no avail in preventing deposits and accumulations of matter. The inefficiency of the form is admitted by the commissioners, and proved collaterally by the evidence published with the first Report of the commissioners for inquiring into the state of large towns; and in the report of the proceedings at the last court of sewers, which follows our present article, it will be seen that a day was then set apart to examine various new forms that had been submitted to them, including, after a struggle against it, the form proposed by Mr. Phillips, which we laid before the public last week.

Of the excellence of this latter we have no doubt; and what is of very great importance, its cost is much less than that of the present form; taking for example the No. 2 sewer, the cost as now executed is 17*s.* and 6*d.* per foot lineal; whereas the cost in accordance with our engraving is estimated at 11*s.* and 6*d.* per foot.*

The opinion formed of it by practical men is shewn by the following document which was read by Mr. Leslie at the court on Friday, in support of a motion to the effect that this form should be adopted:—

London, 16th October, 1845.

DEAR SIR,—At your request, we have examined the annexed lithographed sections of sewers, signed "John Phillips."

We are of opinion that sewers so formed would be most efficient as regards drainage, and durable and economical in their construction.—(Signed)

THOS. CUBITT, JOSH. & CHAS. RIGBY,
GRISSELL & PETO, ELGER & KELK,
WILLIAM HERBERT, HUGH BIRD.

This certificate *must* enforce the attention of the commissioners; they cannot easily pooh, pooh! any project thus accredited. Unfortunately, however, such a captious spirit prevails at this moment, and so many commissioners have expressed opinions perhaps too hastily taken up, or have acceded to views proposed by others, to which they consider themselves bound, that we can hardly anticipate such an unprejudiced discussion of the question as its importance demands and the metropolis has a right to expect. We seriously urge the commissioners to put aside every other object but that of attaining the best and cheapest form of sewers: and if any, from fresh evidence now before them, are satisfied that the egg-shaped sewer must be better than one with straight sides (and we respectfully submit that this cannot be denied), it is to be hoped they will not fail to act in accordance with that opinion, even though they may have previously expressed themselves differently.

It is not our intention at this moment to comment on the general management of the Westminster Commission, although it is unquestionably open to animadversion. We trust, however, it will not be considered impertinent if we hereafter revert to the subject. With so important a trust, a revenue of from 20,000*l.* to 30,000*l.* a year, or more if they please, and great powers, it is of the utmost consequence that the duties of the commission should be efficiently discharged. It is not a party question, not a mere parish question, but one of national importance (as can easily be shewn), and if any improvements are necessary, they should forthwith be attended to, or the public will themselves interfere, and see that they are made. The time has gone by for legislating from behind a curtain,—unquestioned.

See p. 493 *ante*.

* The following table shews what would be the cost, according to the depths, for one foot lineal of three several sizes of egg-shaped sewers proposed by Mr. Phillips. The first size is 3 ft. wide, and 4 ft. 8 in. high inside, and the walls one brick thick all round; the quantity of reduced brickwork in mortar is 7 ft. 1½ in., and in cement 2 ft. 8½ in.; one rod together will execute 27 ft. 8 in., run. The second size is 2 ft. 6 in. wide, and 3 ft. 11 in. high inside, the walls one brick thick; the quantity of reduced brickwork in mortar is 6 ft., and in cement 2 ft. 4 in., one rod will execute 32 ft. 8 in., run. The third size is 2 ft. wide, and 3 ft. 3 in. high inside, and the walls one brick thick; the quantity of reduced brickwork in mortar is 5 ft. 2 in., and in cement 2 ft.; one rod will execute 38 ft., run. The digging, including timber, strutting, &c., is calculated at 1*s.* 8½*d.* a cube yard; and the brickwork, in mortar at 11*l.* 18*s.* a rod; and in cement at 14*l.* 14*s.* 8*d.* a rod.

No. 1 Sewer.

TOTAL COST OF DIGGING AND BRICKWORK.

Depth of digging to bottom of trench:—

12 ft. 6 in.	.....	12*s.* 6*d.*	per foot.
25 0	.....	10 0	,,

No. 2 Sewer.

10 ft. 6 in.	.....	10*s.* 3*d.*	per foot.
20 0	.....	12 7	,,

No. 3 Sewer.

7 ft. 6 in.	.....	8*s.* 4*d.*	,,
15 0	.....	10 0	,,

WESTMINSTER COURT OF SEWERS.

ON Friday, the 17th instant, a numerous meeting of the court took place, and some very important business was transacted. It being on the business paper to pay Mr. Jay, the contractor, 3,000*l.* on account, Mr. Leslie objected to it, and called for the report of the committee of accounts on the subject. It appeared that the committee had had a meeting on the 7th instant, and the report stated that "the assistant surveyor, Mr. Doull, having presented the bills of the contractor, Mr. Jay, for the quarter ending Midsummer 1845, with the abstracts complete, resolved that the said bills, amounting to 1,443*l.* 2*s.* 9*d.*, be approved and recommended for payment."

Mr. Leslie said Mr. Jay had received 2,500*l.* which he considered more than paid the whole bill, and stated that the committee of accounts were putting the public accounts of the commission into almost inextricable confusion, for while Mr. Jay had received 2,000*l.* on account in April, and 1,000*l.* on account in May, it was not until the 20th of June, he received 270*l.* 2*s.* 1*d.* balance of his bills to Christmas 1844. Mr. Leslie stated that the whole amount of the bills to Christmas 1844, were only 270*l.* 2*s.* 1*d.*, and that it was utterly impossible for Mr. Hertslet to keep these accounts while such proceedings were suffered. The chairman and Mr. Hawkes both contradicted Mr. Leslie, urging that the 2,000*l.* in April, was on account of works generally, and the 1,000*l.* in May, on account of the restoration of the sewer in the Gloucester-road, Paddington, as were the remaining sums mentioned by Mr. Leslie, in June 1,000*l.*, and August 1,500*l.*, on account of works since Lady-day.

Mr. T. L. Donaldson then moved, and was seconded by Mr. T. W. Marriott, "That 1,000*l.* be paid to the contractor on account of the works of the eastern division, and 2,000*l.* on account of the Ranelagh division, and that it be referred to the committee of accounts to direct the clerk to apportion to such districts as they think most proper the sums already advanced." The following thirteen commissioners voting for Mr. Donaldson's motion, viz.:—Messrs. Baylis, Biffin, John Boodle, jun., Clowser,

Thos. L. Donaldson, Gutch, Harrison, Harvey, Hawkes, Le Breton, Marriott, Willmott, Wood; and the four following commissioners against it, Hon. F. Byng, Messrs. W. Farlar, Fuller, Leslie.

The order was then signed for payment of 3,000*l.* to Mr. Jay, Mr. Leslie stating that there was not enough money at the bankers on the eastern division to pay the 1,000*l.*, but that it must be borrowed from the western division, the inhabitants in which had contributed this year already above 16,000*l.*, although the contractor's (Mr. Jay's) four quarterly accounts to Michaelmas were only 1,288*l.* 7s. 11d.

The next business of importance was a motion by Mr. Hawkes, seconded by Mr. John Gunter, to delay the building of "500 feet of sewer in Gloucester-road, Kensington, until Mr. Alexander and Mr. Broadwood have agreed to improve the line of the Gloucester road in front of their land."

Mr. T. L. Donaldson moved, and Capt. Bague seconded, an amendment "That the sewer in Gloucester road be built upon the guarantee offered by Mr. Alexander in his communications to this court."

The arguments against the amendment were, that the whole proposed expenditure was illegal, as it was to build a new sewer, at the expense of the district, where none had before existed, and that Mr. Alexander and Mr. Broadwood should be at the expense of the sewer. The amendment was carried.

Mr. Allason then brought forward his motion, seconded by Mr. Hawkes, "That the several diagrams submitted to this court, for altering the forms of sewers ordered by the court, 17th Sept. 1844, be referred to a committee for their opinion, and report thereon, together with the several diagrams furnished by the other commissions." Upon which Mr. Leslie moved an amendment, seconded by the Hon. Frederick Byng, "That the forms of sewers proposed by John Phillips, be adopted." Mr. Leslie read a letter in support of his motion, which appears in our first article.

The amendment was lost, as was another to refer all the plans to an eminent civil engineer; but a third amendment was carried, moved by Mr. Farlar and seconded by Mr. John Gunter, to consider *all* the plans at a special court, on Friday, the 24th October, at one o'clock.

PROJECTS FOR THE NEW EXCHANGE AT MANCHESTER.

The present Exchange, standing at the bottom of Market-street, was erected from the design of Mr. Harrison, of Chester. The principal front is semicircular in the plan, with Grecian-Doric columns, and is remarkable only, as an early instance of the revival of Grecian architecture. Internally, it is surmounted by a semi-dome, rising from an order of Ionic columns, reeded in the shafts. Some few years ago, this portion had become so inadequate to the object, that an addition was made by taking in the area, occupied by the Post-office, that building being removed to the opposite side of the narrow street at the back, but subsequently to the market in Brown-street, altered for the purpose. The space thus gained added an accommodation, equal to two-thirds of that previously existing, and the new room was itself a very handsome addition. The building now occupied the whole area inclosed by Exchange-street, Market-place, Ducie-place, and the narrow street above mentioned. We believe it was previous to this alteration, that a competition for an extension of the building was decided in favour of Mr. A. W. Mills, architect, but which was suspended in favour of the arrangement adopted. Notwithstanding this increase, the area is still inadequate to the wants of the town, and on Tuesday, the "market-day," it is not easy to move about, and very difficult for persons to meet. These inconveniencies led the committee some time back to consider whether, with the consent of the town, and by appropriating certain ground extending to St. Anne's-square, and intersected by streets, the accommodation could be afforded. The authorities were favourable to the improvement, and the Exchange Committee allotted a number of new shares to raise the requisite funds. Mr. Mills modified his design in certain particulars, and a model of it is now exhibiting in the Exchange room. We have also seen the plans, and though the design is not what would have been produced, had the architect been unrestricted by the necessary adaptation to the order of the old building, it displays considerable skill. The present area is 700 square yards, being larger than that of the news rooms at either Liverpool or Glasgow, and were the extension completed, it would give a room containing nearly 1,400 square yards. On each side of the extension would be rows of shops, and rooms above. The semicircular part was to be raised, and towers erected to light the staircases, and ventilate the building. At the end towards St. Anne's-square, in Bank-street, a Doric portico 70 feet wide was contemplated, the building itself, 100 feet wide, being joined to the rounded by portico corners. The original entablature and order were to be preserved. One great advantage in this plan was, that, by taking in the shops, the area could at any time be enlarged one half. The contracts for the purchase of the property having been entered into, possession of apart was obtained, and some few months since, it was the intention of the committee to commence taking down part of the buildings forthwith. Matters were in this state, when a question as to the fitness of the present site was revived. Within the recollection of many persons, Cannon-street, High-street, and others in that neighbourhood were occupied by houses. They are now, however, filled with warehouses, and during the last ten or fifteen years, the neighbourhoods of Mosley-street, George-street, and Portland-street have become similarly occupied. Thus the tide of business has been gradually removing farther from the original centre; and the arguments in favour of the old locality were reduced to vested rights, the vicinity to the retail establishments, to the places of business of many, who made the greatest use of the Exchange, to the town of Salford, and to the railways, which were constantly bringing persons from the country, who attended the "Manchester market." But the number of mercantile houses, at a distance from the present site, was now so numerous, and it being even doubted by many proprietors of the old building, whether the property could not be laid out to better advantage, several plans were suggested by various parties. Some of these individuals, having applied to Mr. Gregan, of Manchester, that architect succeeded in producing a design of a highly meritorious character, which led to the formation of a company for carrying it out. The projectors contemplated a building, which should rival those of Europe, to be erected at a cost of upwards of 150,000*l.*, and wisely left their architect entirely untrammelled by any obstacles, such as, in the other case, had alone interfered with the production of a completely successful design. They fixed upon the site enclosed by High-street, Market-street, Palace-street, and Cannon-street, including the present Marsden-square; the project was warmly taken up, and the consent of all the holders of the property, except two, obtained. The building was intended to comprise a large exchange room, a music hall, a stock-exchange, and a commercial library. A lithograph of the design is now lying before us. The end of the building next Market-street, containing the news room, has a colonnade, of the Corinthian order twelve columns in length, standing upon steps, and surmounted by a balustrade. The same order runs round the building, which, in the High-street front, is recessed in the centre a considerable depth; the wings being united by steps, and balustrades. The whole is surmounted by a dome. The windows, which are in two ranges, and all the other parts shew considerable taste. The exchange room is entered by three doors under the colonnade; it is lit from the top, and has a gallery round it for the library.—It was now a matter of doubt which project had the best chance of success, and two others were talked about. One was to remove the infirmary to the outskirts of the town, where the advantages of salubrious air would be attainable, and to erect the exchange upon the site; the other to take the site of the late theatre in Fountain-street, along with the assembly rooms in Mosley-street, and other land adjoining. The former proposal was never fairly before the public, but had the advantage of the co-operation of an eminent medical gentleman, who has lately rendered important services in the investigations, carried on by the Health of Towns Commission. The general opinion seemed to be, that the site was not sufficiently central. Within the last few weeks, an arrangement has been entered into, by which the shareholders in the old building, and the company for the building at Marsden-square unite, for the erection of a new building on the land in Mosley-street and Fountain-street, and there is now great reason to believe, that this proposal will be carried out. It is said, that a public competition will be advertised immediately; and there is some talk of extending King-street, so as to open a view of the building. We trust that so fine an opportunity will not be thrown away. The site is perhaps not equal to that at Marsden-square, but has great advantages. Meanwhile, the owners and occupiers of property, in the neighbourhood of the present building, are signing a petition against the intended change.

*** The progress of art in Manchester, during one or two years past, has been so prosperous, that we have made arrangements for giving a notice of several of the most important buildings in a future number.

MEMOIR OF GEORGE BASEVI, ESQ.

The daily papers have already informed most of our readers of Mr. Basevi's melancholy death in Ely cathedral, on the 16th inst. It appears that Mr. Basevi arrived at Ely from Wisbech, on the previous Tuesday, in company with Mr. Fardell, the vicar of that parish, and took up his quarters as usual at the deanery. On Thursday morning he purposed leaving Ely for Cambridge, but before doing so, he went with the Dean and the Rev. D. J. Steward, one of the minor canons, to examine the works now in progress in the great west tower of the cathedral. The party were in the old bell chamber, when the deceased gentleman advanced towards one of the recently-opened windows, along a broad beam, from both sides of which the flooring had been removed. He was cautioned as to certain nails sticking up in the beam; but scarcely had the words dropped from Mr. Steward's lips, when Mr. Basevi tripped and fell through an aperture in the floor, upon the vaulting over the arch under the tower, a distance of above 40 feet, the plank upon which Edward Hall, stone-mason, was working, saving him from going through the ceiling and falling into the cathedral. His hands were unfortunately in his great coat pockets (a customary position with him), which prevented his making any effort to recover his balance or to catch hold of the adjoining beams, which he could not otherwise have failed to have done, as the opening is very narrow. He was immediately raised, but never spoke more; indeed, he died almost immediately, having received most extensive injury upon the head. The Dean hastened for medical assistance: immediate restoratives were applied, but in vain. The deceased was conveyed to the deanery where he had been staying, and an inquest was shortly afterwards holden before a jury of high respectability, who, after a patient investigation, returned a verdict of "accidental death."

The unfortunate gentleman whose death in the midst of life we deplore (Take heed, ye who stand), finished his school education under the Rev. Dr. Burney, at Greenwich, and entered the office of the late Sir John Soane in December, 1810. Here he remained nearly six years, during which time he became a student of the Royal Academy, and when he served his articles, started for the continent in the middle of 1816. He pursued his studies in Italy and Greece, and returned to England in 1819. In the following year he exhibited, at the Royal Academy, a view of the remains of the Temple of Theseus, and commenced practice on his own account in the Albany. His first works were the Church at Stockport, in Cheshire, built under the Church Commissioners, in 1822,* and a mansion at Sunning Hill for Mr. Ricardo, with whom he was connected. In the year previous to that last named he was chosen surveyor to the Guardian Fire Office, on its formation.

Belgrave-square was designed by Mr. Basevi, 1825, for some of his connection who

* He afterwards built a church similar to this at Croom's Hill, Greenwich.

had taken the ground. He exhibited a drawing of the north side at the Royal Academy, in 1826, and others in 1827-28. In 1833, he was called before the Select Committee appointed "to consider the possibility of making the House of Commons more commodious and less unwholesome," with various other architects (Soane, Smirke, E. Blore Wyatville, Burton, Allen, Hopper, Deering, Goodwin, and Savage), and submitted a model and plan for a new House of Commons. In 1835, Mr. Basevi submitted a design for the Fitzwilliam Museum, at Cambridge, in competition. Thirty sets were sent in, and, on the 28th of December, at a meeting held in the Senate House, four designs were selected, of which his was one. Each member of the senate then gave a single vote for one of the four, and Mr. Basevi's plan obtained the majority of votes. This building, which is but just completed, must be regarded as Mr. Basevi's chief work, and entitles him to a high rank as a classic architect. The Conservative Clubhouse, executed by him, in conjunction with Mr. Sydney Smirke, and but recently completed, has further served to establish him in public opinion.

To Gothic architecture it does not seem that Mr. Basevi has paid much attention; a little church (St. Saviour's,) near Hans Place, Chelsea, designed by him in that style, has little to recommend it. This structure is on land belonging to the trustees of Smith's charity, for whom Mr. Basevi acted as architect. Pelham Crescent, Sydney Place, the new part of Brompton Crescent, and several other ranges of buildings on the same estate at Brompton (mostly carried out by the energy and enterprize of Mr. Bonnin, builder of that place,) were designed by Mr. Basevi, as was also Thurloe Square, on adjoining land belonging to Mr. Alexander.

He was a good draughtsman and had a cultivated mind. In his manners, Mr. Basevi was cold and somewhat haughty: he was however scrupulously just, as between his employer and the tradesmen, and though the latter might never find affability or kind words, they were certain that no undue advantage would be taken or meanness practised.

Mr. Basevi was a member of the Institute of Architects from its foundation, and once filled the office of vice-president, but never contributed to its transactions. He was also a fellow of the Royal Society, and the Society of Antiquaries; he was elected to the former on May 11, 1843. His father is still living, and he leaves a widow and eight children to deplore a great loss. Cut off hastily, at a moment when he was about taking a much higher place in public opinion than he had previously held, and when as he thought things looked most smiling, the death of our contemporary should induce in us reflection, and lead us to consider in what we can amend.

HISTORICAL PAINTING.

Sir,—Among many interesting articles in The Builder of the 11th inst., I have been particularly pleased with that headed "An Effort to Advance Historical Art." Though probably the production of a disappointed fresco candidate, it is written with a moderation and temper that claim respect, and it is very much to the purpose at a moment when the fine arts fix so much of the attention of an intelligent public, and their capability of co-operating efficiently in the civilizing progress of national education, has become a leading question.

The writer of that paper is, perhaps, not aware that a proposal nearly resembling his own, was about the year 1838, entertained by the Central Education Society. A committee was appointed to consider in what way the fine arts would best assist the objects of the society; it comprised Messrs. Hawes and Wyse, both members of the present Royal Commission on the Fine Arts; Mr. W. S. O'Brien and the society's secretary, the late Mr. Duppa. They invited several artists to advise and co-operate with them. The proposed plan was a pictorial history of England with tabular statistics of the condition of the people and the progress of civilization, law, and freedom, with an account of inventions or improvements by importation, &c. Mr. Walters, the publisher, was present at the meetings, to suggest or receive hints as to the mode of publication.

The discussion of the plan of the work and of the practicability and expenses of the work were very satisfactory. But the whole was suspended, in consequence of one member of the committee, who had not attended that discussion, proposing other subjects to his colleagues of a less national character. The death of Mr. Duppa subsequently led to the extinction of the society and most of its useful projects. Fortunately, Mr. Knight's publication (on a somewhat different plan and vastly more extended and costly), begun about the same time, shews the necessity there was for drawing the people's attention to the history of their country; and the exhibition of cartoons in 1843 at Westminster Hall, tested and proved the taste of a British public for historical compositions.

I need not at present trouble you with all the details of the plan above alluded to, but will endeavour to apply to your correspondent's proposal, such modifications as experience indicates as practical and suited to the success of the enterprise, and to the educational wants of the people.

As to the merits of the subject proposed, all who have any experience must approve it, and I quite agree with your intelligent correspondent that the objections to costume and other technicalities, contained in the Third Report of the Royal Commission, are insignificant, the difficulty of overcoming them being very slight to artists skilful in composition and well informed of the varieties in each period. His proposal to invite criticism and advice from antiquaries, poets, historians, anatomists, &c. is highly commendable. Such a course would enlighten the artists and save them much trouble and uncertainty; it would also accustom men of science to the charms and capabilities of the arts; it would help to bring about that connection between knowledge and sentiment that ought surely to form the basis of historical art. Under such auspices, the history of our country, in a language impressive to the sight and feelings of all men, could not fail to be successful in its appeal to the public. The exhibition should be made to attract vast multitudes; that would be the best advertisement for the publication of engravings with historical explanation.

The Boydell Illustration of Shakspere, and Bowyer's History of England shew that a vast outlay may be more than replaced by such an undertaking. They are beacons to direct us, and so have been in recent times the annuals and art-unions. The vast improvements in antiquarian knowledge and in every department of science collateral to the painter's art, give to the artists of the present day immense advantages over the unassisted talent of the time of Boydell and Bowyer.

The practice of cartoons has already drawn out some of the qualities in which British artists were considered most deficient. A continuation of that practice can alone confirm their talent for composition, drawing, and other essentials in high art. Fresco painting will help to wean them from conventional effects, horny tones, and too much reliance on meretricious qualities, injurious to simple pathos and refined perception.

Agreeing so far in all the principles connected with your correspondent's plan, I question the practicability or desirableness of one or two of his proposals. 1st. How far is it advisable to produce cartoons and frescos of the dimensions proposed, i. e. from 16 to 22 feet, for an exhibition of two or three months, and for the especial purpose of engravings of as many inches? This might be all very well if easily attainable, but the demand on the artists' exertions and expenses, the difficulty of exhibition, the necessity of calling for help from Government, and that of destroying the frescos, however fine some might be, are insuparable objections which would be felt and urged if such a proposal were made by the Royal Commission, and remain so under any circumstances before us. Why not limit the cartoons to half proportion?—figures of three feet and a half or four feet: and frescos of one or two figures, life size, or half figures of collossal proportions, with studies of heads and hands similar to the splendid cartoon studies of Raphael, or of Leonardo da Vinci, would certainly suffice. To follow their example rather than that of Louis Philippe may save us from the perils to which the peruquier would have exposed Yorick's wig. By this prudent modification, instead of 400 feet of wall, 200 would be sufficient, and that quantity is forty times more procurable. What the people of England and good taste require is not acres of painted walls, but subjects, character, action, expression; in fact, well told stories.

A Warm Admirer of Historical Painting.

THE SCHOOL OF DESIGN, MANCHESTER; AND PROPOSED MUSEUM OF ART.

Some five or six years ago, at the meeting for the establishment of the School of Design, we recollect, that an extensive museum of art was one of the most important objects, contemplated by the projectors. It was to include works of interest in every branch of art and science, and to be open freely to all persons. It is, therefore, no new project, and has only been delayed through the comparatively slender patronage and success of the school, during the first years of its existence. But, under the present efficient management, the school promises soon to exercise the influence, demanded from the intimate connection between manufactures and art, and it has already made a great advance in resources and importance. Much of the credit for this flourishing state is due to the council, and more especially to their active honorary secretary, Mr. George Jackson. He has laboured long and zealously to aid the infusion of taste in decorative art, was one of the earliest promoters of the school, and is unquestionably a very fit person for the important office he holds. In a paper "On the Means of Improving Public Taste,"* printed last year, Mr. Jackson has urged the importance of cultivating the industrial arts, and of preserving the connection between ornamental and fine art. He says, "the false notions that exist in the public mind, as to what constitutes or may be considered as art, may be assigned as one cause of its present state. What a powerful distinction exists, in their estimation, between a carver in wood and a sculptor of marble! The former may produce the most splendid effects of form and grouping; but what share of the public applause does his skill obtain compared with an inferior production in marble? The one is considered as a mere mechanic in art,—the other is looked up to as the professional esquire. It is important that the public taste should be so instructed as to banish these false distinctions,—that they should be taught to look at a work, judge of its merits, and award their approbation, without regard to the nature of the material. This can only be effected by convincing the public, by examples, that there are difficulties to overcome, and talent required in the practice of any department, however inferior its application may at first sight appear; and that perfection can only be attained by persevering industry and constant study. May not the present state of the useful arts be traced to the fact, that a young man entering upon this practice, ambitious and desirous of fame, soon discovers that no praise, no *éclat*, is awarded to their productions; and to obtain this he must bend his mind to the ideal? May we not also trace to this want of discriminating judgment, the complaint that is made by the professors of high art,—of the want of patronage for their efforts? It is not likely, or to be anticipated, that the public,—whose estimation is regulated by comparison,—if they cannot appreciate beauty in the things of necessity and common use, can have a mind sufficiently alive to the beautiful in those creations of fancy which are beautiful only to the educated eye. Extensive patronage must not be anticipated for the ideal of art, until the useful is more generally appreciated. The industrial arts must be made the means not only of educating the public taste, but of teaching the elements of art to those who would soar to its highest end. How could such a course depreciate the practice of high art, or render its

* See page 229, *ante*.

* A paper read at a conversazione held at the Royal Institution, Monday, November 25th, J. W. Fraser, Esq., in the chair, and repeated, by request, at a public meeting at the Athenæum, Saturday, November 30th, R. Cobden, M.P., in the chair, by George Jackson, honorary secretary, Manchester School of Design. In connection with the Government schools, Somerset House, London. Printed by request of the council.

professors less competent to produce great works? Being made acquainted with its more extended application and utility, would not fail to increase their ardour and expand their influence.

"This would soon produce powerful effects;—the useful arts would attain a degree of excellence that would render us eminent as a nation, and high art would be relieved from those attempts to reach it, which, by their multiplicity and inferiority, now depreciate it in public estimation."

We have never been able to understand why painters, sculptors, and architects, should restrict their pursuits to conventional limits. Not to mention the identity of these arts during the best days of art in Italy, it is certain, that once no object was deemed too mean for the display of art. Every production, a vase, a candlestick, or a door-handle, was elevated to the rank of a work of art, under the treatment of the most eminent artists. Now, if we except the designing for silversmiths by some of our sculptors, who would not consider it a loss of *caste* to prepare designs for such things as carpets and hangings, or for furniture?

Mr. Jackson goes on to say—"It is those means that would *insensibly* educate the eye to the perception of beauty, that we stand in need of, and the necessity for which I am anxious to impress upon your consideration; and, if possible, induce a spirit of activity that will avail itself, not only of that noble desire for the promotion of good that is now so active in the town, but also of the desire I have alluded to, on the part of the Government, to promote such institutions. That there is talent amongst us as a people, cannot for a moment be doubted. The important question is,—How can this talent be developed and best directed? Certainly, no means are likely to be so effective, as opening to the view and constant study of the people, examples of art,—the relics of other ages,—in contrast with productions of the present time. I think the day is not far distant when the Government will find it necessary to multiply *fac-similes* of those splendid remains of ancient art which are in their possession, in the British Museum and in London (the influence of which is now confined to that locality, and of use only to a fraction of the community), and deposit them in the leading provincial towns; thus forming centres in various parts of the kingdom where these essential helps to study may be seen, and the principles of art learned. Who can calculate the effect such facilities would have upon art, or the results, in a national point of view? What facilities have we in this town? Out of the metropolis, where are the examples—where the stores of art? What means have we of elevating public taste? Our thoroughfares present no beauty,—no statues—no fountains, and but little that is good in architecture. There is nothing to excite emulation! nothing to arouse a feeling for, or perception of, excellence in the mind!

"Allow me to contrast this state of things with that which exists amongst our rivals abroad. With them, art is made a leading feature not only of every system of instruction, but its examples are continually exposed to the public eye. Every public object is graced by its performance, and all events commemorated by its efforts;—the most common-place necessity is made subservient to its influence. Who, that has wandered through the streets of Paris has not been struck with the thought, that if the supply of water is not conveyed with as much facility as to our dwellings, it is turned into a powerful means of educating the eye; and instead of the common-place machines used in this country, with levers of graceless form, requiring much animal strength to put into motion, has there seen that the vessel cannot be filled with this necessary condiment until it has educated the eye and taste of the recipient,—that the water has been thrown high into the air, and descended from basin to basin until it reached the grand reservoir from which it issues, through some ideal or chimerical form. What must be the effect upon the juvenile minds of the lower classes, who are sent, as soon as nature has imparted strength, to these fountains of combined necessity and beauty? This is a simple illustration of the way the things of necessity are made subservient to and become the means of public instruction. I shall not delay you to go through their public streets, walks, and gardens, where art is made a conspicuous and leading feature, always exposed to observation, and cannot be passed unobserved. There are also their museums and palaces, which are open and free of access to the people, and are places of constant and general resort, particular on feast-days and holidays."

"The effect of such exhibitions on the public taste is not the only important result that would arise from them. It is not merely as it regards their influence on art that I would advocate their establishment; I would also plead for them on account of the moral effects they would produce amongst the mass of the people. I think it will be readily admitted, that if such places of resort were opened and frequented by them, they could not fail to elevate their notions and purify their actions. At present we are deficient in those means of instruction which are adapted to the wants of the *upgrown* man. The institutions that exist are either above his means, or too elementary in their character, for him to find his enjoyment in them. I have long thought this an essential defect in all schemes that have been proposed to allure his attention. They propose to him to give up his present habits, but offer nothing in exchange; at least not that which is suited to his inclinations, his judgment, or his age. If we investigate character, we find *few* that have arrived at the age of maturity, that like to acknowledge or that feel their ignorance, and there is a disinclination to resort to the first elements of knowledge as a means of instruction. Age has begotten its conceits and accumulated prejudices, and there is an aversion to adopt any course which they conceive will increase their labour; they think that after their daily labour is performed, the time is their own. There is some point in which they fancy they excel others,—on which they hinge their fame; this is enough to beget in their minds a prejudice to abstract learning, and keeps them aloof from those excellent institutions that have been originated for their benefit. How, then, are you to teach them their ignorance, or induce them to come within the meshes of those nets you spread to win them to their good?—Again, we have at present no place of resort or means of instruction which does not require the separation of the man from his family; there is little that is done in them that allows of their assembling together; and I cannot but look on any means originated with the intention of elevating the character of the working classes, that does not include the moral elevation of *both sexes*, as well as all ages, as defective in their plan. From this hasty sketch, I think it will be evident that the means of instruction that I am advocating will not only remedy many of the defects attached to those institutions that exist for the promotion of the welfare of the working classes, but be the means of placing their importance in that powerful light before their minds, that they will be led to desire to realize the advantages arising from them, not only for themselves, but their families. It does appear to me, that the most powerful means of teaching these people their true state, will be through the *eye*,—by setting before them, and giving them constant access to emporiums where the beauties of nature, art, and science are open to their study,—where they may see the splendour and perfection of the first, the imperfect yet noble attempt of the other to reach it, and the state of those productions in which they have a personal interest.

Let us have a museum of art and nature, whose ample stores will educate the public eye — enable it to detect and appreciate beauty!—where, by contrast, we may elevate and purify our knowledge, and, from the works of other ages and other climes, learn our own standard at the present day.

The plan I would suggest is, that a respectful but earnest memorial be presented to Her Majesty, setting forth the commercial importance, and the dependance of the manufactures of this district upon a right understanding and application of the principles of Art,—the deficiency that exists of any means of acquiring this knowledge, and the influence that such means of instruction could not fail to have on the welfare of all classes, together with the moral effects that would be likely to follow the adoption of such a course; and praying her that she be pleased to order that the competent authorities may be put in possession of the duplicates of every department, and a set of casts, from the examples in the British Museum, for the purpose of public exhibition here. Then should we be enabled, not only to elevate the public taste — improve the productions of industrial art, but found a school, which I would fain hope would not fail to develope that talent, and call into exercise that genius, which would not only elevate the national character, but reflect the brightest rays of honour on the town of Manchester."

Mr. Jackson's suggestions seem to have met with some attention, and copies of the paper were extensively circulated. Subsequently, Mr. Brotherton determined to prepare a Bill to enable town councils to raise the funds requisite for museums of art, and a Bill, with similar objects, was at length passed through Parliament by Mr. Ewart. The present plan, in Manchester, is to build an extensive edifice, which might contain the museum, the school of design, and perhaps afford the nucleus of a collegiate institution. The probable amount of expenditure upon the building is supposed to be 100,000*l*. It is expected, that Government would supply *fac-similes* and duplicates for the museum, and that there would be no difficulty in obtaining money in the town. There is little doubt that the corporation would aid by the grant of land. The proposed site is in Cooper-street, opposite the Mechanics' Institution, and extending back a considerable depth, including the area of the town's yard, which it is intended to arch over, that the ground may be retained for its present purposes. At an interview between certain members of the council of the School of Design, and the mayor, that gentleman expressed himself highly favourable to the plan, and said, that the town council were prevented from entering vigorously into the arrangements, solely by the very onerous duties at that moment pressing upon them. He, however, requested the council of the school to consider the preliminaries, and said that when they had so far arranged, the town council would not be idle one moment.

An architect is at present occupied in taking plans of the land and buildings, preparatory to pulling down; and we may hope to see the first fruits of the new Bill, and of the exertions of the council of the school, carried out in the best manner in the town of Manchester.

NEW ROYAL PARK AT BATTERSEA.

In one of the earliest numbers of our present volume* we drew attention to Mr. Thomas Cubitt's proposition for converting Battersea fields into a park, and pointed out at some length the many and great advantages that must accrue, not alone to the immediate locality, but to industrious London at large by the conversion.

Within the last few days a notice has appeared in the *London Gazette* to the effect, that application will be made to Parliament in the next session for leave to bring in a Bill to empower the Commissioners of her Majesty's Woods and Forests to make a royal park, and for that purpose to take certain lands, &c., containing about 330 acres, situate in the parish of St. Mary, Battersea; bounded on the north by the river Thames, on the south by the public road leading from Nine Elms to Wandsworth, and on the east and west by various portions of land belonging to private persons. We understand that it is intended to embank the Thames, and thus the new park will have the advantage over all others in the metropolis of commanding the interesting river transit and scenery.

THE BRITISH MUSEUM.—OPENING OF THE NEW WING.—The trustees of the British Museum have recently opened one of the large rooms in the new wing erected at the west end of this building. It is stated that this will be called the Chinese room, from the circumstance of the Chinese bell, which has been presented by her Majesty, being deposited here.

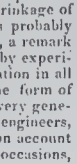
THE MADELEINE, PARIS.—The consecration of this costly edifice and deposition of certain relics have given rise to ceremonies which will last several days.

* See p. 9, *ante*.

CALCULATION OF CAST-IRON GIRDERS, &c.

THE section that we employed to illustrate the use of the table at page 499 of the last number of THE BUILDER, is a very common and a very useful one, being now almost universally employed in the construction of railways and other works where great strength is an object of consideration. If the contour be moulded into the figure of equal strength, and due attention be paid to the proportions of the parts, so as to equalize the shrinkage of the metal in cooling, this form is probably the very best that could be adopted, a remark that is in some measure confirmed by experience, and the extent of its application in all heavy structures. But although the form of section here alluded to is good, and very generally adopted by the most skilful engineers, there are some other forms which, on account of their convenience on certain occasions, ought not to be altogether neglected, especially as they present a very graceful appearance to the eye, and are by no means deficient in strength according to the quantity of material employed; we here allude to the open forms of beams, whether plain or feathered, and in order that our labours may be rendered as useful and instructive as possible, we shall here consider both these forms, and prove the utility of the table by applying it to the calculation of the load that ought not to be exceeded in any permanent bearer, where safety is an object of solicitude.

Let ABCD, fig. 1, represent the transverse section of a plain rectangular beam, and let the middle part E, denoted by the lighter shade be left out along the length of the beam, with the exception of cross stays to prevent the upper and lower parts AB and CD, distinguished by a darker shade, from coming together, and those cross stays may be made ornamental, in the form of arches or otherwise, according to the fancy of the architect or engineer.



With regard to the calculation of the permanent and safe load, with which a beam of this form ought to be charged, on the supposition that it is supported at the ends, and loaded at the middle of the length, we have only to consider the whole section ABCD as being entire, and to calculate its strength on that supposition, after the manner already exemplified at page 499. Do the same with the middle part E, considered as a separate rectangular section; then reduce the strength of the section E thus computed, in the proportion of the whole depth to the middle depth, and the difference between these two results will be the strength of the beam sought, including the effect produced by its own weight. From the result deduced in this way, subtract half the weight of the beam, and the remainder will be the load, beyond which the beam ought not to be charged, when intended as a permanent support.*

Example 1.—An open plane rectangular beam is loosely supported in a horizontal position on two walls, at the distance of 44 feet from each other; what load will it bear at the middle of its length, supposing the breadth to be seven inches, the whole depth four feet, and the depth of the middle part or opening three feet?

In the table opposite 48 inches in the left-hand column, and under 0 at the top of the page, we find 875·52 tons for the load corresponding to the whole depth of the section, when the breadth is one inch, and the length one foot or 12 inches: but the strength is directly as the breadth when the depth is given; hence we get 875·52×7=6128·64 tons, for the strength of a beam seven inches in breadth, 48 inches in depth and one foot in length. Again, opposite 36 inches in the left-hand column of the table, and under 0 at the top of the page, we find 492·48 tons, for the load corresponding to the depth of the middle or open part E, on the supposition that it is an independent rectangular section of the same breadth as the former; namely, seven inches; consequently, multiplying by the breadth, we get 492·48×7=3447·36 tons, for the central load on a beam 36 inches deep, seven inches broad, and one foot between the points of support. But this, by the laws of tension, must be reduced in the proportion of the whole depth to the depth of the middle part; that is, 48 : 36 : : 3447·36 : 2585·52 tons; let this be subtracted from the strength of the whole beam, and we get 6128·64—2585·52= 3543·12, which being divided by the length between the points of support, gives 3543·12÷ 44=80·53 tons very nearly, for the central and safe load, including the effect produced by the weight of the beam itself. Now, the area of the whole transverse section is 48×7=336 square inches; and that of the middle or open part, is 36×7=252 square inches; half the length of the beam being 22 feet; hence we obtain (336−252)×3·2×22=5913·6 lbs. for half the weight of the beam, which being reduced to tons and subtracted from the load as calculated above, gives 80·53—2·64= 77·89 tons, for the permanent central load which can be safely sustained by the given beam, without any danger of destroying the elastic force of the metal; and twice as much, or 155·78 tons, may be equally diffused over the length of the beam.

Another very elegant and useful form of section frequently employed in buildings, and to which our table is equally applicable, is that which has a web or flange on the upper and under side, with a portion of the middle part left out. This form of beam has a decided advantage over that which we have just considered, both as regards its stability and its strength; and it is besides particularly pleasing to the eye, for which reason it is well adapted for ornamental erections in places that are much exposed to public gaze. The drawing fig. 2 denotes the section here alluded to, and the manner in which we may conceive it to be constituted. The rectangle ABCD is the section considered as entire, and the rectangular portions E and F in lighter shade, are supposed to be taken away to form the flanges on the upper and under side of the beam along its whole length; the middle rectangular portion marked G being taken out to form the opening, which is understood to be braced with arches, or some other ornamental devices, for the purpose of preventing the upper and lower solid parts from coming together. The whole abstracted portions will therefore be as



represented by the detached part of the figure, and may, as regards the strength, be considered as three independent rectangular beams: this circumstance leads us to the method of calculation.

Example 2.—An open double flanged cast-iron beam, is 44 feet in length between the points of support, and 48·8 inches in the whole depth, the distance between the flanges being 42·4 inches; with what load ought the beam to be charged at the middle of its length, the greatest breadth being 9 inches, the flanges projecting on each side to the extent of 3¼ inches, and the depth of the central opening 38 inches?

Here then, we have first to calculate the strength of the whole section, on the supposition that it is entire, as represented by the rectangle ABCD. This done, we have next to calculate the three abstracted portions, E, F, G, considered as independent rectangular sections; or the portions E and F may be considered as one section, and calculated accordingly. Therefore, in the table opposite, 48 inches in the left hand column, and under .8 at the top of the page, we find 904·9472 tons, for the strength of a beam of the given depth, 1 inch broad and 1 foot long. But the whole breadth, according to the question, is 9 inches, and by the principles of mechanics, the strength is directly as the breadth when the depth is given; therefore we have,

904·9472 × 9 = 9144·5248 tons for the whole section.

The flanges project 3¼ inches on each side; this gives 6½ inches for the breadth of the two projections; but the distance between the flanges is 42·4 inches; therefore, in the table opposite 42 inches in the left-hand column and under ·4 at the top of the page, we find 683·1488 tons, corresponding to 1 inch in breadth and one foot long; hence, multiplying by the breadth, it is,

683·1488 × 6½ = 4440·4672 tons for the strength of E and F, jointly.

But by the laws of tension, this must be reduced in the proportion of the whole depth to the distance between the flanges or projections on the upper and lower side of the beam; that is, 48·8 : 42·4 :: 4440·4672 : 3858·111 tons nearly.

Again, the whole breadth of the section is 9 inches, and the joint breadth of the projections 6½ inches; consequently, the breadth of the middle part, or opening, is 2½ inches; but by the question, its depth is 38 inches; therefore, by the table we have 548·72 tons for the strength of 1 inch in breadth and 1 foot in length; and by multiplying by the breadth or thickness, we get 548·72 × 2½ = 1371·8 tons for the tabular strength of the portion G, which must be reduced in the proportion of the whole depth to the depth of the opening; that is,

48·8 : 38 :: 1371·8 : 1068·205 tons nearly.

The reduced strength of the three parts, E, F, and G, taken conjointly, is therefore equal to 3858·111+1068·205=4926·316 tons; which being subtracted from the strength of the whole section, gives 9144·5248—4926·316= 4218·2088 tons for the strength of a beam of the section 1 foot long; but by the laws of resistance, the strength is inversely as the length, when the breadth and depth are given; hence by division it is,

4218·2088 ÷ 44 = 95·868 tons,

including the effect produced by the weight of the beam. Now the sectional area of the solid portion of the beam is 68·6 square inches, and half the length is 22 feet; hence it is,

68·6 × 3·2 × 22 ÷ 2240 = 2·156 tons,

and allowing one-tenth of this for the weight of the ornamental stays or braces, we get 2·156 + ·2156 = 2·3716 tons; so that the permanent safe load on the middle of the beam is 95·868 — 2·372 = 93·496 tons. T.

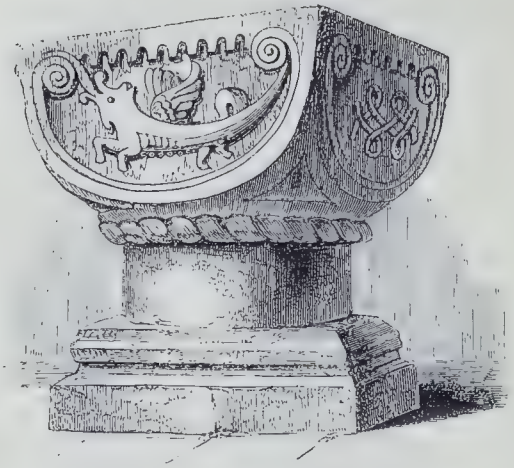
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* In calculating the second example at page 499, the effect produced by half the weight of the beam was inadvertently omitted, the omission, however, is very easily supplied, for the sectional area is 155·44 square inches, and half the length of the beam between the points of support is 18 feet; hence we have 155·44×3·2×18÷2,240=4·073 tons, half the weight of the beam; therefore, by subtraction, we have 88·972—4·073, 83.899 tons, the permanent load sought. It is also stated in the question that the depth of the middle part is 2·5 inches; it ought to be 32·5 inches.

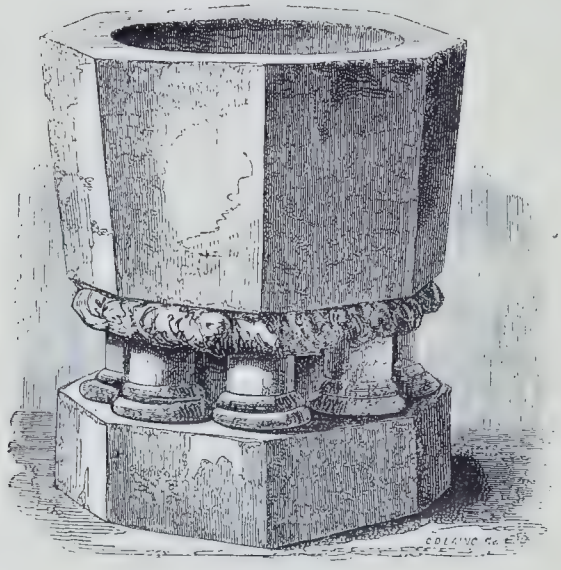
SINGULAR ORIGIN OF A FIRE.—The *Worcestershire Chronicle* says: On Sunday last, about two o'clock in the afternoon, a fire was discovered in the house of Cornelius J. Philbrick, Esq., surgeon, Mill-street, Worcester. It appears that in a bed-room with a southern aspect, a watercroft full of water, standing on a dressing-table, concentrated the calorific rays of the sun to a focus on an embroidered mat, which ignited, as also did another which adjoined it. The smell alarmed the inmates, and caused a search, which led to the discovery of the burning materials, and the timely prevention of further mischief.

THE NEW HOUSES OF PARLIAMENT.—An immense quantity of the slate from the quarries on the estate of the Knight of Kerry, Valentia Island, has been ordered for the new Houses of Parliament. It has been also ordered in large quantities for public buildings in France and other parts of the continent. So veined and variegated is it, and so susceptible of a high polish, that it is capable of being wrought into tables and other domestic articles. It is only a few years since that this quarry was discovered.—*Limerick Reporter.*

EARLY FONTS.



AT DEARHAM CHURCH, CUMBERLAND.



AT THORNTON STEWARD, YORKSHIRE.

EARLY FONTS.*

EXAMPLE AT DEARHAM CHURCH, CUMBERLAND.

This curious font (there is every reason to suppose) is a Saxon work. As an architectural composition it evinces more elegance than Saxon work is generally supposed to present. Lysons, in the fourth vol. of the "Magna Britannia," gives an elevation of this font, and states that there are several other fonts in the churches of Cumberland which may be referred to Saxon times: he mentions those at Bowness, Aspatria, and Cross-Canonby, and elevations are given of some of the most curious, including that of Bridekirk Church, which he considers is the most curious one in the kingdom.

It bears the following Dano-Saxon inscription in Runic characters:—"*Er Ekard hun men egrocten, and to dis men red wer taner men brogton*;" *i. e.* "Here Ekard was converted, and to this man's example were the Danes brought." Lysons adds, that the scroll in which this inscription is cut rests on two pillars, one of which is evidently clustered, and of a lighter style than that which prevailed a short time before the Conquest.

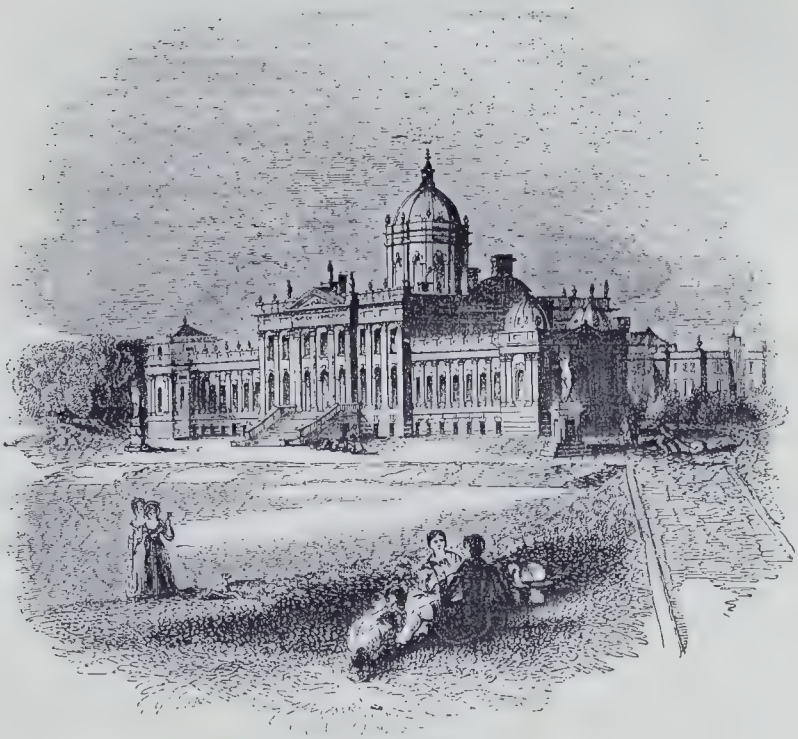
With reference to the font at Dearham church, I am inclined to think that the peculiar rope or cable moulding at the neck, is evidence of Saxon architecture; a very curious and undoubted work of that period where it was used in conjunction with Roman mouldings came under my observation some few years since, it was the chancel of Reculver church, Kent. This chancel, the walls of which were constructed in the Roman manner, had every appearance of being a rude imitation of a temple in Antis, excepting that the wall immediately behind the columns, in the centre of which was the doorway leading into the cell, had been removed.

This chancel which when first erected was probably an idolatrous temple of the Saxons,* had the columns in portico remaining; their

* See also page 391 *ante*.

* That the ancient Roman and Saxon temples used by the idolatrous Saxons, were converted into Christian churches is well known. Pope Gregory advised Augustin that the temples ought not to be demolished, but only the idols that were in them should be removed and destroyed, and then consecrated to the service of the true God; the probability of these temples being added to, is apparent, the columns being suffered to remain. The early Saxon writers, Bede, Alcuin, Heddius, and others, frequently use the word Porticus when describing the interior of the Saxon churches, thus in Bede's account of the interment of King *Ethelbert*, he expresses himself thus—he was buried, "in *Porticu* Sti. Martini intra ecclesiam." In James Bentham's well known essay on Saxon architecture prefixed to his history of Ely Cathedral, page 19, edition 1771, there will be found many particulars on this interesting subject.

VANBRUGH'S WORKS.



VIEW OF CASTLE HOWARD.



GENERAL ELEVATION, CASTLE HOWARD.



BLENHEIM.

bases were composed of two triple rows of this rope or cable moulding, arranged similar to two torus mouldings, and beneath them were an annulet and scotia. A drawing of this chancel, made previous to the last repairs, was submitted by me a few years ago to the Society of Antiquaries; it has never, however, been published.

The rope or cable moulding is to be seen in other very early examples of fonts; for instance, that at Stratton church, Cornwall, given as the second example in Van Voorst's work on Fonts.

FONT IN THE CHURCH OF THORNTON STEWARD, YORKSHIRE.

The style of this font is Early English. There is a great peculiarity in the shortness of the columns which support the plain and massive top; the foliated capitals and the leaves shew more flow than is usual in this style. Altogether, I have seldom seen a more beautiful and simple specimen. C. J. R.

OLD ENGLAND.

In illustration of some remarks on Vanbrugh and his detractors, that appeared in a recent number (see p. 469 *ante*), we avail ourselves of the last part of Mr. Knight's popular work, "Old England," which contains, in addition to a coloured interior of Whitehall Chapel, and a host of cuts illustrative of the buildings in Oxford, &c., two views of Castle Howard, and one of Blenheim. Although small and slight, they shew sufficiently well the picturesque outline these buildings present, and Vanbrugh's great skill in composition. "It appears to me," says Sir Hugh Price (in "Essay on the Picturesque"), "that at Blenheim, Vanbrugh conceived and executed a very bold and difficult design, that of uniting in one building the beauty and magnificence of the Grecian architecture, the picturesqueness of the Gothic, and the massive grandeur of a castle; and that, in spite of many faults, for which he was very justly reproached, he has formed, in a style truly of his own, and a well-combined whole, a mansion worthy of a great prince and warrior." His first point appears to have been massiveness, as the foundation of grandeur; then, to prevent the mass from being

Published by C. Knight, Ludgate-street.

a lump, he has made various bold projections of various heights, which seem as foregrounds to the main building; and, lastly, having been probably struck with a variety of outline against the sky in many Gothic and other ancient buildings, he has raised, on the top of that part where the slanting roof begins in any house of the Italian style, a number of decorations of various characters.

These, if not new in themselves, have at least been applied, and combined by him in a new and peculiar manner; and the union of them gives a surprising splendour and magnificence, as well as variety, to the summit of that princely edifice. The study, therefore, not the imitation, might be extremely serviceable to artists of genius and discernment."

Castle Howard, in Yorkshire, was commenced for Charles, the third Earl of Carlisle, in 1702, and was completed by Vanbrugh, with the exception of the west wing. This extensive pile is 660 feet in length. The length of Blenheim on the north front, from one wing to the other, is 348 feet; the internal dimensions of the library are 130 by 32 feet. The hall is 53 feet by 44, and 60 feet high ("Gwilt's Encyclopædia"). "The secret history of the building of Blenheim," in D'Israeli's "Curiosities of Literature," shews the distressing difficulties in which Vanbrugh was involved by this commission.

The first volume of THE BUILDER (p. 173) contains some observations on these structures, and a memoir of the architect.

FOREIGN ARCHITECTURAL AND COLLATERAL INTELLIGENCE.

Disproportion between the "dwellings of the rich and poor" at Berlin.—If we perceive, that any inconvenience, which oppresses this country, is to be met with also in such places as we thought hitherto exempt therefrom—our attention ought to be the more intensively called to the remedying of these evils, which thus appear not merely national, but rather general evils, which oppress the present system of society. Accounts from Berlin of a very recent date, state the following:—"We also begin to feel here an evil of a quite especial nature. Although our city extends every year to the amount of whole districts, and splendid mansions are raised on all sides—the want of dwellings for the poor becomes every day more felt. It seems as if building was merely carried on for the sake of the rich—and the owners won't take any one but generals, privy councillors, and bankers in their first floors, substantial shop-keepers in the third.* What is below that, is only a *nuisance* for them. But now, Berlin increases every year by 10,000 souls, which, in a great proportion, belong to the working classes. The '*habitational*' circumstances of this class become every day more gloomy, and it seems to us, that while the authorities take care, that no light weight be used, no adulterated bread or putrid meat be sold—they might also turn their attention this way. The rental of all houses in Berlin amounts annually to 1,101,031 rixdalers (at 3s. each); and the *average* price of a dwelling (*Wohnung*) is now 100 rixdalers; in 1808, however, it was merely 50, which is a very gloomy and astonishing fact. It is certain, that the number of dwellings, whose rent is fifty dollars or less, is more than half of the whole number—viz. 35,577; and even this most humble amount (about 7*l.* a year) can't be afforded by a very great number of the labouring class of Berlin."—*Hamburg Correspondent.*

Supervision of Public Works in France.—The minister of public works has undertaken a journey of inspection of the harbours of Cette, Marseilles, &c. He is also examining the *railways* of the south of France, either those in full traffic, or such as are constructing, or merely projected lines. The canal of Languedoc, in all its details, has been most minutely inspected by the right honourable gentleman.

The late Carpenter's Strike at Paris (in a nutshell).—The late demonstration of the journeymen carpenters can be viewed with satisfaction by any lover of his kind—as these men have brought forth their claim quite unalloyed with any admixture of intimidation or physical force. They have reasoned like reasonable beings, and it is their masters who are at fault. The *rationale* of the whole affair is as follows. In the year 1833 a formal *convention* (if we may translate thus) had been held between the masters and journeymen carpenters, by which the wages of a day's work were fixed at four francs. From that period, however, a constant oscillation began to manifest itself between the latter item and that of five francs. In asking, therefore, in 1845, that the latter sum should be made the fixed one for a day's wages, the journeymen wanted merely to have authorised formally, what already had become sanctioned by custom. The masters, certainly, had a right to *refuse*—but no more. But instead of confining themselves to this, they formed a *coalition*, and resolved on fixing again the item at four francs, viz., the price of labour twelve years ago. In the lawsuit, which has occupied, of late, the French courts, it was argued, that this was merely a passive procedure—a point, however, on which we are not called upon here to dilate. The *Cour royale* will have now to decide on the appeal, interposed by the journeymen against the verdict of the inferior tribunals.

Brunswick.—At the restoration of the cathedral, some fresco paintings on the walls, have been of late discovered, which are of the period of Henry the Lion, amongst which is the portrait of this Monarch of the Brunswick line. They are painted on wet lime, and may be restored with *tempera* colours, and are so far preserved, that their age may be accurately ascertained. The figure of Henry (d. 1195), much resembles his coeval statue still extant; and the whole of the pictures, although not perfect master-pieces, possess some value for the history of art, as they may be the only ones in Germany from that early date.—[*Allgemeine Zeitung.*]

Grätz (Austria).—On the second of this month was opened a new institution for the advancement of the working-classes, viz., what is called in Germany "*Real Schule*," a school of realities. Here the children of workers are instructed *gratuitously*, or at a merely nominal expense, in arithmetics, algebra, geometry, chemistry and physic—the art of *drawing* and caligraphy. At the Academy of Arts young people may also learn the arts of design. There is, moreover, in that city an Association of Industry, a technical establishment joined to the *Johanneum*, a gymnasium (small college), and a University. Grätz is a *city*, whose population is not much above that of Woolwich, or such other metropolitan *villages*.

Meetings of the Académie des Sciences (R. S.) at Paris, 6th to 13th October.—Mr. *Colas*, who has made a very felicitous invention for copying (moulding) statues, even in different proportions (sizes), has solicited the academy to appoint a commission for examining his discovery and its procedings.—Mr. *Bains*, the gentleman who claims the priority of invention of electric telegraphs over Mr. Wheatstone, stated his new procedures for setting all the clocks of a city into motion, and to make them keep accurate time. He says, that it is by means of electric conducting tubes, that he will effect his purpose.—Dr. *Brack* spoke nearly an hour on his new definition of "*a straight line.*" The French press ridicules this attempt—still, if we consider, that not *even* the *level* of any fluid, water or any other, is, or ever can be horizontal, but (in reality) is *convex*, the subject assumes some meaning; which, however, can hardly ever become of a *practical* bearing.——*An Improvement on Sir H. Davy's Safety Lamp for Mines.*—As this, albeit, splendid discovery has not answered all the requisites of such an instrument, Mr. *De la Rive* has occupied himself with a new contrivance, by which the lamp is entirely placed *without the control* of the person using it. This appears the more important, as statistical tables prove, that 400 persons lose their lives, in Europe, every year by the explosion of gas in mines and the like places. The main of Mr. Rive's discovery is a cylinder of charcoal, which is kept *incandescent* by an electric stream. Such a lamp can be kept enclosed hermetically in a glass globe, as this development of light requires no oxygen, and thus every danger of explosion is removed; besides the light is more intense than can pass through the dense metal-wire wicker-work of Sir Humphrey's lamp. Mr. R. acknowledges the yet imperfection of his lamp, which consists in the *inconstancy* of the light developed, but hopes that a longer experimentalizing will bring it to complete perfection.

"*A hint*" *to the working classes*—"*of Paris.*"—It is reported on the best authority, that the Préfet de Police, has submitted to the *King in council* a report of great importance on the dangerous results, which would follow the exclusive concentration of all currency on railway enterprise. Mr. Prefet has energetically signalised the grave inconvenience of this total *absorption* of cash in stock-jobbing and *agiotage*. He concludes by pointing out, that if there be no prompt remedy resorted to against this nuisance, it is to be apprehended, that the middle commercial classes of "*Paris*" (!) could not effect their payments—at Christmas, which could not but be accompanied by a very deplorable crisis. It is added, that the whole council (of ministers) were struck by these observations, which they considered of the highest importance Measures are to be forthwith resorted to for obviating (as far as it is possible *now*) this abnormal state of speculation—or rather downright gambling by many persons, who indeed, can hardly *afford* such expensive *amusement*. —*Gazette de France.*

The Scientific Congress at Naples.—To our former notices, we have only to add, that on the 3rd October, a *pilgrimage* was undertaken to the Temples of *Paestum*. A royal steamboat conducted more than 300 of the savants to those sublime ruins. *We* hardly have to speak of royal banquets and balls, which, however, were very numerous and splendid. On the great number of *sages* here assembled, the following epigram was circulated at Naples:—

Quando in Grecia le scienze ebber primato,
Sol *sette* savii si trovar a stento,
Or, che le scienze van più buon mercato
Ne son guinti *qui* mille e sette cento.

When in Hellas, science held the highest sway,
But *seven* sages formed the saint array;
Now, they are as cheap as apples—
Seventeen-hundred alone—in Naples!

J. L——v.

* In Germany, several families of the first rank, or nearly so, live *together* in *one* house.

RICHMOND.

THIS favourite resort of the Londoner, already celebrated in unnumbered detached verses, has found a new and eloquent encomiast in Mr. Charles Ellis, who has recently published a pretty little volume descriptive of it.* Tracing its history from the time when Sheen, as it was then called, was a residence of the reigning monarch,

——"And noise of tourney proud
Rang to the palace gates,"

he brings together all the associations connected with the neighbourhood, and sings the praise of honoured dwellers there.

The possession of the volume will materially increase the pleasure of a lounge on Richmond-hill, or a stroll through the park. The following stanza is descriptive of a view from the latter, which all who know the park will remember well:—

"A thousand gardens open to your sight,
Unnumber'd cottages and villas peep—
Now red—now dusky brown—now grey—now white—
There Kingston's dwellings rise, a numerous heap
Thus gazed upon, though still the church-towers keep
Their full distinction—then far onward still,
E'en quite unto the clear horizon, sweep,
In groups sublime, luxuriant trees, with hill
And swelling mound inwove by Nature's faultless skill."

It is not generally remembered, that at Kingston the first king of all England was crowned, and that Queen Elizabeth ended her days at Richmond, March, 1603.

Edward I. and II. resided at the latter place and Edward III. died there. It was rebuilt by Henry VII., and the name was changed by him to Richmond. Nothing now remains of the palace but an archway of ordinary construction, formerly part of one of the offices.

* "Richmond, and other Poems," by Charles Ellis. Madden, Leadenhall-street, 1845.

BUILDINGS ON A CLAYEY OR SILTY FOUNDATION.

Foundations of this kind require great precaution to prevent subsidence of the buildings erected upon them. The whole of the land in this neighbourhood (Beverley-road, Hull), and also of that upon which the town is built, is of this description, and no care whatever is taken, with very rare exceptions, to guard against the settling of buildings; in fact, it does not seem to be thought necessary to use any means to prevent this serious evil. And the settling down of foundations is not the only evil; there is another which is, if possible, still more serious, as it affects the health of persons residing in houses built upon the soil, without any precaution to prevent the ascent of moisture through the brickwork in contact with the earth, and from under the floor of the several apartments lying immediately over the surface of the ground. The superior temperature of the air within the walls of a house, always has a direct tendency to produce evaporation from the site upon which it is built, and to bring up with it the miasma from the soakings of bad drains in the neighbourhood.

It is a common practice here in Hull, to simply excavate the ground for the foundations, and to lay them with the worst bricks and mortar at hand; sometimes indeed, a little more precaution is taken to prevent settlement by laying York landings for the footings of the walls to rest upon, but then how are they laid? why, just with the least possible trouble, and without ascertaining if the soil is of uniform solidity, and capable of sustaining the superstructure in all parts without sinking. For want of this precaution and attention to drainage, part of a range of fine buildings has settled so much, as to involve a very serious outlay in repairing the mischief, although only executed within the last four years. In a large public building in this town, the whole of the walls, several hundred feet in length, were covered their entire breadth, when at a height of six inches above ground, with sheet zinc bedded in loam, and the first course of bricks laid upon it also bedded in the same material. It was supposed that the zinc would prevent the ascent of moisture, and no doubt it would whilst it remained in a sound state, but it was found on breaking through the foundations nine months after, for the purpose of laying hot and cold water pipes in various parts of the building, to be every where pierced with holes and in a state of rapid oxidation, and there can be little doubt that it has now (fourteen months since) nearly all disappeared. It was argued at the time, that the bedding in loam, instead of mortar, would prevent oxidation, but such was not the effect of the means here employed; moisture and the air mixed with it, appear to have been the principal agents in the decomposition of this worthless material, worthless at least for such purpose as the one for which it was in this case used.

In this locality, all buildings are sure to settle when built upon foundations laid in the ordinary manner, and the greater the weight of the superincumbent mass, the sooner this effect becomes visible, and it goes on imperceptibly through a series of years, until the house becomes seriously dilapidated, damp, and greatly reduced in value and rental. In smaller matters, such as fence-walls, gate-piers, dwarf-walls for iron railing, &c., the same cause is in constant operation, but with less effect; it does not so soon shew itself, but is equally certain to disturb the arrangement of every thing resting upon foundations so laid. It is a rare circumstance to find any such erections in a perpendicular position, after the lapse of a very few years.

The settling here described, appears to be caused, first, by the compression of the clay, which is, as I have before said, everywhere more or less silty, and greatly varying in density, the latter condition being very much affected by the water it may contain. Secondly, after a house is built and supplied with drains which take off the water at a level below the foundations, the soil gradually becomes drier and as a matter of course contracts; this lets down the foundation, and the house sinks, but not in all parts alike, as some parts may become less dry than others. Thirdly, the drains may not be placed so low as the footings of the walls, and where this is the case, and they are not soundly constructed, the leakage from them will soak into the soil under the foundation, and reduce the solidity of the earth upon which they rest. There is another cause in constant operation throughout the soil in this neighbourhood, I mean the drainage going on internally during dry seasons, when from the peculiar nature of the soil, large fissures are produced which form continuous drains in all directions towards the nearest outfall; the effect of such drainage is to dry the soil and cause it to contract, thereby letting down buildings standing upon it. The same peculiarity of the soil, causes a ready absorption of water in wet seasons, which percolates horizontally and in other directions for a considerable distance under buildings, thereby reducing the solidity of the soil upon which they rest, producing the same effect from opposite causes.

The action of water or moisture in softening and reducing the solidity, and of drainage and spontaneous evaporation in contracting the bulk of the soils here described, would have no such effect on gravelly or stony foundations, as may be illustrated by filling one vessel with silty earth, and another with sea gravel: water poured into the first, will of course reduce its solidity, or if the same vessel is placed in dry air, the moisture mechanically mixt with the clay will evaporate, and the earth will contract; the effect in either case will be to render it less fitted to sustain a superincumbent pressure without settling; but it is not so with the vessel containing the sea gravel, the water poured into it will produce no change, the particles of hard matter being in contact, and not liable to be acted upon by the water passing through them, will remain unchanged as to solidity under all circumstances of pressure. This view of the case will shew the advantage of using concrete, in which we have, if it is composed of proper materials, a good example of the incompressible nature of a foundation so prepared, and of its other important property, namely, that of being impervious to moisture. The materials employed in concreting, should be sufficiently hard to sustain any weight placed upon them, without crushing; the particles should be in contact, and the lime used should be in such proportions, as would be just sufficient to fill the interstices betwixt them, which by adhesion to their surfaces would form a bond to the whole,—such at least is my view of the nature of concrete.

When concrete is laid in an excavation, it becomes a solid mass of uniform density, and in time so hard, as to sustain the weight of a building uniformly over the whole of the foundations; if the soil under it is less solid in one place than another, the concrete will equalise the pressure upon it, on the same principle as an inverted arch, or other well known modes of discharging pressure in the construction of walls. Concrete should be thinly spread, say from 3 to 6 inches, over the *whole* area of the space under the floor of ground floors, for the purpose of preventing the ascent of moisture.

I have noticed the settlement in many buildings in this place. In gates seven feet high, where sufficient care has not been taken to prepare the foundation, the settlement has thrown them from one to three inches out of the perpendicular, and the effect has been to produce a disruption in the iron railings, &c. attached to them. In fence walls, there is still greater mischief produced by this careless way of laying foundations, but then any thing seems to be thought good enough for this sort of walls. The settling of the walls in small two-story houses is not so readily detected, but it shews itself in a year or so, by defects in the openings of doors, windows, cielings, &c. In a range of large houses, built within the last three years, upon what was said to be dry ground, I have noticed a settlement already in the front walls (and the landings under the small porches over the doorways have gone down with them) of from two to three inches. The late remarkable dry season has produced a settlement in houses here, which had remained firm since 1839, caused no doubt by the contraction of the earth under them. Speculative builders are not always aware of the circumstance, that a house does not begin to shew its defects until it becomes seasoned by time and occupation.

If the builders in Hull, and other places similarly situated, would reflect on the evils produced by building upon weak and unsound foundations, they would find it their interest, and the interest of those who employ them, to pay more attention to this, the most important of all matters connected with building.

There is one simple plan which I have never seen adopted here, and it seems strange that it is not; it is that of paving the bottom of the excavation for a foundation, with hard-burnt bricks, on edge, filling up the interstices with a grouting of lime and small gravel, and then ramming them down with a paviour's rammer; a man accustomed to this work (and such men may always be hired) would do the whole of the foundations of a small house in one day. It is fair to suppose that the force here employed would be equal to the dead weight of the walls of a two-story house, and would consolidate the earth as much as if compressed by the weight of the walls without such ramming, thereby preventing the settlement by compression.

It would confer a great favour on many persons who build small houses, and who never think of employing any one but a common bricklayer, if some of your scientific correspondents would give a few examples for making concrete with different sorts of materials, and the proportions to be used; such things are known to professional men, but they never reach the ears of that description of persons who build houses, here and elsewhere, for the labouring classes; it would add much to the comfort of the working man, if the owners of small tenements could be made to understand that he could build his houses cheaper and better by using a little concrete in the foundations.—I am, Sir, &c.

Henry Liddell.

PAYMENT TO BUILDERS FOR TENDERS.

Sir,—Having been a subscriber to your journal from the commencement, I of course have had the opportunity of observing your frequent kind attention to the interest of your correspondents, and am therefore induced to request the favour of your opinion in the following case. On the 11th August last, I was invited to tender for the erection of stabling, coachhouse, and other offices for a gentleman in this village. Accordingly, I attended the surveyors' office, and saw the drawing, and in reply to a question as to who the persons were that it was to be submitted to, was cautiously told "none but those in whom they had the greatest confidence." I prepared my estimate, and at the appointed time, August 21st, at half-past ten o'clock, attended again at the office with my tender. After waiting upwards of an hour beyond the time, and only one other person being in attendance, the two were opened in the presence of the employer and the junior surveyor; my amount was 415*l.* the other, 477*l.* 10*s.* 6*d.*

The employer expressed great surprise, and said he had been much misled, as the surveyor had stated a much less sum than either, and he therefore thought he had better pay me my per centage for my estimate, and abandon the job altogether. The junior surveyor thought otherwise, and that it had better stand over until he had seen his principal, and write to me upon the subject. Before I left, I put the question, would they receive any tender that might come in after we had left? to which the employer replied, "*certainly not*, business was business, and as they did not come to time, he would have nothing to do with them." I never received any communication whatever from either party, but on September 3rd, to my still greater astonishment, found operations had commenced. I immediately wrote for an explanation, and received a reply to the effect, "that another person had been applied to, whose tender (360*l.*) had been accepted, enclosing the several amounts, as under," &c. I need not ask you whether such conduct is not most disgraceful to any professional men wishing to be thought respectable. The reply evidently implies that the latter tender had been solicited at the same time as ours, but I am firmly convinced, both from what fell from the employer at the time of opening, and circumstances that have come to my knowledge since, that the surveyors, finding they had *overdrawn* the amount, and still wishing to maintain their statement, subsequently applied to the third person, who is doing other work

under them, to assist in extricating them from their dilemma. Now am I not entitled to, and can I enforce the payment (and what sum) for my trouble and loss of time?

The difference of amount in the contracts may be in a great measure accounted for, by the greater proportion of materials being old, and the present old building being pulled down to use again.—I am, Sir, &c., Δ.

Mitcham, Oct. 17.

*** If the circumstances be here correctly and fully stated, our correspondent may justly claim payment for the time and skill employed in making the estimate, and would probably recover it. In our number for September 13 (p. 442, *ante*), a decision at the Court of Requests, in a similar case, will be found.

Correspondence.

AISLES.

Sir,—Can you inform me whether there is any authority for the use of the expression, *centre aisle*. It would appear to me, that it cannot be more allowable than to speak of the centre *wing* of a building, and yet by some writers it is frequently used.—I am, Sir, &c.

Omega.

*** An aisle, strictly speaking, is a *wing*, and the term should be applied only to the side-passages or divisions of a building. It is now, however, generally understood to apply to all the lateral divisions of a church.

GLASS PAINTING AT HOUSE OF LORDS.

Sir,—A letter, signed "Justice" having appeared in your journal of 13th September, containing some statements regarding us in connection with the painted glass for the new House of Lords, which we have been appointed to furnish, we beg your insertion of the following in reply, adding, that we knew nothing of the existence of the article in question till two days ago, otherwise we should have requested this favour of you before now.

The mis-statements of "Justice" are, that we are *glass cutters* merely, and not *glass painters*. That we obtained the order to supply the painted glass for the House of Lords entirely through interest. That we have no practical knowledge of glass painting; and, fourthly (this conjectural), that we will impose foreign glass on the Commission and the public, for home manufacture.

With regard to our being merely *glass cutters*, and not *glass painters*, we beg to assure "Justice" that we are not glass cutters, but that our firm has always been known in Edinburgh and elsewhere as glass painters and house decorators. We do not see that we can say more on this point, or that more is necessary.

Again, as to the charge of our having obtained the order for the painted glass for the House of Lords, through interest, we do most positively and distinctly assert, that we did not employ, nor indeed could command, any interest whatever in the matter. We trusted entirely to the result of fair and open competition,—a competition in which we had to contend with rivals already in possession of high reputation, while we were comparatively unknown, and, consequently, without the influence which attaches to celebrity.

As to our having no practical knowledge of glass painting, we can only say that we have been at much pains to acquire a thorough knowledge of both the theory and practice of our art, making the best existing examples of the middle ages in this country and on the continent our study. On this point it will not be considered slight evidence, we should think, that we do possess the practical knowledge which "Justice" would deny us, that the highest premium, offered during two consecutive years by the Board of Manufactures for Scotland for the best specimen of painted glass, was on both occasions awarded to us.

With regard to "Justice's" gratuitous assertion, that a pressure for time will compel us to have recourse to the importation of foreign glass, instead of using home manufactured, we beg to say, that "Justice" may keep himself perfectly easy on that head, as we have a sufficient number of first-rate hands to meet any exigency of the kind he alludes to, should such exigency arise, which we do not at all anticipate.

"Justice" closes the paragraph in his letter that applies to us with the assertion "that there are not many more than fifty journeymen glass painters to be found," in the world, we presume he means to say. If this really be "Justice's" belief, it will rather surprise him to learn that we, ourselves, employ, chiefly of our training, more than half the number he mentions, and can at any time double that number, if required.—We remain, Sir, &c.

Ballantine and Allan.

42, George Street, Edinburgh,
Oct. 13, 1845.

Miscellanea.

Melrose Abbey.—Disgraceful Practices of Tourists.—The mischievous propensities which individuals often manifest on their being permitted to visit public buildings, works of art, and other objects of interest, have often been alluded to as a subject of just reproach. It is indeed melancholy to think that, notwithstanding reiterated complaints and warnings against these practices, there should still be people who are insensible to the disgrace they incur in destroying such objects, whether out of pure mischief, or from the equally reprehensible desire of appropriating fragments as relics. The liberty of access to the monuments of antiquity which adorn the country, is a privilege which must be highly prized by every individual of any degree of taste and information; and the culpability of those who abuse it in the manner referred to is greatly enhanced by the consideration that, independent of the actual damage done, they inflict a grievous injury upon the public at large, who are necessarily visited with the consequences of such misconduct in being excluded from the precincts of these structures. A very striking proof of the prevalence of these shameful practices, and of the consequences to which they lead, appears in an advertisement which has just appeared announcing that, in consequence of the chipping and defacing which the beautiful carved stonework of Melrose Abbey has undergone, that edifice will henceforth be shut up from the public. We understand that his Grace the Duke of Buccleuch has of late years been at great expense and trouble to preserve this venerable structure, perhaps one of the richest monuments of antiquity of which our island can boast, and now rendered interesting to the whole world from its association with the imperishable name of Sir Walter Scott. It can scarcely, under the circumstances, be wondered at, that the noble proprietor should adopt this step for the preservation of the abbey,—a step which we know his grace deeply regrets, but to which he has been impelled by these frequent depredations, and by feeling, as he ought to feel, not only a *personal*, but a national responsibility in the custody of this so valuable a relic of Scotland's history.—*Edinburgh Courant.*

Cost of St. Stephen's Church, Hull.—

	£.	s.	d.
Cash paid for advertising, printing, postages, &c.	82	8	2
Ditto for site of St. Stephen's church	353	8	6
Ditto for expenses at public meetings, laying foundation stone, opening church, &c.	179	4	8
Ditto to Myers and Wilson, as per contract	4,100	0	0
Ditto to ditto, for raising spire	90	0	0
Ditto for sundry extra bills, iron palisades and gates, flagging round the church, &c.	1,112	2	11
Ditto to architect	220	0	0
Ditto to surveyor	50	0	0
Ditto for interest	9	15	2
Ditto for insurance	15	9	4
Ditto for plans of St. Stephen's and St. Paul's districts	4	4	0
	£6,216	12	9

Provident Association for Civil Engineers and Land Surveyors.—A party of influential gentlemen are attempting to found in the metropolis a Provident Association for the benefit of aged and decayed members of the above professions. Mr. J. Bailey Denton, of 9, Gray's Inn Square, has consented, during the initiatory proceedings, to perform the duties of honorary secretary.

The Fine Arts.—It is singular that all the courts of Europe have, for more than two centuries, been earnestly engaged in forming public galleries, a national benefit and honour which England had neglected with her great wealth, and with opportunities singularly favourable, until within a few years; and even now we are making but very slow progress, and works of art of the olden and golden time are becoming more rare, and immensely rising in value. Had we as a nation, collected, even 50 years ago—speaking of the transactions as a money speculation, in which view, according to the taste of the day, we must look at everything—our purchases would now have been worth treble the first cost in money. The unhappy fate of Charles I. was most adverse to the arts here. It not only scattered the collection made by him, but, by the triumph of Puritanism, plunged the country first into a dislike of, and, for long subsequent periods, into an indifference for art. We even doubt if this gross feeling has altogether subsided. We do not yet take a national pride in works of genius, unless they immediately bear upon the art of living. No country is so rich as ours in private, and none so poor in public collections. And if we progress so slowly in our National Gallery we can scarcely wonder that public institutions of the kind have not been dreamed of in the provinces. We sincerely hope that the movement Mr. Ewart is making will be crowned with success, and that in time "collections" in our cities and towns will be the result.—*Blackwood's Magazine.*

The Grave-yard Question.—Mr. Atkinson, a surgeon of Westminster, has addressed a letter to the *Lancet*, shewing by circumstances within his own knowledge the dreadful state of St. Margaret's churchyard, Westminster. Describing the performance of a funeral there, he says:—"The mute, as the service advanced, staggered, was unable to keep himself erect, and became deadly pale; he was removed to the vestry-room, suffering from pain in the bowels, which ended in diarrhœa; his health was deranged during the two subsequent days; on the night of the funeral, the undertaker was seized with diarrhœa and faintness, and continued in a debilitated state for some days after; one of the mourners on his return home was affected with the same symptoms, and rendered unable to follow his employment for an entire week; and it may be as well to observe here, as a remarkable coincidence, that the wife of one of the mourners, was, late on the night of the funeral, or early next morning, attacked with apoplexy, and expired in two or three days." These facts strengthen the preconceived impression, that illness of a serious nature may be produced, and even death in many instances ensue, by attendance at the burial grounds of this metropolis, which are known to be more than commonly charged with human putrefactions, and must be read with interest by those who are seeking to discover tangible sources of disease, and to employ preventible means of suppressing its operations.

Effect of Competition in the Price of Gas.—The British Gas Light Company, which supplies Stratford and its immediate vicinity with gas, have within the last week reduced their charge for that article from 8s. to 6s. per thousand feet. A few years ago the charge was 10s., but in consequence of a rival company undertaking to supply it at a less rate, the above reduction has taken place.

Plans on Parchment.—To tint plans on parchment one correspondent says, "Take a piece of *rough* paper, or very fine glass paper, and therewith rub the surface of the parchment until there is no grease remaining on it. Then proceed as on ordinary paper." A wash of diluted gum-water over the skin, before colouring, stops the pores, and tends to produce an even tint.

Glass Tiles.—In reply to numerous inquiries, glass tiles of the size and shape of ordinary pan-tiles, may be obtained of Mr. Jackson, 15, Duke Street, Lincoln's-Inn-Fields. They vary in price from 11s. to 16s. per dozen, according to the thickness and weight.

New Lighthouse at Fatouville.—A lighthouse is to be raised on the coast at Fatouville, near the mouth of the Seine, in place of the wooden one now existing. It is to be 96 mètres above the highest equinoctial tides. The cost will be 145,000*f.*

Tenders.

TENDERS for building the National School, St. Albans; Mr. Donaldson, architect:—

W. Benell	£367	0	0
Webb	360	5	0
Vass	307	10	0
Fowell	298	0	0
M. J. Benell	297	10	0
Chalk	295	7	6
Dunham	258	10	0

FOR RAILWAY INTELLIGENCE, &c. SEE SUPPLEMENT.

NOTICES OF CONTRACTS.

We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the brick, stone, and joiners' work required in the erection of the Kingston Cotton-mills at Hull.

For supplying the East-India Company with pig-iron.

For building a Sewer in Haggerstone-road, near Kingsland, being a length of about 600 feet, for the Commissioners of Sewers for Holborn and Finsbury Divisions.

For new roofing and covering with lead two compartments at the west end of the nave of St. Mary's Church, Bridlington.

For the execution of the Works required in making part of the Taw Vale Railway, viz., from Barnstable Bridge to Fremington; and also for constructing the Docks and other Works appertaining thereto.

For the execution of Works on the York and North Midland Railway, being a distance of about 8 miles.

COMPETITION.

The Provisional Committee of the National Glass Company of Ireland require plans and specifications, &c., for the erection of all the necessary Buildings, comprising an extensive manufactory for making crown (window) glass; also plans for an extensive manufactory of plate glass. 25*l.* will be given for each plan selected, or 50*l.* for both if to the same individual.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At Mrs. Tynes, Wentworth, near Rotherham: 60 Timber Trees of large dimensions, both in length and girth.

At Hale Wood, on the Roadside between Liddate and Wickhambrook: about 100 Oak Trees of good quality, varying from 10 to 40 feet, in convenient lots.

At Parkham, near Framlingham: upwards of 200 fine and good Oak and Elm Pollards, and 11 large Ash Trees, all standing.

At the Anchor Inn, Eling, Southampton: about 250 loads of large Oak Timber, suitable for cutting into thick stuff, plank, and framing timber. In lots of 20 loads each.

BY PRIVATE CONTRACT.

At Upper and Lower Connytrowe Farms, two miles from Taunton: 180 Maiden Elm, and 30 Maiden Ash Trees.

TO CORRESPONDENTS.

"Edward Davis."—*We shall gladly avail ourselves of the drawing sent, although not immediately.*

"Constant Subscriber."—*Felt may be obtained from McNeill and Co., 14, Lamb's-buildings, Bunhill-row.*

"An Architect."—*We will inquire as to the principal fact stated in his letter.*

"Tenders for Houses at Mile-end."—*If one of the parties who tendered under Mr. Single will forward us a copy of the specification we shall be glad to receive it.*

"R. W. Herman."—*We will take an early opportunity to call.*

"R. S. P." (Bristol.)—*The letters referred to were destroyed. The reason assigned by our correspondent for the attacks made on him would tend to secure our good feeling.*

"W. J. N."—*We are compelled to decline the drawing, simply because we have similar subjects in hand. It shall be left at the office as requested.*

"W. T."—*Bricks marked "drain" must be used for no other purpose.*

Works on Architectural Buildings.—"H.B.," "Sub.," "T. T.," "Constant Subscriber," "Tyro," *ask what books they are to read. We will endeavour before long to answer them more satisfactorily than in hasty notes to correspondents. The reply is not an easy one.*

"G. R. L." *is unavoidably postponed until next week.*

"J. L. T." *shall hear from us.*

"G. R."—*We are obliged to decline our correspondent's letter. Narrow alleys are to be avoided.*

"Arch Enemy."—*We do not know of any Act which would empower the trustees to lessen the height of our correspondent's cellars.*

Books received: "Penmanship Illustrated and Explained," by B. F. Foster (Souter and Law, Fleet-street); *an ingenious and very useful little work.* "An Entirely Original System for Acquiring the French Language," by Mons. Mariot de Beauvoisin (Souter and Law); "A Treatise on Painted Glass," by Jas. Ballantine (Chapman and Hall, Strand), *to which we shall shortly refer.*

ADVERTISEMENTS.

CAEN STONE.

LUARD and BEEDHAM have a quantity of the above stone, of the best quality, direct from their Quarries at Allemange, which may be inspected at the Norway Sufferance Wharf, Greenwich.—Further particulars at MR. G. GATES', 18, SOUTHWARK-SQUARE, SOUTHWARK.

PIMLICO MARBLE AND STONE WORKS, BELGRAVE WHARF, PIMLICO-ROAD.

SAMUEL CUNDY begs to inform Architects, &c., that every description of Stone, Marble, and Granite work is executed at the cheapest possible rate.

Estimates given for Mason's Work in all its branches.

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CHIMNEY PIECES from Twelve Shillings upwards.

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THE WESTMINSTER MARBLE COMPANY embrace the opportunity of announcing to Builders and the Public generally, that they have made considerable reductions in their prices of Marble Chimney-pieces, and solicit an inspection of their extensive stock, now on view at their Show-rooms.

A neat Vein-marble Chimney-piece 1*l.* 15*s.*

Builders are respectfully informed that great savings may be effected by purchasing at this Establishment, and all orders will be executed from material of the best quality and workmanship.

N.B. Be particular in the address—

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LORIMIER'S TRANSPARENT PLANES for Perspective Drawing; BENJAMIN WEST, Patentee.

"This Instrument will enable Artists and others to make any Drawing, whether from Nature or Models, in perfectly true perspective, so that a likeness or landscape may be taken in a few minutes absolutely perfect. It is used by her Majesty's Royal Sappers and Miners, Chatham. To Travellers it would be found serviceable, since it can be employed without the knowledge of drawing."—*Art-Union.*

Price 18*s.* and 26*s.* Apply for Agents to BENJAMIN WEST, 2, St. James's-walk, Clerkenwell.—Sold by BARRITT and CO., 173, Fleet-street, London; GRIFFIN and CO., Glasgow, and by all Fancy Stationers, &c.

VENTILATION.

"A most ingenious, simple, and effective plan." Mr. Reid's Lecture on Ventilation, delivered June 7, 1845, before the Mechanics' Institute, Liverpool.

BAILLIE'S PATENT TRANSPARENT VENTILATOR, ventilates rooms or public buildings without causing unpleasant draughts of air—may be fixed as easily as a pane of glass, whose place it supplies—does not derange blinds, shutters, or other fixtures belonging to windows—most useful to public places of every description, especially smoking and coffee rooms, and moreover a simple remedy for smoky chimneys. This article may be obtained from all respectable glass dealers in London; Mr. Edgar Parks, ironmonger, 140, Fleet-street; Messrs. Stock and Sharp, and Mr. Samuel Beale, Birmingham; Messrs. John Hall and Sons, and Messrs. Dixis and Williams, Bristol; Messrs. Thos. and Will. Stock, Liverpool; Messrs. Davidson and Armstrong, Manchester; Mr. James Bell, Glasgow, &c.; who have models to explain its action, and will be glad to give any further information; also to be seen in use at Mr. Fred. Smith's, the Albion, 239, Blackfriars-road; Mr. Edward Baillie's, 12 B, Cumberland-market, Regent's Park; Mr. Seaton's, Dublin Castle, Park-street, Camden Town; 2, Coleman-street-buildings, Moorgate-street, and at the office of this Paper.

THE PROJECTED RAILWAYS.

ANALYSIS of the PATENT METALLIC SAND, or English Pozzolano, used in the foundations of the New Houses of Parliament, the great Tunnels on the Birmingham Railway, Sea-wall on the Great Western Railway, in Devonshire, and other important works referred to more particularly in the prospectus.

Silica	49	Lime	6
Oxide of Iron	32	Magnesia	2
Alumina	6	Zinc	3

Arsenic and Carbonate of Copper.... 2

Price in Swansea, free on board, 6*d.* per bushel, or supplied in London at 1*s.* per bushel.

Used as an external Stucco the Metallic Sand Cement is unaffected by frost or wet; in appearance it resembles the best Portland Stone, requires neither colour nor paint, and is entirely free from vegetative cracks and blisters.—Further Particulars on application to Mr. C. K. DYER, 4, New Broad-street, London; and at the Metallic Sand Wharf, King's-road (opposite Pratt-street), Camden Town.

PORTLAND CEMENT of best quality manufactured by J. B. WHITE and SONS, of Millbank-street, Westminster. To be had at their Warehouses; Druce's Wharf, Chelsea; Bell's Wharf, Paddington; and Earl-street, Blackfriars.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

Agent for Liverpool, Mr. WYLIE, 56, Gloster-street; ditto for Manchester, Mr. J. THOMPSON, Back King-street; ditto for Chester, Mr. J. HARRISON, Linen Hall-street.

KEENE'S PATENT MARBLE CEMENT.

THE PATENTEES of KEENE'S CEMENT beg to draw attention to the use of this material in the works recently executed at the COLOSSEUM, Regent's-park. The POLISHED COLUMNS in the Hall of Sculpture, the ornamental paving in the corridors and conservatories, and much of the stucco on the walls, are specimens of the very successful application of this cement. Patentees and Manufacturers, J. B. WHITE and SONS, Millbank-street, Westminster.

ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architecture and Engineering works upwards of thirty years, is reduced to 2*s.* 3*d.* per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

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It is peculiarly adapted as an internal stucco for walls, skirtings, architraves, mouldings, and enrichments of all kinds, to all of which purposes it has been extensively applied by Mr. Thomas Cubitt on the Grosvenor estate, &c.

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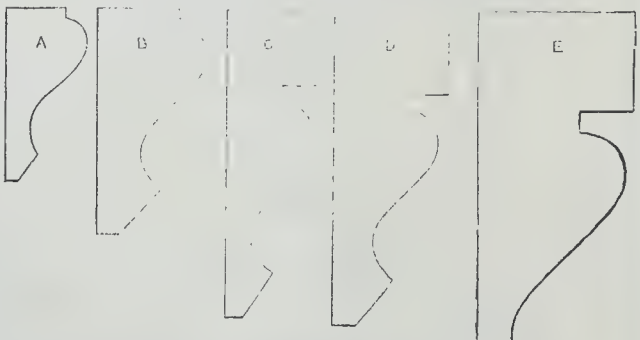
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The Builder.

No. CXLIII.

SATURDAY, NOVEMBER 1, 1845.

ON Thursday last our gracious Queen and his Royal Highness Prince Albert opened formally the new Hall and Library at Lincoln's Inn,—a structure remarkable alike the rapidity with which it has been raised l its great merits as an architectural nievement. It is unquestionably one of the st successful buildings of our day, whether arded as a whole for the general arrangent and grouping of the masses, or in detail elegance of parts, variety, and completeness, l will hand down with honour to distant es the name of its architect,—Mr. Philip rdwick. In the present wavering state of lic opinion as to what style should be pted in buildings not ecclesiastical, this cessful adaptation of late Tudor architec- (the style of the period which immediately eded the decline of pointed architecture, n the arch was flattened, and the horizon- line was acquiring precedence over the endicular), will doubtless tend to increase use of it.

the buildings of this period, and indeed e pointed style generally, the elevations out of the plan and was subservient to d this was arranged with a view to con- nce and the purposes of the building. A was placed where a door was wanted, a t where a turret was required (always, ver, with judgment), and each was left to ice what effect it might in appearance. assical architecture the positive sacrifice nvenient arrangement to regularity in tion is often unavoidable; in Gothic ar- cture the distinctive merit of the style is rowth of perfect adaptation to conve- e. The earliest revivers of Gothic archi- rranged their Gothic much the same as Italian buildings, where "grove nods at " each alley has its brother, and the was unsatisfactory. Their successors present day seem to have made a dis- that *irregularity* should be the main teristic. Their aim is to make no two alike, to set a steeple in any place than the middle of the west front, in in direct reverse of the other mistake,— tually to make convenience subservient gularity.

ee errors is easy, to describe what Go- rchitecture should be is difficult. In- on in the practice of art has never yet mbodied in words; excellence is to be e road to it hard to demonstrate. The theory of the causes of the emotion of more difficult of analysis in architec- an in any other branch of art, is in- in the question. Thus far, however, y venture to affirm, that in every divi- d subdivision of the structure, conveni- made the framework, out of which every created without attempt at conceal- that, consistent with the attainment of re is, in the management of masses, a towards regularity, whilst, in subdivi- d details, there is a very striking love ty. Regularity, co-existent with the object of the building, we find in the the cathedral; irregularity, the result of a similar aim at convenience, in the addition of the cloisters and chapter-house, and often in the position of buttresses and doors; ornament was the application to this framework.

Now, we are most pleased with the building under notice, because it evinces almost the first successful application of the principles which we have endeavoured, we fear inadequately, to indicate; it displays a perfect acquaintance with the principles of Gothic design, with those principles, which, being founded on truth, are destined to last many centuries.

Our purpose is to give a general description of it. The first stone of the structure was laid in April, 1843. It consists of a hall, arranged north and south, and a library, arranged east and west; the two buildings being connected by a vestibule of a lower elevation. It is erected in the gardens of the inn, and has, perhaps, greater advantages of site than any other building in the metropolis. Externally, the edifice is in two stories, the principal rooms being raised considerably above the ground level, and reached by long flights of steps from the exterior. The materials employed are red bricks, intersected with black brick in patterns, and stone dressings. The stone employed externally, is from Messrs. Peto and Grissell's quarries at Anston; for the interior, Caen stone is used. The south end, towards New-square, exhibits a lofty gable, flanked on each side by a square tower. These towers project slightly at this end, though in a greater degree at the sides of the building. They have small square-headed windows, three one above another, and are surmounted by battlements. Beneath the battlements are shields placed in square compartments. The angles have stone coins; and here, as well as throughout the building, we may notice, that the brick and stone are combined with the greatest propriety, decoratively and constructively, the irregularity not appearing too studied. Between the two towers is the great window of the hall. This is of seven lights, transomed; the head, which has a four-centred arch, being filled with very beautiful tracery. The design appears to be original; and the small quatrefoils, which are introduced, add much to the effect of the whole, which is a little heightened by the red curtain that hangs on the inside. Beneath this window are three small openings, to light the basement.

On the apex of the gable is a canopied pinnacle, containing a statue of the Queen. This pinnacle has some very beautiful parts, yet from its peculiar plan, which appears to be triangular, and from the projection of its gurgoyles, in some points of view, seems to be broken and out of the perpendicular. There is a small window, above the large one, in the gable. In this elevation, the two stacks of chimneys, which rise in the angle, formed by the towers and flanks of the building, have a very beautiful effect. The whole of the chimneys are of red brick, moulded into a great variety of patterns, and in general design resemble those at Eton College, and Hampton Court Palace. In the gable, just described, the letters P. H., and the date 1843, may be discerned; they are formed in dark bricks.* The whole base of the building is of stone, of which material are the walls of the esplanade on the east side, as well as the walls of the steps of ascent. At the sides, the hall consists of seven divisions or "bays" in length. Taking the side, next the Inn, the first division is occupied by the square tower, which except in the lower stage, is the same as in front. At this point, in the tower, is an entrance to the building. It is reached by granite steps from the esplanade, and from New Square, the ascent being well planned for effect. The door has a four-centred arch, with square label head, the spandrels being filled with quatrefoil tracery. In the jambs are small shafts. Immediately above the door, in a square panel, is a shield, bearing the arms of the Inn, and above that the clock. This is one of the most beautiful objects in the building, and is perfectly novel in design. It is surmounted by a pedimental projecting canopy, in metal work crocketted, and containing tracery executed with great delicacy, and having the true metallic character. Indeed, throughout the building, the metal work must be considered a great step in advance in the treatment of the material. The fingers and figures of the clock, without being less easy to read, are also converted into beautiful objects. The remaining six bays are occupied by the windows of the hall and offices in the basement, the last bay—on each side—projecting as an oriel. The lower range of windows are of two lights, and square headed; the upper base moulding going round them as a label.

At a considerable height above are the windows of the hall; the bays being divided from each other by the buttresses, which project in three stages. The hall windows are square-headed of four lights, with each light arched, without cusps, and transomed. They are close under the cornice, which has a row of grotesque and foliated bosses. Above this is the parapet and battlements, with the coping running horizontal and perpendicular. The buttresses are surmounted by octagonal pinnacles, with ogee caps. The oriel, which occupies the last bay on each side of the building, is square in the plan, with angular buttresses. It has a lofty five-light window in the front, divided by transoms, and a similar window of one light, on the return. The roof is leaded, with rolls at intervals. The north gable of the building is finished with a large stack of chimneys, which are well grouped, and highly ornamental. In the angles of the flanks, with the square towers, are staircases, and the stacks of chimneys before mentioned. In the centre of the roof is an elegant louvre. It is of wood, in three stages, with two heights of small windows, which are square-headed, cusped, mullioned, and transomed, and is surrounded by slender pinnacles, bearing vanes, attached by flying buttresses. The capping is ogee-headed, with crockets and gurgoyles, and is surmounted by an elegant vane, with direction points in gilded metal work: the whole of this part of the design displays very great taste.

The central building, which forms the entrance corridor to the library and great hall, is much lower than the two other buildings. On each side is a projection, with angular buttresses, from which again projects a square oriel of six lights, transomed. From the different angles project gurgoyles. The whole is surmounted, in the centre of the plan, by an octagonal embattled crown, each side having a window with pointed arch and rich tracery. The angles are strengthened by buttresses. The effect would have been improved if this crown had been raised higher; at present the windows can hardly be perceived. On the east side, that next the inn, is the main carriage

* There can be no reason why the architect's name should not be inscribed on every building, in some unobtrusive position; just as the sculptor places his name on a statue; unless architects are ashamed of what they execute. It would be looked upon as an interesting, and valuable record.

entrance, which is by a broad drive up to the steps to the esplanade. Thence, the ascent is by another flight of steps to a porch of entrance. It has a simple four-centred arched door, and a gable, with an animal holding a vane, upon the apex.

On this last side, the end of the library has a very rich and beautiful effect, mainly resulting from the elaborate design of the oriel. This is octagonal, with slight projection, with much panelling in the angular buttresses, and in the parapet. The whole of the carving in this part, indeed throughout the building, is well executed; and the proper depth, on which so much of its effect depends is given to the panelling. The principal division of this oriel is of four lights, with a four-centred arch head, and spandrils enriched; the splayed sides have one light. They are transomed. The buttresses are crowned by pinnacles, and above the lights are quatrefoils and bosses with machicolations above, the whole displaying considerable variety and richness of effect. The oriel is surmounted by a leanto-covering of stone. Above the oriel is a small window, and the raking mouldings, which are finished be grotesque carvings. The apex of the gable has an elegant pinnacle; it consists of a circular shaft, fluted spirally, supporting an animal holding a vane. Round the base of the shaft are pinnacles clustered together, the whole being supported by a grotesque corbel. On the south side of the library are several chimneys of good design. The north side of the library is five bays in length, the buttresses and lower range of windows being similar to those in the other building. The angles have oblique buttresses, excepting at the north-west corner, where there is a belfry turret. The windows of the library have their lights in two stages, separated by armorial bearings. They are of three lights, and the mullions being continued through, the spaces just contain the shields and supporters. The pinnacles in this building have animals instead of ogee capping, and the cornice has a greater number of bosses. In the west side, next Lincoln's-inn-fields, the arrangement differs from that on the opposite side mainly in the absence of the doors and porch. It is inclosed by a long brick wall, with stone capping, stepped down in long distances. There is an oriel to the library, differing from the other only in the cornice, which has larger battlements, and is varied in the panelling. The beauty of the enrichments, and of the ornamental chimneys is here more apparent. The bell turret, at the angle, is octagonal in four stages, divided by strings. The angles have stone coins, and there are small openings to light the staircase. The belfry is of stone, with long openings in each face, cusped and transomed; it is united to the stage below by a weathering, and in place of horizontal louvres has a perforated panelling. The parapet is of brick, with battlements capped with stone. We think that had less height been given to this upper story, by increasing that beneath it, the effect would have been even better than it is, but the turret is well placed. At the back of the angular buttress, on the south side, there is another stair turret. Attached to the library, on the north-west side, is the residence for the steward.

Entering the pile by the central doorway, a vaulted corridor with two short flights of steps, leads into the vestibule, a rectangular apartment 56 feet long and 22 feet wide, having at the south end the door into the hall, at the north the door into the library, and east and west a door to the council-room and the drawing-room. Nearly in the centre of the vestibule four insulated, clustered columns, with others attached to the side walls, and connected by obtuse pointed arches, form an octagon, and carry an elegant lantern of the same shape, with a window in each of its sides ornamented with painted glass. The ceiling of the lantern is groin-vaulted, and has sculptured bosses at the intersections, which are illuminated and gilt. The ceiling of the triangular spaces, cut off by the octagon, is left open as a skylight in each case, with a single plate of glass in it, to give light by means of corresponding glass slabs in the floor, to the corridor below. The other parts of the vestibule, north and south, are ceiled in panels, with deal, varnished.

Entering the hall from the vestibule, the visitor finds himself on the raised platform or dais, one step above the general level of the chamber, and, if we mistake not, will say it is one of the noblest apartments he has ever seen.

The illustration in our present number will serve to give a general idea of its appearance, as viewed from this end, to such of our readers as may not visit the building. The length of the hall is 120 feet, the width 45 feet, and the height to the apex of the roof 62 feet.* On either side of the dais is an oriel (as is usual in halls of the period), about eighteen feet wide, with a stone seat round it. The windows of both are ornamented with stained glass, chiefly brought from the old hall. Six other large windows on each side, as described when speaking of the exterior, and one at the south end, light the apartment. The upper part of the side window is filled with the arms of the benchers, in stained glass, executed by Mr. Willement, and the lower part with small panes, marked alternately L. and I. to form a diaper. The walls all round are lined with oak panelling, about twelve feet high, terminated with a cornice containing a carved running enrichment. The oak screen and gallery front at the south end are very original in design. As may be seen in the engraving, the screen consists of a centre doorway, with glazed panels, and two openings of similar form and size on each side, under arched recesses, with oak mullions and tracery also glazed. Projecting buttresses divide them, and are continued up to form pedestals for six figures, over which are carved canopies connected by arches, so as to form five openings in front of the gallery, corresponding with those beneath. The figures are not yet carved, but are now in the hands of Mr. Thomas, the chief carver at the new Houses of Parliament, by whom also the statue of the Queen in the south gable, already mentioned, was executed.

There is much decorative carving about the screen, which is well executed. Under the gallery is the southernmost entrance door, already mentioned as having the clock over it outside. The bolts, hinges, latch, and escutcheon, are admirably designed and executed, and this is the case we may here mention throughout the building. Every lock, every knob, is different, and is full of the right feeling. So too with the stone spandrels of the various door-heads, every one is varied, shewing there has been no lack of pains to produce a perfect whole. Returning to the hall,—the roof, a fine piece of construction, is formed wholly of oak, and is divided by trusses into seven compartments. Each truss comprehends one large arch springing from stone corbels attached to the walls, and has two carved pendants (as in Wolsey's Hall, at Hampton Court), at the terminations of an inner arch that springs from hammer beams projecting from the walls on either side about one-fourth of the whole span. These pendants are illuminated blue, and red, and gilt, and they each carry a chandelier japanned in the same colours. Between the trusses, against the wall all round, is a machicholated cornice with a range of small panels under it, also decorated with colours. The louvre described externally, is in the fifth division from the south.

Against the wall, over the door, on the dais, is Hogarth's picture, "Paul before Festus," in a new oak frame, designed to accord with the hall. The heads of the windows being square and wide, great care was required in the construction to make all sound. A bond-stone was brought through the whole thickness of the wall at each angle of the head, and one in the centre, and these carry the longitudinal stones by means of a "secret joint" and joggling.

The library, which is 80 feet long, 40 feet wide, and 44 feet high, has also an open oak roof: it is in five divisions formed by trusses, with pendants, and a series of arches placed longitudinally on each side, with a corresponding series against the side walls, terminating on stone corbels. The book-cases jut out on each side to form separate apartments for study, and have an iron balcony running round them about midway, and another gallery over them against each wall, the whole length of the room. There are five windows on the north side, and two large oriels of very elegant designs, all ornamented with stained glass and circular embossed panes*.

The council-room and drawing-room are each 32 feet by 24. The walls are lined with panelling: they are ceiled with deal in panels stained and varnished, with carved bosses at the intersection of the ribs, and each is lighted by a large window, in six lights and two stories. They have both handsome carved stone chimney-pieces: the bell-pulls here are also worth examining.

Relative to the kitchen, which is beneath the hall, we have only left ourselves space to say, it is a lofty vaulted apartment, with a noble fire-place, and all proper appliances.

In connection with the new buildings, the square of Lincoln's Inn has been inclosed with iron railing, and stone posts of similar character. The square is entered from Lincoln's Inn-Fields by a large Tudor gateway, of which we shall probably give an engraving hereafter.

It now only remains for us to say, that Messrs. Baker and Son were the builders, and have well sustained the high reputation they enjoy. The works are all admirably executed, much more so, we will venture to assert, than they could be at this moment in any other country in Europe, notwithstanding our assumed inferiority in one or two respects. The amount of the contract was 55,000*l.*, but of the total amount spent we are ignorant. Mr. Bavin, the architect's clerk of the works, of whom the whole local management has devolved, deserves especial mention, for the energy and zeal with which he has carried out his principal's views. The carving in stone was executed by Holmes, and the wood carving by Witman, of Marsham-street, Westminster. They have both shewn themselves to be able workmen. Of the smith's work we have already spoken; it was executed by John James, of the York-road, Westminster, who deserves to be known. The skill and artistical feeling shewn by him in this work are, unfortunately, now rarely found in the craft. John Ashton was the foreman of the masons. Caldecott, of Great Russell-street, made the furniture, and fitted up the hall for the reception, with throne, &c., and Strode and Ledger made the chandeliers.

* The length of the hall at Christ's Hospital, London, is 187 feet, the width is 51 feet, and height 47 feet.

* The library contains about 20,000 volumes; the rare amongst them is a volume of Prynn's Records, lished in the year of the great fire, and now very scar greater number being then burnt. Mr. Boteler, w unfortunately killed on a railway recently, was the Master of the library. Mr. Spilsbury is the acting lib

IMPORTANT PROCEEDINGS IN WEST MINSTER COURT OF SEWERS.

On the 24th ultimo, a numerous Co of Commissioners was held, it being spec "To consider the various plans for impro ment of the sewers hereafter to be built un the authority of this commission."

Mr. Edward Willoughby, the chairm made a few preliminary remarks as introd tory of the business of the day, reminding Court of the extreme importance of the s ject for their decision, and considering they had only twelve months ago altered forms that had been in use for many years, that the one substituted had not given satis tion, he called upon them to proceed caution. There were one or two point deemed it necessary to mention. The C must bear in mind there was a mar distinction between this and the Holborn Finsbury Commission. The latter had outlets of their own into the Thames, but dependent upon other commissions; on contrary, this commission had its own ou directly to the river, hence the form of se that might be well adapted to the circ stances of the Holborn division might be at all suited to the requirements of this mission; the Westminster division ne more basin, more reservoir, to meet the sequences of the tidal waters closing the lets; and an increased capacity of sewers necessary as reservoirs for the upland w during the period they were shut out fro entrance to the river by the tidal closin the outlets.

Mr. Leslie then rose to propose a m which he said would bring the antag principles to an issue, and which he would secure to the large districts under jurisdiction an efficient drainage, durable economical in its construction. He had

on his property, and on that of some friends, the principle he now advocated, and with the most beneficial results. In the house he lived n he had destroyed six enormous cesspools. His procedure was thus: he sent to the Sewers office, as any other person might do, to ascertain f any improved depth of insertion of his house-lrain could be obtained, and having found that he could give an increased depth, he had he whole depth of his premises made one uniform inclination. As the most easily pro-cured material nearest to the form be wanted, some drain tiles were purchased, and bedded n cement; all the side drains into the princi-al one were made with curves, and so effi-ient was this small economical drain, that ven large McAdamized stones were swept away by the action of a very small quantity of water concentrated in this approximation to he egg form. Stones would not have been emoved by four times the quantity of water n the house-drains built under the direction f the Westminster Commission, because in hem the water-force was weakened by diffu-ion, and the friction of a much increased rea. Having thus demonstrated the value nd economy of the narrow channel as a self-leansing drain, he proceeded to remark on he statement by the chairman, that there were wo great obstacles to be considered, the tidal waters closing the outlets, and the upland waters coming down during these periods. These were imaginary difficulties. Nearly very outlet of the sewers in the Westminster Commission, from Temple-bar westward to Whitehall, discharged its waters at all times f the tide, and it was even doubtful whether r no, so high westward as the Causeway, at Whitehall Stairs, the sewers were flapped or ot. The main Ranelagh sewer, and also the Counter's Creek Sewer, discharged at all mes.

The surveyor, Mr. Dowley, was appealed to y the Court to ascertain if these statements by Mr. Leslie were correct, and he at once con-rmed their accuracy.

Mr. Leslie proceeded to inform the court hat originally the Regent's-park-tunnel sewer, nder the jurisdiction of the Commissioners f Woods and Forests, was trapped at its out-t into the Thames and [illegible], and great damage was hereby occasioned to the inhabitants in the eighbourhood of Charing-cross; but subse-iently the outlet was left open, and the house-rains were trapped instead of the main chan-el, whereby the inconvenience was removed. hat as to the egg form of sewer, with the arrow end downward,* in addition to the six ninent building firms who had approved of e lithographed sections exhibited last week, e was now authorised by Major-General asley, whom he had consulted on the subject, declare his approbation of those sections; d he had received an additional testimony nce he came into court. This he would ad: it was as follows:—

"Dock-yard, Portsmouth, Oct. 23.

SIR, — At your request I have examined the ms of sewers submitted in a drawing signed John Phillips," which I inclose, and I am of inion that they are in every way better adapted their purpose than the old form of sewer with at invert and upright sides; they are cheaper in astruction, stronger in form, less liable to choke, the current is concentrated upon a small area, tead of being spread over the invert: in fact, regards form, they are the best I have seen.— m, Sir, your obedient servant,

W. DENISON, Captain Royal Engineers.

Mr. Leslie then proceeded to state that he d another document to lay before the Court, nely, a letter, received also since he came o the room, from Mr. Roe, of the Hol-rn and Finsbury Commission, the chief roducer of the modern improvements in rers. Having been requested by an influen-commissioner to go to King's-road, Gray's--lane, to witness the tumbled-down egg-m of sewer that had created such a chasm he street, he thought it would be as well to r Mr. Roe's version of the story, and at same time elicit his opinion as to the litho-phed sections by John Phillips. The fol-ing communication, which he read, was the ult:—

"October 24th, 1845.

DEAR SIR,—In the hurry of business yesterday, rgot to answer your remark on King's-road, Gray's-Inn-lane: there has been no fall of any sewer or part of sewer of the egg shape (or any other shape). The cause of the remark may have arisen from a slip of earth, caused by the running out of sand at the bottom of the trench, but this was before any brick-work was put in.

Mr. Phillips' form of sewer is such a one as I submitted, together with the egg shape, to our court some years since, when the commissioners chose the latter for general use, for reasons they then assigned; but some thousand feet of the form Mr. Phillips advocates have been built in these divisions.

At Southampton, I have encouraged, and the commissioners are now building and are about to build several miles of sewer, whose form presents less amount of friction to a small body of water, than even the form named by Mr. Phillips.

I am pleased to see the manliness with which Mr. Phillips comes forward to corroborate facts, which the mere naming of caused heretofore such a hurricane.—I am, dear Sir, yours truly,

JOHN ROE."

The speaker then read to the Court some extracts from the annual report of 1845 to the Holborn and Finsbury Commissioners by Mr. Roe, from which it appeared that the adoption of the improved forms of sewer, including the periodical washing out of sixty-one miles of sewers by the flushing apparatus, have effected immense advantages with a total saving in three years of 22,461*l.* to the rate-payers of those divisions. He considered that within the last four years alone, the loss to the public by the bad form of sewers under the Westminster Commission amounted to between 70,000*l.* and 80,000*l.*, money worse than uselessly thrown away; while the forms he advocated would, at a very moderate calculation, effect a saving of between 20,000*l.* and 30,000*l.* per annum.

He concluded, by moving that the egg form of sewer, with the narrow end downwards, be the general form of sewer to be adopted by this commission for the public and private sewers, to be built within the jurisdiction of the Westminster Commission.

The Hon. Frederick Byng rose to second the motion, and stated that he considered Mr. Leslie had so exhausted the subject, that it would only be a repetition of the statements already made were he to occupy much of their time in the discussion; the motion had his most hearty concurrence. He could not sit down, however, without reminding the Court, of his previous objections to the unlimited power over the proceedings of the Court which the appointment of an annual chairman gave to an individual commissioner; and the court had before them another proof of that fact, inasmuch as the very able plans of Mr. Phillips, their clerk of the works, had been received by the chairman and returned to that officer; and but for the exertions of Mr. Leslie, the Court probably would not have had them at this moment on their table.

Mr. Allason objected to the motion, and said, that if carried it would only be affirming a general principle. What a situation was the Court placed in, that they could not rely on the advice of their own surveyors, but must have the opinions of six builders, together with General Pasley, Captain Denison, and Mr. Roe. He was satisfied that there must be different forms of sewers for different localities. He would ask the honourable mover of this question, would he build a sewer in the egg form if the sewer was required to be of the capacity of 10 feet by 10 feet? He should oppose the motion.

Mr. Hawkes followed on the same side. He said he had not heard a single argument in favour of the egg-shape sewer with the narrow end down; it would only obstruct the water, and overflow the houses. He considered that his friend Mr. Allason had given the knock-down argument to the egg shape sewer with the narrow end down, and would oppose the motion.

Mr. Mayhew said, notwithstanding the mover had so frequently been severe upon the professional commissioners, he, as one of them, would on this occasion most cordially support his motion. It was impossible to have a better form for rapidly removing the soil and cleansing itself; he would cheerfully support the motion.

Mr. William Donaldson would oppose the motion, being firm in the belief that the upright sided sewer with inverted bottom and arched top was the best form that could be adopted; he thought the matter should be delayed until the Court heard a report from their surveyors.

Mr. Cumberlege, as a professional member of the Court, would support Mr. Leslie's motion; the Court had been for thirty-six years using a most extravagant form of sewer, with a broad base downwards; and he hoped the period was now arrived when the principles of common sense would guide them.

The division was then called for; the motion was declared to be carried by 16 to 5. For the motion, Honourable F. Byng; Messrs. Baylis, Branscombe, Cumberlege, Fitch, Fuller, J. Gunter, R. Gunter, Hall, Harvey, Le Breton, Leslie, Marriott, Mayhew, Moss, and Wood; against it, Messrs. Allason, Wm. Donaldson, Gutch, Hawkes, and Kendall.

Mr. Leslie then rose, and expressed a hope that the Court would not be like the cow which had given a good pail of milk, and then kicked it over; he trusted they would concur in the motion he had now to propose:—"That the forms for general purposes, as in the annexed lithographed sections, by John Phillips, second clerk of the works, be adopted by this commission." This was seconded by Mr. Cumberlege, and carried *nem. con.* The Court then adjourned to Friday, the 31st of October.

We congratulate the public on the result of this meeting with much earnestness, being satisfied of the great advantages that will be gained by the change. Moreover, we cannot avoid taking to ourselves some little credit for our share in effecting it. We have received an able, but somewhat intemperate communication, from one who signs himself a commissioner, reprehending us for our advocacy of the views of a particular member of the Court, and at the same time praising the tone of the remarks in our last number, which, although ostensibly not published till Saturday, was in the hands of the commissioners, previous to the discussion above reported. We beg leave to assure the worthy writer (and worthy he evidently is, notwithstanding his spleen) that we pay no regard to persons in matters such as this. We owe a duty to the public which we will perform to the best of our ability, and will advocate what we consider wise measures, and assist in obtaining necessary reforms, without reference to the party proposing them.

FURTHER REMARKS ON THE ORIGIN AND USE OF PISCINÆ.

THE present vagueness of our terms, "relative to Gothic architecture and ecclesiology," must have presented itself to every one, who has attended to the study of antiquities. It leaves us in difficulty as to the meaning of many old authors, in whose works we find the greatest want of precise phraseology. The importance of a good nomenclature is in no respect so evident as in the science of chemistry, which has made rapid strides, probably due mainly to the better knowledge of its previous facts, which the infusion of a correct and expressive system induced. As we have before said, it is the more systematic study of Gothic architecture in this day, over that which has passed by, which has led to the present comparatively accurate knowledge of principles and facts. But the difficulty of applying a new nomenclature to a science which deals entirely with the past, is great, and would indeed tend to restrict that investigation of old authorities, on which much of our present knowledge must be based. All we can hope to do will be carefully to analyze, and arrange in tabular form, the several apellations, in order that it may at once be seen which are synonymous, or in what different senses each word is to be understood.

In no particular is this difficulty more evident, than in the various names attached to the piscina and the *font*, and it would be well should every writer who attempts to unravel such an intricate matter, have the advantage of the supervision of so able a commentator as Dr. Bromet.* The "piscina at Haddenham"† was so styled after some consideration. It was thought that it could not have been an aumbry, because it does not occupy the place where that receptacle is *usually* found, and because there are no hinges, nor any signs of

* As first published in THE BUILDER.

* Vide *ante* p. 489.

† Illustrated, *ante*, p. 477.

them. It was not likely to have been a confessional, because it was clearly a niche, and not an opening; and not a hagioscope for the same reason, and for this, in addition, that such opening would have been inclined in the direction of the high altar. It was assumed to be a piscina, because it *did* occupy the place which that appendage generally occupies, namely, a south wall. There being no basin was not deemed a sufficient objection, as, when we saw it, the bottom of the niche was covered with stucco and whitewash,—quite sufficient to fill up a very shallow basin, such as we have frequently seen. It may be said, that there is no piscina in the chancel—which part of the church is of the same date—and, therefore, that it is unlikely that there should be a piscina here, but examples of chantry piscinæ, when there is none in the chancel, are frequent. It is also to be admitted, that a door may not have been a necessary appendage to every depository for sacred vessels. The question, therefore, is, was this an aumbry in the usual position of the piscina, and without doors, or turns on the former existence of a water-drain? The writer balanced the probabilities, and he is still compelled to decide in favour of the piscina.

In reference to the "pensile piscina," respecting which a quotation from an ancient ordinance was given, as quoted by Fosbroke, from Du Cange, it may be well to give the exact words in question, along with others under the heads of "Piscina" and "Font":—"Piscina,—Locus in quo manus Sacerdotes lavant, et ubi ablutiones Sacerdotis, missam celebrantis, injiciuntur,"—"Fons,—Vas, in quo aqua ad Missæ sacrificium ponitur.—Ordo Romanus: 'Subdiaconus accipit Fontem de manu Archiparaphonistæ, et defert Archidiacono, et ille ex amula infundit, faciens crucem in calicem.' * * * 'Fontem aureumcum gemmis, pavonem auro, et margaritis distinctum.'"

"Fons,—Piscina, ubi Sacerdotes lavant manus antequam sacra faciant. — Synodus Valent. an. 1590: 'Præcipimus Fontem ad abluendas Sacerdotum manus, qui se ad Missam celebrandam accingunt, præparari, qui vel parie[illegible] cum linostina palla!'"* According to Du Cange—in one sense of the word "piscina"—that appendage was a place in which the priest washed his hands, and into which the water was cast, after he had washed—perhaps in some other place. The interpretations of the word *font* seem to be precisely similar to each other, being in each case a vessel of consecrated water used at the sacrifice of the mass, for washing the hands. All that the extract seems to us to prove is, that somewhere near the altar, pensile, or affixed to the wall, was a vessel containing water, and called a font, *in which* the priest washed, the water being afterwards drained down the piscina.† Whether the *piscina* was ever large enough for washing the hands, for in most examples it has a very shallow basin — the pensile vessel being omitted,—is the point to be ascertained; if that is found to be the case, then the term "font," which was applied to the pensile vessel, may also have been applied to the piscina, as the words "parieti *in*fixus" might lead us to suppose. But it does not necessarily follow, that the term piscina was applied to the pensile vessel; and in fine, it seems to us, that "font" was a word used for several vessels, in which there was a *supply* of water for ablution or for baptism, which was either only a vessel, or also provided with a drain; and that a piscina sometimes was that particular description of "font," attached to the altar, which was fixed to the wall, and was provided with a drain. So that the word "font" had at least three significations:—First, as applied to the baptismal font in the nave; second, to the pensile vessel, and, when the second was wanting, to a fixed vessel. The "font," when fixed, was sometimes identical with a "piscina:" the pensile "font," never so. Lastly, the necessary adjunct of the piscina was in all cases the drain.

The word "piscina," applied to the baptismal font, was mentioned in the previous article (at page 477). In the extract from M. De Caumont, given by Dr. Bromet, it certainly appears to apply to that kind of font which had a drain, or to the "baptismal font." The meaning is very obscure; "piscina" may refer to the drain of the font, or more probably, the two words may refer to vessels entirely distinct. The most obvious impression might be, that baptism was performed in the chancel, or chapel, the water being brought "in a small vessel" from the font in the nave, were there not certain considerations rendering such an opinion untenable. It seems most probable, that in the particular administration in question, the rite was performed at the "baptismal font," the water being brought from other vessels, and probably the chrismatory-oil, as suggested by Dr. Bromet. But the whole subject is still open to discussion, and it would be rash to express any decided opinion upon it. The difficulty would perhaps be cleared up by the discovery of another drain, in the neighbourhood of the baptismal font.

E. H.

* Which may be thus rendered:—"Piscina,—A place in which the hands of the priest are washed, and where the ablutions of the priest celebrating the mass are cast."—"Font,—A vessel in which water is placed at the sacrifice of the mass:"—"The subdeacon receives the *font* from the hand of the chief singer, and brings it to the archdeacon, and he pours into it out of the amuin, making the sign of the cross over the canlice;'—'A golden font set with gems, a peacock in gold, and set with pearls.'"—"Font,—A piscina, where the priests wash their hands before they make the sacrifice. 'We order to be prepared a *font* for the hands of the priests to be washed in, who prepare themselves for celebrating the mass, which, either fixed into the wall, or pensile, may afford water with a linen cloth.'" Du Cange: *Glossarium ad Scriptores Mediæ et Infimæ Latinitatis.*

† "Is it likely, that the word font refers to another vessel in which the hands were washed, the *carrying off* of water, rather than the supply, being the object in the piscina, the bowl of which, indeed, is hardly large enough for any other use?"—*Ante*, p. 477-8.

AS TO THE USE OF OLD SOUND PARTY-WALLS OF INSUFFICIENT THICKNESS.

AWARD UNDER BUILDINGS ACT.

The following being the first of a class of very important cases, we report it at some length:—

Mr. Lee being engaged to superintend the taking down and rebuilding the house No. 61, Pall Mall, which it is proposed shall be a first-rate building, submitted to the official referees the following question that had arisen between him and Mr. Mayhew, the district surveyor for Saint James's, Westminster.

"On the west side of the said house, between it and No. 62, there is a sound and efficient party-wall, which was erected a few years ago, on the rebuilding of No. 62. This party-wall was built as a first-rate party-wall in conformity with the Buildings Act 14 Geo. III., cap. 78, and it is 1 ft. 10½ in. thick in the basement floor, 1 ft. 6 in. thick in the next three floors, and 14 in. thick in the upper floor, and to 18 in. above the roof.

As it is proposed to build No. 61 seven stories in height, this wall, in accordance with the present Act, is 4½ in. too thin on the ground floor, and Mr. Mayhew is of opinion it should be taken down.

I take the liberty of stating that I differ in opinion with Mr. Mayhew, and maintain that it was never contemplated by the Act 7 & 8 Victoria, cap. 84, on rebuilding a house, that a first-rate party-wall under the late Act, if sound, and built with proper materials, should be pulled down; I admit I do not find this in the Act, neither do I find the contrary. I believe Mr. Mayhew principally depends on the 12th section, but I submit this section to be operative only when the wall is rebuilt, and not in condemning it."

Mr. Mayhew urged, that section 5 requires, that whether "Buildings be built, or rebuilt, on old, or new foundations, or partly on old, and partly on new foundations, notwithstanding any thing contained to the contrary in any Act of Parliament now in force, every such building shall be built, rebuilt, &c., in conformity with the several particulars, rules, and directions in Schedule C," &c., "subject, nevertheless, to any other rules and directions in this Act contained in the same behalf."

That the conditions of Schedule C, part 2, determine, that if the building contain seven stories, it is to be of the first class, and the thickness of the party walls must be at the least 21½ inches from the top of the footing up to the underside of the floor, next but three below the topmost floor, which in this case renders the wall 4½ inches too thin on the ground floor, as stated by Mr. Lee.

That section 27 enacts, with regard to any party-wall, so far as relates to the rebuilding thereof, that if the owner of one of the buildings, parted by such party-wall, rebuild such building of a higher rate, and do not pull down such party-wall, and build a proper wall in lieu thereof, then it shall be the duty, and he is hereby required to build up an external wall against such party-wall.

That section 12 is imperative as to the party and external walls being of the required thickness.

He considered, "that the building owner in this case must either relinquish the seventh story, or pull down and rebuild the party-wall of the required thickness; or build an external wall against it, for I apprehend, whether the wall were a new wall, built under the present Act for a second-rate house of the first class, or whether it be the present wall (for which the second-rate is the highest rate, that the present wall is thick enough) neither the one, nor the other can or could be used for a first-rate building. The 31st section, which permits buildings already built to be raised 10 feet if the walls be sufficiently secure to allow of the raising thereof, might perhaps admit of an argument as to its applicability in this case to the wall only, but I apprehend that this section can only apply where the building erected before the passing of the Act to which the wall belonged is in existence, and cannot apply to a party-wall only, after the building itself is wholly pulled down."

In a reply to these points, Mr. Lee reminded the referees "that section 82, under the head of 'Matters of Reference,' gives to the referees the power to determine all matters of doubt, difference, or dissatisfaction, and that there was nothing contained in the Act to take from them the power of permitting the party-wall in question to remain, and he thought a very strong argument in favour of this opinion was, that in schedule D, part 2, under the head of 'External Wall used as a Party-wall,' the Act directs if an 'external wall to any building already built be at the least 13 in. in thickness in every part, and be of sound and proper materials, and in good condition, then such wall may be used as a party-wall;" if, therefore, an external wall 13 in. thick may be used as a party-wall, there could be no reason why a [illegible] wall 18 in. thick, should not re- a good party-wall in any [illegible] main, when the want of thickness exists only on one floor. He further remarked, "If I am wrong in my opinion, most serious inconvenience must arise from the operation of the Act, in the old districts, more particularly in the city and west-end of the town, where from the increased value of ground, the houses must be built with an additional number of stories bringing them by that means into the firstrate of the present Act, and then in all cases of re-building both party-walls must be taken down, even when the houses on both sides of the party-walls have been built within a year or two; because in all cases the party-walls were only built as first-rate party-walls, under the Act of 14 Geo. III., cap. 78, or 21½ in. thick to the underside of the ground floor, which there is no doubt is sufficient, whereas the first-rate party-wall under the present Act, must be 21½ in. thick to the underside of the one pair floor."

Mr. Hosking, the referee, found on survey, that "timber appears in several places in the east face of the wall, laid into the work, and brick on edge courses, which affect the thorough bonding of the wall, occur wherever bond timbers have been placed in the wall. In other respects, the wall is a sound structure, and is fit to be used again as a party-wall, though in doing so, it should be made as far as possible conformable with the provisions of the Metropolitan Buildings Act, by the removal of all timber from its structure, and by taking out the brick on edge courses, and restoring with proper and sufficient materials, such as bricks, or brick and plain tiles in cement."

The award, after reciting the premises, was as follows:—

"Now, although the proposed building will, by reason of the number of stories thereof, be of a higher rate than a building to which the existing party-wall in question would be applicable, in reference to party-walls built with buildings, after the passing of the Metropolitan Buildings Act; yet inasmuch as the said party-wall is, in the opinion of the official referees, a proper and sufficient wall to serve as a party-wall with reference to the building to be rebuilt, except as to certain timber laid in the same otherwise than the said Act permits, and

except as to the brick on edge courses, which lie upon the timber:—I, the said William Hosking, with the assent of the said Arthur Symonds, do hereby certify, determine, and award, that if the timber in the said party-wall, on the side next the proposed building, and the brick on edge courses thereon, be removed, and be replaced by brickwork pinned in and properly coursed and bonded to the satisfaction of the district surveyor, it shall not be necessary to pull down such party-wall, or to build up an external wall against the same; and that the said wall may be raised to an additional height, not exceeding ten feet, so that such raising be done to the satisfaction of the surveyor of the district, and in every respect according to the provisions of the 31st section of the said Act."

The costs to be paid by Mr. Lee.

FOREIGN ARCHITECTURAL AND COLLATERAL INTELLIGENCE.

New Library at Berlin.—According to a late royal decree a new building for the large royal library is to be erected—and thus in a few years, when the British Museum and the library of Paris (whose new site and erection is also decided) will be completed, Europe will possess three such structures of first magnitude. The Berlin library is to be erected on the banks of the Spree, and will extend over a vast space. The site is most felicitous, as the vicinity of the river will dimipish every danger by fire—while its close proximity to the university is most desirable. *Stall-street*, where it is to be erected, will then form one line with University-street (by the demolishing of a few military stables), and an uninterrupted sight will be afforded along the latter street from the monument of Frederick the Great to the new library. In the lower compartments of the old library, which have been used, of late, as a repository for the astonishing increase in books—the dry rot has shewn itself to a great extent.

Scientific Congress of German Naturalists at Nurnberg.—This association (the *prototype* of all similar ones) has just concluded its meetings. Dr. Kastner, of Erlangen, delivered a discourse, "on the influence of natural science on the ennobling (*Veredlung*) of mankind." He pointed to its paramount connection with all other branches of human ken—and stated how by their adaptation to arts and trades, the examination of the laws of nature, conveyed to the people a *momentum* of reflection, thought, and elating sentiments. Drugist A. Frickinger, from Nördlingen, read a paper on his experiments on the influence of sal amoniac (salmiac) on metallic iron. He stated that an aqueous solution of this salt, under the free access of the atmospheric air, considerably accelerates its oxydation, which, however, begins with a conversion of the metallic iron into a chloride, under considerable development of ammonia.

Cheap Instruction at the Polytechnic Schools of Germany.—The rectorship of the Royal Polytechnic school at Munich (one of the best in Germany) state, in their late circular, the following terms for the pupils of the school. The matriculation fees are from 10s. to 12s. Persons who do not belong to the states of the German Confederation, pay 1*l.* sterling for attending all courses—during a whole year. Persons who have not entered the college as regular students, but merely wish to hear one or another course of instruction, pay for each fee of 10s. [We should say—that any young man, with his wits about him can *study* at Munich, at the rate of from 30*l.* to 50*l.* per annum, without meanness.]

Naples: Excavations at Pompeii.—These work place under the controul of Mr. Carlo Bonucci, before 1,200 *savants*. The results were, in the main, satisfactory, as some golden ornaments, several marble statues, a great many bronzes, vases, and some tubes of an aqueduct, were found. After a visit and inspection of the whole of Pompeii, the returning members had occasion to see these things again properly arranged. It was an interesting sight—although some (of *the* 1,700) were foolish enough to think, that it was a *colluded* affair. Mr. Bonucci, by a long experience, might well be supposed to know where lay the richest veins of this antiquarian mine.

Public Work and Buildings in the Brazils: New Versailles.—This is, after all, a great epoch, when reports on any department have to extend over the whole globe. The Brazils are vigorously striding on the path of civilization. The first is the constant opening of splendid roads through the mountain chain, which surrounds the bay of *Rio de Janeiro*, for connecting the fertile, nay luxurious in-land, with this great emporium of South America. On this high table-land, in fine, in the most felicitous situation, near the old road to *Minas Geraes*—the Emperor is erecting a magnificent palace, around which (in imitation of Versailles) a new town is to be laid out, which will bear the name of *Petropolis*, after the name of the present Emperor and his father. It is to be regretted, that merely French and German builders are employed on these works, and called to these settlements.

Musée d'Alger (Algerine Museum in Paris).—Before leaving Africa, Mareshal d'Isly has published a decree in the name of H. M., enjoining the collecting of specimens for the formation of the Musee d'Alger in Paris. Although many things collected by people not quite *au fait*, are to be expected, yet the idea is felicitous. The frieze of the Diana Temple of Magnesia has not yet been exhibited, and these *relievos*, appertaining to the very worst period of decaying Roman art, scarcely deserve this distinction—not to be compared even to those of Lycia, lately brought to this country. Much is if to be regretted, in fine, that while something novel like the above museum is in contemplation, the sculptures of Olympia and Assos are not yet accessible to the public view. The same spaces, where the latter are deposited, are also encumbered with the most precious Egyptian relics, statues, sarcophagi, and *stelæ* of most perfect preservation—which lay forgotten here since the death of Champollion. Next spring, however, the ornaments of Niniveh are expected to arrive in Paris, which will absorb public attention, and place every thing else in complete shade.

Employment of English Engineers on the Continent.—A discussion has been carried on of late between the senate and the burghesses of Hamburg, about the utilising of the *Grasbrook*, an open place, situated at the Elbe, between the city and the Upper—and Nether Haven—which if converted into a new dock, would be most useful to the increase of the shipping of Hamburg. Last week the commission of professional gentlemen, especially appointed for that purpose, laid an extensive plan before the competent authorities. The commission consists of the Water-building-Director Hubbe, and Messrs. Walker and Lindley. The speedy execution of this undertaking is the more to be wished for, as it would be the means of a communication between the harbour and the chief station of the Hamburg-Berlin railroad.

Draining of the Zuiderzee in Holland.—This vast bight of the sea—equalling in its area the largest province of the kingdom, is spoken of as likely to be drained in a very short time, by which a considerable increase of *artificial* territory would be gained. According to actual survey, this gigantic project does not present such great difficulties as might have been anticipated. There exists, already, at low water, a dyke at Medemblick, which, if a proper enlargement thereof would take place, might be so far extended as to check entirely farther influx of the ocean. It is clear, however, that for effecting this, a canal ought to be made through this dyke, for facilitating the efflux of the sea.—*Journal de la Haye.*

New York and Pittsburg.—Most of the contracts and even preparations for the rebuilding of the former city, are now completed, and Pittsburg has nearly risen (much improved) from its ashes. It is to be hoped every precaution will be taken against the recurrence of such calamities.

Prospect of an "Overland" Railway to India and China (St. Petersburg, 6th Oct.)—The Russian government is actively engaged in the project submitted to it of a railway from St. Petersburg to Adessa, and the public may be convinced that if there be a possibility of realizing this project, Europe will see its realization, which will have an immense influence not only on the destinies of this part of the globe, but also on the innermost parts of Asia. As it is intended, in the first, to unite the Baltic with the Black Sea, branches will soon start for Isphahan, and the interior of Persia. Thence, to the East Indies, and even China is but one step. A railway from St. Petersburg to Adessa, however, will run over 770 French leagues (nearly 3,000 English miles), and will be, therefore, the longest line of communication ever conceived by man, leaving far behind all conceptions and works of Roman or other ancient genius. May it be built with a solidity and stearlingness worthy of such a thought.

J. L——v.

THE GRAVE-YARD QUESTION.

SIR,—I was greatly concerned, and may say horrified, on reading your account of what appeared in *The Lancet*, of the state of St. Margaret's church yard, Westminster, from the over-crowding of the graves, most of them being filled up to the surface; and I was not at all surprised at the very serious and alarming effects likely to be produced by interments where such is the case. But what surprises me the most is, that you have a House of Commons and Lords close to this mass of pestilence, with scarcely a member in either who have courage enough to grapple with the question. And why? Because it is said the interests of the clergy are involved, and thereby their fees interfered with. And is this a sufficient reason why, the lives of those whose melancholy duty calls them to attend the last office of a departed relative or friend, should be endangered, as well as those who attend officially, to say nothing of the effect on the public health generally?

It has been stated over again, that in crossing this spot the effluvia occasionally arising from the graves is sensibly felt; surely after such facts being known, another interment ought not be allowed in such crowded places, particularly when there are ample and efficient repositories for the dead, for at least a century to come, in consecrated cemeteries—as the Westminster Cemetery, Kensal Green, Norwood, and other establishments within a reasonable distance of this great city.—I am, Sir, &c.

Z.

Oct. 27, 1845.

ELY CATHEDRAL.

THE manner in which the circumstances attending the melancholy death of Mr. Basevi were stated in the newspapers, has led to the erroneous impression that the unfortunate gentleman in question was the architect employed in the restorations there. This, however, was not the case, Mr. E. Blore is the architect. Mr. Basevi being a personal friend of the dean, who devotes much time to the works, was accustomed when in Ely on other business to go over the cathedral with the reverend dignitary, and give him the benefit of his suggestions simply as a friend, without in any degree trespassing on the province of his brother architect. Mr. Basevi was buried in the cathedral on the 21st inst., where, we understand, a monument will be erected to his memory.

PATENT WOOD CARVINGS.

WEALE is publishing in parts, a series of lithographed representations of decorations in wood executed by the Patent Wood-carving Company, and which are practically useful to architects, builders, and decorators. They consist for the most part of examples in the French and Elizabethan styles, to the execution of which the patent process is more particularly adapted. The carving is effected as our readers are mostly aware, by first burning the pattern into the wood, and then completing it by hand. By this means the proprietors profess to supply fine specimens at one-fourth of the expense formerly incurred. We lately visited the offices of the company (Henrietta-street, Covent-garden), and were much pleased with some of the works recently executed.

ARCHITECTURE AT THE SCHOOL OF DESIGN.—Mr. C. J. Richardson, with whose works as an artist our readers are well acquainted, has been appointed teacher of architectural drawing and perspective, at the London School of Design. Furniture, decorative ironwork, painted glass, and chasings, are to be within his province. His attendance is given only in the evenings.

INTERIOR OF THE NEW HALL, LINCOLN'S-INN.*



ROOMS FOR LARGE ASSEMBLIES.

"The Manchester Athenæum Soirée" is now recognised as one of the most brilliant gatherings of literary talent annually recurring in England, and around the galaxy of intelligence there to be found, are assembled, thousands of charmed auditors, and would be thousands more, if covered space could be found to contain them. The intention of the writer is not to give a description of the meeting of 23rd ultimo, that duty will be well performed by other hands, but some remarks on the defects of the building, admirable as the Free Trade Hall is in many respects, will not be out of place in The Builder. It has long been a common remark, that the doorways of rooms of extraordinary dimensions are rarely proportionate in size or number; still the defect is as great as ever in many of our newest buildings, although it is found an intollerable grievance on such occasions as that which calls for these observations. Here was an elegantly dressed throng, a majority of the fair sex, and in all amounting to three thousand five hundred, to be passed through one entrance door, with the exception of three or four hundred, consisting of stewards, ladies, and invited guests, who entered at the other end of the building. The pressing was unavoidably great, so too must have been the derangement of attire; and the time occupied extremely inconvenient, as there was not time for the vast assemblage to settle in their places completely before the opening of the intellectual treat; and had all the tickets been properly scrutinized by the receivers, a very considerable number would not have been within the walls at the appointed hour. No doubt, many are deterred from attending large meetings by their dislike to such a prelude, and as there is no absolute necessity for the continuance of such a mistake, we recommend architects to apply their minds to this point, feeling a strong conviction that large meetings of various descriptions will increase in number, and that the time required for admission and departure are considerations of growing importance.

A.

* See p. 521.

IT AT LITTLEBURY CHURCH, ESSEX.

HIS very curious example of a font and is still preserved at Littlebury Church. tands under the tower arch, the upper por- of which is so entirely blocked up, that figure on the top of the font cannot be suffi- tly distinguished to see for whom it is in- lled.

GEORGE TRUEFITT.

IE SCULPTURED DECORATIONS OF HE NEW HOUSES OF PARLIAMENT.

'RESS of matter prevented us last week n referring to the fourth report of the mmissioners on the fine arts, then just pub- ed, but this seemed the less important as it already kept five months, being dated y 15th.

t refers solely to the question of public numents to men distinguished for eminent rary, scientific, and civil services, referred to ir consideration by Sir Robert Peel, and is ned, Albert, Lyndhurst, Sutherland, Lans- vne, Lincoln, Aberdeen, J. Russell, Pal- rston, Melbourne, Mahon, Ashburton, Col- ne, C. S. Lefevre, Robert Peel, J. R. G. aham, T. B. Macaulay, Robert Harry glis, B. Hawes, jun., Henry Hallam, nuel Rogers, and Thomas Wyse.

"We have found," say the Commissioners, n the course of our inquiry that many situa- ns for statues consist of niches only, which, in cordance with the style of Gothic architec- e adopted, are uniformly narrow, not ex- eding two feet in width; that there are also nations where insulated statues might be y placed; and we conceive that, with a view th to convenient inspection, and the expe- ency of affording opportunities for display- the abilities of the artists, the last-named uations are the most important."

We have also found that some situations, ough not fit for the display of statues, would well adapted for the reception of busts; and are of opinion that busts might be consi- red among the means before referred to of ing honour to eminent men."

Without thinking it expedient to point out the localities which may be adapted for tues, the Commissioners go on to say, "We ve now to express our opinion that six in- ated marble statues might be conveniently ced in St. Stephen's porch, and that sixteen h statues might be conveniently placed in Stephen's-hall. We are of opinion that it ot desirable that a corresponding number of inent names be now pointed out with a view the entire occupation of those places; but are at once prepared to recommend that tues of Marlborough and Nelson be placed St. Stephen's porch; and that statues of den, Hampden, Lord Faulkland, Lord arendon, Lord Somers, Sir Robert Walpole, rd Chatham, Lord Mansfield, Burke, Fox, t, and Grattan be placed in St. Stephen's- l."

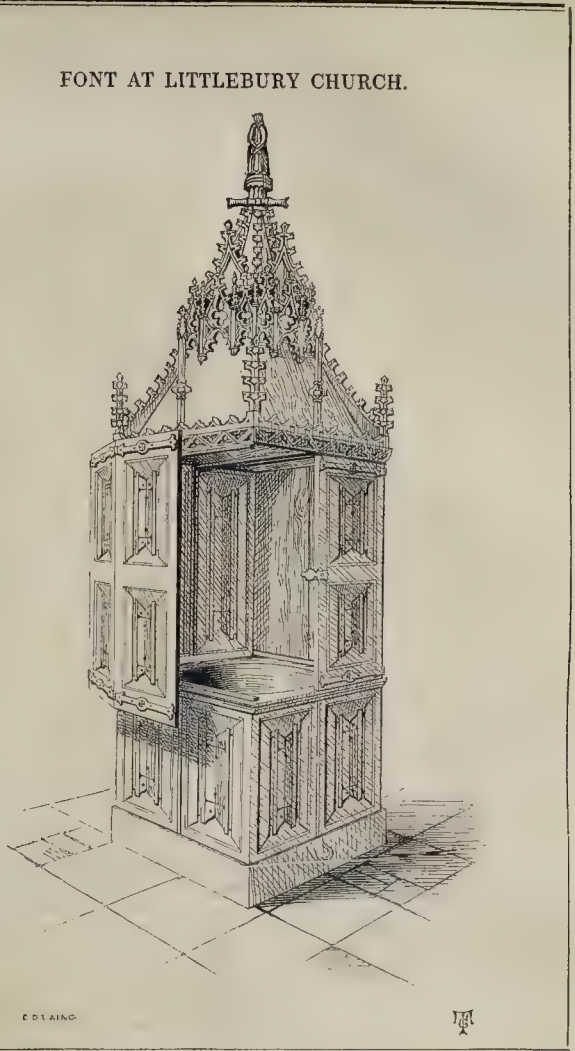
They then recommend Marshall, Bell, and ley to execute three of these statues (as is eady known), and end by asking for 2,000*l.* account, towards the payment of such rks.

The appendix to the report contains a re- rt of a sub-committee appointed to "prepare general list of distinguished persons of the ited Kingdom to whose memory statues ght with propriety be erected in or adjoin- the New Houses of Parliament," with two s; the first containing names to which they reed unanimously; the second of names on ich they were not unanimous, but decided greater or smaller majorities; and this is ned, Mahon, T. B. Macaulay, Robert Harry glis, Henry Hallam, Samuel Rogers, Tho- s Wyse, and B. Hawes, jun.

The report says, "The aggregate of these o lists consists of 121 names, which may obably afford scope, not for indiscriminate ption, but rather for choice and selection the part of the commission at large;" a re- rk which appears to have been overlooked those who have found fault with the names ven.

At the risk of telling a twice told tale, we nk it necessary to print the lists, if it be t for the sake of reference hereafter.

The names agreed to unanimously:—Alfred, izabeth, Robert Bruce; Lord Burleigh,



FONT AT LITTLEBURY CHURCH.

John Hampden, Earl of Clarendon, Lord Somers, Earl of Chatham, Edmund Burke, C. J. Fox, William Pitt; Sir Thomas More, Sir Edward Coke, John Selden, Sir Matthew Hale, Earl of Mansfield, Lord Erskine; Venerable Bede, Richard Hooker; Sir William Wallace, Sir Philip Sidney, Duke of Marlborough, Lord Clive, Lord Heathfield; Lord Howard of Effingham, Sir Francis Drake, Admiral Blake, Lord Rodney, Lord Howe, Lord Duncan, Lord St. Vincent, Lord Nelson; Sir Walter Raleigh, Captain Cook; Sir Thomas Gresham; Chaucer, Spenser, Earl of Surrey, Shakspeare, Milton, Addison, Richardson, Dr. Johnson, Cowper, and Sir Walter Scott; Bacon, Napier, Newton, Locke, Robert Boyle; Caxton, Watt, Herschel, Cavendish; Inigo Jones, Sir Christopher Wren, Hogarth, Sir Joshua Reynolds, Flaxman; John Howard, William Wilberforce; Harvey, Jenner.

Names agreed to by a majority:—Richard Cœur de Lion, Edward I., Edward III., the Black Prince, Henry V., William III., George III.; Cardinal Langton, William of Wickham, Cardinal Wolsey, Earl of Strafford, Lord Falkland, Sir William Temple, Lord Russell, Sir Robert Walpole, Earl of Hardwicke, Earl Camden, Grattan, Warren Hastings; Speaker Onslow; John Wickliffe, John Knox, Cranmer, Archbishop Usher, Archbishop Leighton, Jeremy Taylor, Chillingworth, Barrow, Bishop Butler, John Wesley; Sir John Talbot, Sir John Chandos, Marquis of Montrose, Cromwell, Monk, General Wolfe, Sir Eyre Coote, Sir Ralph Abercrombie, Sir John Moore; Hawke; Ben Jonson, John Bunyan, Dryden, Pope, Swift, Goldsmith, Burns, Sir William Jones; Robertson, Hume; Fielding; Roger Bacon, Smeaton, Brindley, John Hunter, Adam Smith; Purcell; and Garrick.

The appendix also contains a report of committee respecting the selection of persons whose effigies might be placed in the niches in the House of Lords, a letter from Mr. Hallan to justify the selection, and a memorandum respecting places available for statues in the Houses.

The proposal contained in the first, suggested by Prince Albert, is, to fill the niches with the effigies of the principal barons who signed Magna Charta, an admirable proposition; the latter, as it indicates the general arrangement, we give nearly entire:—

The commissioners consider "that, as the entrance to the houses of Parliament by St. Stephen's porch will contain statues of distinguished statesmen, warriors, and other eminent subjects, the entrance by the grand staircase, the landing-place, guard-rooms Victoria gallery, and lobby to the House of Peers, should contain the statues of sovereigns.

The statues of Egbert, Edgar, Canute, and Edward the Confessor might be fitly placed on the first landing-place.

That the principal landing-place should contain the statues of the sovereigns from William the Conqueror to Edward IV. That the statues of Edward V. to Richard III. might be placed in the guard-room.

That in the Victoria hall the series should be continued, beginning with Henry VII., and ending with Queen Anne.

That the lobby to the House of Lords should contain the statues of the sovereigns of the house of Brunswick, beginning with George I., and ending with her most gracious Majesty.

In this proposed arrangement it appeared that one pedestal in the lobby to the House of Lords would still remain unoccupied. A resolution was referred to (recorded in the minutes on the 21st of April, 1843), to the effect that a statue of his Royal Highness Prince Albert would be appropriately placed in the Victoria gallery (of which the lobby in question originally formed a part). Thus the situations for statues in the state apartments and the approaches to them would, in the event of the above resolution being confirmed, be entirely occupied.

According to the above proposed distribution, the number of statues on the landing-places and in the guard-room would be 22; in the Victoria gallery 12 (William III. and Mary being both represented); in the lobby, including the statue of her Majesty, seven.

It was considered that the statues in the robing-room might, according to a resolution proposed by Mr. Gally Knight, with reference to another locality, consist of allegorical figures.

It was further proposed that the lower waiting-hall should contain eight statues of celebrated scientific men; that the upper corresponding hall should contain eight statues of celebrated poets, and that the panels in the latter should be adorned with paintings. The lower hall has no panels available for paintings."

The report has excited much controversy, as might have been expected, and has received much abuse from the press generally. We will not say that there are no names omitted to which precedence ought to have been given,—we should have been pleased to see a more lengthened list of men, distinguished for their *literary* services or their skill in the *arts*, but are nevertheless satisfied that the sub-committee have given the subject very serious and unprejudiced consideration, and that the assertion of one of our contemporaries, that "some paltry fear or incapacity has prevented their going straight to their task," cannot be justified.

We trust to hear of further commissions to sculptors before long: if the statues are to be executed three at a time, a century will not fill all the niches.

RAILWAYS IN FRANCE.

(*From our own Correspondent.*)

Public opinion of late has been much alarmed at the prodigious number of companies—from fifty to sixty—which have formed themselves for the five lines of railway authorised by the Chambers, and of which the adjudication has been almost daily expected ever since the month of July last. These companies, notwithstanding the slight hopes of success that many of them could only entertain, succeeded in placing their respective shares, and in obtaining the first deposit thereon. Those deposits amount in the aggregate to about 540,000,000fr. (21,600,000*l.* sterling), and have been withdrawn from the tills of shopkeepers, the funded property of public creditors, the cash boxes of merchants of every grade, and the saving banks of artisans and workmen; and they have been permitted to accumulate and remain idle in the hands of bankers; so that great prejudice has been caused to commerce and much inconvenience to the public in general by the scarcity of money. But a measure recently taken by the government will remedy, at least to some considerable extent, the harm that has been done, and will prevent further inconvenience. Notice of the adjudication of the Tours to Nantes, and Paris to Strasbourg railways has been given for the 25th of November next—a measure that will have the effect of setting at liberty several millions of capital. It is to be regretted, no doubt, that the Paris to Lyon, the Lyon to Avignon, and Creit to St. Quentin lines have not also been announced for adjudication; but the Minister of Public Works does not merit the censure to which he has been subjected for not advertising them, for it really does not depend upon him. He has employed all due zeal and activity, even spending several weeks in tedious voyages, to examine the works in progress, decide upon disputed *tracés*, study projects, and settle local squabbles as to the positions of stations, and such like important questions. If he has not succeeded in settling all of them, it is not his fault; but I believe he has settled all with the exception of those respecting the position to be occupied by the *embarcadères* of the Paris to Lyon railway at Dijon and Lyon. Simple as such a matter may appear, it is really of the greatest importance; for it closely touches local interests that cannot be overlooked. Every thing, however, has been done by the Minister to arrange the question; and he has instructed a commission to view it in all its bearings, in order that he may decide with all that knowledge which is necessary. The commission, it is to be hoped, will employ the same activity as the minister.

En attendant, the companies created for the *soumission* of the two lines of Paris to Strasbourg and Tours to Nantes, in number SIXTEEN, make their preparations for the great day which will decide on their offers. They are counting out the money which will be needed as caution-money, and which is 500,000*l.* for the first line, and 120,000*l.* for the second. They are busy preparing their *statutes*, which must be deposited at the *Ministère* of Public Works ten days before the adjudication. They are also calculating the period for which they shall offer to take the lease, which the law fixes at a *maximum* of forty-five years for the Paris to Strasbourg, and thirty-five years for the Tours to Nantes railway. But, after all, the number of companies is so great, and that number will give rise to such dreadful competition, if all go before the minister with offers, that no reasonable man can doubt that they will, for their own sake, and the sake of their respective shareholders, effect an amalgamation, or, as the French phrase has it, *une fusion*. Madame Rumour, indeed, has been busy enough to assert that such a fusion has been already effected; and the same chattering dame even took upon herself to state the conditions on which it had been made. But this was premature. No fusion has yet been made, nor is it probable that any will be made until a few hours before the 15th, on which day the companies must announce their intention to appear at the adjudication of the 25th. To effect a fusion *now* would be nothing less than holding out a premium for adventurers to get up a new company, and to menace opposition, unless also admitted to the fusion.

It may be interesting here to mention the condition to which the Paris to Strasbourg and the Tours to Nantes companies will have to submit. For the line from Paris to Strasbourg, with two embouchments (on Rheims and on Metz and Saarbruck, a length altogether of *nearly* 700 kilometres), the company will have to disburse, for the purchase of land and the putting down of two lines of rails (the government having only at its charge the earth-works and works of art, to be finished in six years), about 5,000,000*l.* The profits of the line will reach about 340,000*l.*, after making a deduction of forty-five per cent. for expenses. For the Tours to Nantes line, 195 kilometres long, of which the government will have to execute the earth-work and the works of art, the company will have to incur an outlay of about 1,450,000*l.* The annual profits will be about 100,000*l.*, after the deduction of forty-five per cent. for working expenses.

These calculations will leave good interests to the companies for their investments; but it must be borne in mind, that a reduction, perhaps a considerable one, will be made in the period of concession or lease of the line, which will lessen its value.

Such was the fury to which speculation and gambling were carried last year, that the Chambers considered it necessary to pass a law, declaring that dealings in promises of shares issued by different companies should be illegal, and that any *agent de change* negociating such promises should be fined, as also should any person publishing the prices obtained for them. Nevertheless, numberless speculators, of both sexes, all ages and conditions, decided to tempt fortune in dabbling in the aforesaid promises, and there were not wanting men of the Bourse to charge themselves with the conduct of the negociations. Informed by general rumour, a incited by the brawling of some of the oppo tion papers, the authorities resolved to preve such violation of the law. They caused to arrested two persons, regarded as the princi agents in the illegal traffic; but they were i mediately afterwards set at liberty, thou their papers and registers were detained. was said, that several companies had mix themselves up in this sort of business, in a w any thing but creditable to themselves. B they, or at least one of them, deny it indi nantly. This one has been *en masse* to t *juge d'instruction*, and has sent letters to t newspapers, to protest against what they c calumnies. Malicious people, however, sa that their protestations remind them of t story of the schoolmaster who had his gard robbed: he assembled all his scholars, and d manded, "Who robbed the garden?" co vinced that the first who cried, "Please, sir, didn't," would be the culprit; and so it turne out.

The company of the Great Northern Rai way appears to have at last ceded to the i patience of the public, by doing all that possible to hasten the opening of the lin Since the line has been adjudged to it, th works advanced very slowly on the first sectio from Paris to Amiens. The locomotives, twen in number, commanded nearly a year ago, a rived slowly, one by one; and the carriage and waggons were not ordered at all. B thanks to powerful remonstrances, an *élan* h been given to the persons employed, and th opening of the whole line is not expected be far distant. A trip was made upon it, fo the first time, a few days ago, by some mem bers of the Council of Administration, b not, as the *Times* announced, by the Baro de Rothschild. The station at Paris is near finished, and workmen are actively engaged o the other stations—seventeen in number—be tween Paris and Amiens. Eight locomotive are already on the line, without counting thos at the Belgian extremity.

The first annual meeting of the Amiens Boulogne railway company took place la Thursday. The report of the directors wa very satisfactory, and represented the pre paration for the commencement of the work as in a very forward state. Part of the lin will be opened in about twelve months, an the whole in two years.

The Bourse has not freed itself from th panic which seized it some days back. Yester day the report that a convention had been en tered into between the banks of England an France to prevent a commercial crisis, in creased its alarm to such a degree, that it wa almost impossible to sell railway shares. Al most all the principal lines—Northern, Havre Rouen, Orleans, Bordeaux, and Boulogne—de clined 15 to 20fr. on the prices of the previou day.

Paris, October 28.

THE VALUE OF RAILWAY SHARES.

It needed no prophet to tell that the palm days of share-jobbers were numbered, even a their commencement. All who entered int the speculation, simply as a speculation, must have done so with their eyes open to this fact that as the time approached for lodging the plans, and otherwise complying with the Parliamentary standing orders, the character o many projects, started simply to meet the demand for shares, no matter in what, and the weakness of other *bonâ fide* schemes, as com pared with rival lines, would appear; and that those who held the shares at the moment this did become apparent, would positively lose the money they had paid.

Men wrote for shares, not because they con sidered the scheme sound and likely to pay, but because they anticipated the demand would put upon them an adventitious value at which they might sell to realize a profit; others, with the same feeling, bought them at a premium, when unable to obtain allotments, expecting that a higher price still would afterwards be ob tained, and in many cases, enormous sums of money have been made by those who did so Some one, however, must hold these pieces of paper last, and fear has already fallen on those in whose hands they now are. November is here; the *Times* has opened its batteries on the speculators, and pours a daily fire into their

ranks; and the result is, other circumstances concurring, that something very like a panic has occurred, even earlier than might have been anticipated.

If the effects of what has been said and done were confined to schemes without foundation —the lawyers' bubbles of the day—all must have rejoiced at the result. Unfortunately, however, it has extended, in a degree, to railroad property of every description; and although it will, doubtless, recover speedily, it is possible that energy and enterprize will be checked, and many really good undertakings injured.

To our readers who possess shares, and doubt what course they should take, we would say, examine well the character of the lines, if you have not done so before; and if they have two good termini, respectable directors and solicitors, an efficient engineer, and a reasonable prospect of obtaining an Act, *hold on*. And if the shares be in lines for which Acts have been obtained, hold tighter still.

The real value of railways is not altered by any existing circumstances. The fact that the lines now at work are making large returns for the money invested, and will pay more as the system becomes perfected (and which fact led in the first instance very naturally, to the demand for shares in new lines that ultimately caused the late mania), must still have its effect. Railways, as we have often said, must take the place of common roads, and the capital wisely expended in their construction will produce a good return, increase the national resources, and tend to the general good.

RATING OF RAILWAYS.

SALFORD QUARTER SESSIONS, *Thursday, 22nd.* GRAND JUNCTION RAILWAY COMPANY, *Appellants.* OVERSEERS OF SALFORD, *Respondents.*

THIS was an appeal by the United Grand Junction Railway Company, against an assessment made by the overseers of the poor of the township of Salford, in respect of 2 miles and 364 yards of the Liverpool and Manchester Railway lying within that township. From the statement of Mr. Brandt, who appeared for the appellants, it appeared that they had been rated at 2,400*l.* per mile for the railway, and 951*l.* 3s. for the stations and warehouses, and it was the rate per mile which was in dispute. The net produce of the whole line, between Manchester and Liverpool, was admitted by both sides to be 150,391*l.* From this the appellants claimed certain deductions for tenants' profit (20 per cent. on the net produce), interest, depreciation, rent of stations rated separately in other townships, and profits of trade, as engine, carriage, and waggon-makers. The total deductions so claimed amounted to 86,603*l.*, which sum, deducted from the net produce, gave 63,788*l.* as the net rateable value of the whole line; or, dividing by 32, the number of miles in the line, an average of 1993*l.* per mile from end to end. But the appellants contended that this was not the proper rateable value for that portion of the line within the township of Salford, as it contributed to the earnings in a less proportion than other parts of the line; and that, taking into account the amount actually earned in Salford, the rateable value of that portion of the line was only 1518*l.* A still further deduction was claimed from the gross amount at which the appellants had been rated, on the ground that 173 yards of railway had been included, which was merely used for conveying goods to and from the old station in Liverpool-road. Mr. Charles Parker, an officer in the service of the Grand Junction Company; Mr. Edw. Woods, engineer; Mr. John Hawkshaw, engineer; and Mr. Thos. Makin Fisher, valuer, were called in support of the appellant's case.

Mr. Hulton addressed the Court on the part of the respondents. He contended that the 20 per cent. deduction claimed for tenants' profit, had been wrongly calculated upon the net produce, instead of being calculated upon the capital which the tenants had to lay out; and that some of the other deductions claimed, especially one of 35,462*l.* for rent of stations, had been grossly overrated.

The magistrates retired for three quarters of an hour, to consider the case. On their return into court, the chairman said the result of their deliberation was, that the 2,400*l.* which had been mentioned as the rateable value of the line per mile, must be reduced to 2,200*l.*, and the calculation made upon 2 miles and 191 yards.—*Manchester Guardian.*

WORKS IN THE PROVINCES.

A PROSPECT exists of Liverpool becoming ere long a cathedral (?) town. Mr. Pugin has already submitted plans to the Roman Catholic authorities, who, it is said, have approved of them. The building is to be 460 feet in length, and to have two lofty towers, and a steeple of great height. It will stand on two-and-a-half acres of land, and the cost will exceed 130,000*l.* ——The purchase of Ilcaton Park and mansion has been completed by one of the four rival railway companies projected between Manchester and Bury, a distance of eight or nine miles. The Earl of Wilton is to receive the sum of 500,000*l.* for this property. The park, which is about three miles north of Manchester, is to be laid out in sites for villas. ——The new corn exchange, at Romford, is fast approaching completion. The new building is about 60 feet by 31 feet; the side walls are 22 feet in height; the roof is nearly all covered in with glass. The stands are arranged as follows:—each desk is placed on a temporary platform, raised about 9 inches from the floor, and is inclosed (except in front) by a panelled partition, extending a few feet in front of the desk, so that each stand is secluded from the observation of others. A subscription-room and other apartments are attached to the exchange, the floor of which, being boarded, renders it suitable for every public appropriation. There will also be show-rooms opening from the northern end of the exchange, for the public exhibition of agricultural implements, and a sale repository for the disposal of property generally.——Last week two persons were killed and several more or less injured, by the falling in of the floor of a methodist chapel at East Waldran, at the very time that a meeting was being held for the purpose of considering the plans of erecting a new chapel, the present building being in a dilapitated state. —— The foundation-stone of a new church was laid in Preston-street, Whitehaven, on Thursday se'nnight. —— It has been found that the cost of the necessary works in restoring and enlarging Swindon church, has considerably exceeded the estimate.——We lately gave currency to a report that a railway company had made proposals to the faculty of the University of Glasgow to purchase the buildings and grounds of the college, and convert them into a great railway station. We have since learned the following particulars:—The Glasgow, Airdrie, and Monklands Junction Railway Company, in order to become possessed of the property belonging to the college, have offered to erect and complete suitable buildings, at an expense variously estimated at 70,000*l.* to 100,000*l.* The company has, for this purpose, purchased Woodlands, consisting of 22 acres of land, situated on the crown of the height on which Woodside and Claremont-terraces are built, and extending thence down to the banks of the Kelvin. This property has cost nearly 29,000*l.*, and is subject to a duty of 190*l.* per annum. An architect has been instructed to prepare a plan for the proposed college, to be submitted to the university authorities for their approbation. The *Scottish Guardian* in noticing the proposal says, "Doubtless an offer so advantageous in every point of view will be accepted. The university is at present situated in one of the worst districts of the city, and the one to which it is proposed to be removed is certainly most choice both for situation and salubrity. —— At the quarter sessions for the North Riding of Yorkshire, held last week at Northallerton, a report was read from the committee appointed for building the New Lunatic Asylum for the North and East-Ridings. After stating that the purchase of the land of Earl de Grey, for the purposes of the asylum, was completed on the 8th of August, and that the conveyance had been executed by the Archbishop of York, who had enfranchised one acre of leasehold land, it proceeded to allude to the progress of the works, which had been so slow as to cause the committee to have the contractors summoned before them, and to adopt stringent measures to compel them to execute the works, in compliance with the tenor of their several contracts. The report concluded by stating that there had been received from the North-Riding the sum of 7,718*l.* 15s., and from the East-Riding the sum of 5,281*l.* 5s., and that there had been expended the sum of 8,017*l.* 13s. 1d.——A monument has just been erected in the church of Goathurst, Somersetshire, near the family vault of Halswell, to the memory of the late Lieut. M. Kemyss Tynte, of the 4th Dragoon Guards (unfortunately killed by a fall from his horse in March last), as a testimony of their regard, by Colonel Chatterton, K.H., and the officers of that regiment.

METROPOLITAN BATHS AND WASH-HOUSES.

TENDERS have been received for the erection of the new baths and washhouses, proposed to be built in Goulston-square, Whitechapel, from Mr. P. P. Bally's designs, already mentioned on several occasions in our pages.

The following are the amounts:—

Grimsdale	£22,274
Wilson and Son	22,000
Locke and Nesham	21,280
W. Cubitt and Co.	21,157
H. and J. Lee	21,148
Curtis	20,844
T. and W. Piper	20,380

Miscellanea.

ARCHÆOLOGICAL ASSOCIATION AT IPSWICH.—A branch society has been established at Ipswich under the title of the East Anglian Branch of the Archæological Association. The object of this local society is, to collect information, and to forward it periodically, to the parent association in London; and there is no doubt that it will be well supported. The remaining business of the meeting was to appoint an honorary secretary, and Mr. Pawsey was elected to perform the duties *pro tem.* The periods for the meetings of the society were then fixed, after which the parties separated under the conviction that, when the existence of the society is known to the public, and the rules are matured, there will be a large accession of valuable members. We wish the society all the prosperity its promoters can desire; for such an association is calculated to do much good, by using its exertions to protect antiquities from the hand of spoliation, and by fostering a taste for archæological research in East Suffolk, where many monuments of antiquity impress us with the importance of former times.

CARBONIC ACID A MOVING POWER.—Expectations have from time to time been raised to the effect that carbonic acid in a liquid or solid form might be safely and economically employed as a moving power. Sir Isambard Brunel, some time since, and Mr. Fox Talbot, more recently, have turned their attention to the subject, but thus far without any useful results. Its dangerous properties have been the chief difficulties to contend with, and towards the surmounting of which much ingenuity has been directed. Dr. Murray, of Hull, after granting that metallic materials of sufficient strength may be found to control the terrific power called into existence, imagines that the *constant and continuous chemical action of the carbonic acid on the metal* will prove an insuperable obstacle to its adoption.

PUBLIC EXPENDITURE FOR RELIGIOUS BUILDINGS.—A parliamentary paper has just been issued containing returns of grants of public money for the building and repair of churches and chapels of all denominations from 1820 to 1829. In England, the total was for churches, 1,588,401*l.* 19s. 7d.; in Scotland, 62,564*l.* 15s. 6d.; and in Ireland, 633,745*l.* 14s. 2d.; of which 2,113*l.* 3s. 1d. was granted for building and repairing Roman Catholic chapels. The grand total applied was 2,290,712*l.* 9s. 3d.

GAS.—Hamburgh has just been lighted with gas for the first time, with apparatus upon an entirely new principle, lately patented by Mr. James Malam. The works are stated to the largest in the world.

PRICE OF GAS.—The Bath Gas Company have given notice of a reduction in the price of gas from 8s. to 7s. per thousand cubic feet, to all consumers by meter, after Christmas next.

Interesting Discovery at Hartlepool, in the County of Durham.—(From a Correspondent.)—The site of an ancient chapel at Hartlepool, dedicated to St. Helen, was last week discovered by Mr. James Yeal, of the above town. It had long been supposed that the ruins of this chapel were buried under a large mound in the Farewell-field, and in 1813 an attempt was made, but without success, by Sir Cuthbert Sharp, to discover some remnant of the building. Mr. Yeal, however, directed some workmen to remove the earth near the centre of the mound, beneath which was discovered the base of a most beautiful Gothic pillar. This having placed the matter beyond a doubt, he was directed by the corporation of the town to pursue his researches, and exhume whatever portion might remain of this ancient and interesting building. The base of three other columns, a portion of the north and south walls, a part of the east end of the chapel, and a flagged pavement at the west end, have already been brought to light. A very considerable quantity of beautifully carved stone, in a state of excellent preservation, and two mutilated images, have also been dug out. From these it is evident that this was at one time a Gothic building of great architectural richness and beauty. It is impossible as yet to ascertain the form and dimensions of the chapel, but a few more days will probably throw great light on the matter, and afford a treat to the curious and the antiquarian. The building, of which only the ruins remain, is believed to have been erected by William de Bras, who died in the reign of King John, and who is said to have given this chapel for a light to be burnt at the great or high altar at the church at Gainsborough Abbey. Whether it shared the fate of so many other similar buildings in the time of Henry the Eighth or Elizabeth, or was previously destroyed, is unknown; probably the latter is the most correct supposition. Many of the stones bear evidence of fire; and some walls which have no connection with the original building, and the form in which the earth is cast up about them, shew that it had been converted into a place of defence against an invading enemy. The process of excavating the ruin has caused great interest in the neighbourhood, and has attracted numbers of antiquarian gentlemen to witness the operation.

Brougham Chapel.—The outward appearance of this interesting place of worship, which stands in a beautifully secluded situation at the top of a woody bank on the north-east side of Brougham Hall, shaded by fine old trees and thriving evergreens, while the green ivy creeps up and clings to its ancient walls, affords but a faint indication of its internal compactness and beauty of finish. The ceiling is most tastefully emblazoned with the coats of arms of a large number of ancient and noble families, which are gilded and coloured according to the rules of heraldry. Amongst them are the arms of the Cliffords, Vetriponts, Pembrokes, Cruckenthorpes, Wyberghs, Broughams, &c., from the earliest periods. The pulpit and pews are neat but not gaudy. The chancel is most beautifully decorated with several scriptural figures of ancient carved work. During the time that Lord Brougham is located at Brougham Hall, divine worship is performed in this chapel by the incumbent of St. Ninian's Church, to which it is a chapel of ease, every Sunday afternoon.—*The Patrician.*

New Pier at Blackfriars' Bridge.—This structure, which has been for a considerable time in progress, was opened to the public towards the close of last week. It is 140 feet in length, with a dumb lighter placed at a right angle to the river of 130 feet. Two waiting-rooms have also been built, which, with the pier itself, is lighted with gas. It is the most commodious and substantial structure of the kind in London, but interferes somewhat with the eastern view of the bridge.

Large Committees.—Among all the long lists of provisional committee-men published, that of the Great Northern and Southern Direct railway from Huddersfield to Derby seems to be the longest. No less than 300 names are advertized.

Calcutta Cathedral.—The Lord Bishop of Calcutta has presented to the Bodleian library a beautiful alabaster model, executed at Pisa, of St. John's cathedral, Calcutta.

Discovery of Relics.—The workmen employed in excavating the railroad by Thomas Salmon, Esq., at South Shields, for the conveyance of ballast from his wharf at the Tyne, to the place of deposit at the Lawe, have struck upon what is unquestionably the ancient military way, called Wreken Dyke, leading from the Roman station discovered in the same field, near the Lawe, by the late Nicholas Fairless, Esq., in 1798. The bones and antlers of deer have also now been dug out, being, probably, the remains of animals consumed as provisions by the Roman soldiers; but though Mr. Fairless, when the former discovery of a Hypocaust of Sudatory took place, became possessed of a beautiful gold coin of Marcus Aurelius, and several of brass, from Claudius Gothicus to Valentinian, yet the only coin which has now been discovered is a Danish one of brass. Lawe is, we believe, a Saxon word, signifying a fortified eminence.—*Tyne Mercury.*

Asylum for Decayed Fishmongers and Poulterers.—A meeting of the friends and subscribers to this undertaking was held last week at Anderton's Hotel. A committee was appointed and empowered to purchase a site of ground at Woodgreen, near Tottenham and Hornsey, represented as being perfectly suited with respect to size, price, &c., for the construction of an asylum for twenty-four aged and infirm members of the two trades; also to collect plans and estimates, &c., from which to select several, and lay them before a subsequent general meeting.

Widening Piccadilly.—Workmen have been busily employed during the last two weeks in putting back the wall and iron railing from opposite Park-lane, to about the end of Bolton-street, so as to increase the width of the thoroughfare. From 20 to 30 ft. of the Green-park will be taken in. In consequence of the inequality of the ground, this alteration will involve a larger expenditure than appears at first sight. It is to be hoped that the trees which, by the removal of the wall, will be placed "out of the pale," may, nevertheless, be allowed to remain.

Furniture Wood.—We recently noticed the sanction of the Lords of the Treasury for the admission of certain descriptions of wood used by cabinet makers, duty free. Within the last few days the same authorities have issued an order that teak wood imported from the river Gambia under the head of furniture wood shall also be admitted, duty free. In the latter case the revenue officers must be satisfied that such wood is imported solely for making articles of furniture, and that it is inapplicable for other purposes.

The Nelson Monument in Trafalgar-square.—Can any obliging correspondent inform us what has become of the celebrated man and boy formerly employed on this ill-used monument? It is whispered about, that the statues for the New Houses of Parliament are to be confided to their gentle hands, but we do hope for the sake of "the finest site in Europe," that they may be permitted to finish their work here first, so that some, at all events, of the present generation may hope to see the steps and the lions.

Railway Bank.—The *Iron Times* says, We have it upon undeniable authority, that in consequence of the recent procedure of the bank, and the conduct of the *Times*, a public meeting will be held at the London tavern in the course of a few days, for the purpose of establishing a railway bank.

M.P.'s and Railways.—It is said that some M.P.'s have taken one or two shares in each of the new lines of railway simply with the view of avoiding to serve on committees; we can't wonder at it. Last year must have fagged many, and this year the prospect is worse.

Dover.—The formation of the new docks is proceeding rapidly. Hundreds of workmen are employed. The well known York Hotel is about to be pulled down. Serious doubts are entertained by those whose opinion is worth consideration whether after all it can ever be made a harbour of refuge.

Colonial Timber.—The practice of the revenue officers in London with respect to British colonial timber, viz., to record the number and contents only of each piece, and not the lengths and sides, as in the case of foreign timber, is about to be adopted generally throughout the kingdom.

Statue of Sir Thomas Gresham.—This statue was installed last week in the niche which has so long stood vacant for it in the clock-tower of the new Royal Exchange. The figure is erect, 14 feet 6 inches in height, and is formed out of two blocks of Portland stone, weighing jointly between eleven and twelve tons.

NOTICES OF CONTRACTS.

(We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.)

For executing the different Works required to be done in the alterations and repair of the Guildhall, Lichfield.

For the execution of the Works connected with the improvement of the Crown-street station, Liverpool, including a Tunnel of about 128 yards long, and a Bridge or Viaduct, &c., for the Grand Junction Company.

For the execution of the entire Works of the Cockermouth and Workington railway, being about 10 miles in length.

For the execution of Works on the Waterford and Kilkenny Railway, forming the first contract, viz., from Kilkenny to Bennett's Bridge, being a distance of about six miles.

For the execution of Works on the East Lancashire Railway, forming the Burnley Contract. It includes the execution of all the necessary Excavations, Embankments, Bridges, Culverts, Viaducts, &c.

For the execution of Works on the Hull and Selby Railway, being a distance of about thirty-one miles.

For the execution of Works on the Dublin and Belfast Junction, and Navan Branch Railway. There are two separate contracts: No. 1, being a distance of nine miles, 1,542 yards. No. 2, being a distance of eleven miles, 1,274 yards.

For supplying her Majesty's several Dock-yards with 20,000 Loads of British Oak Timber; 7,400 Loads of British Oak Thickstuff and Plank; and 400,000 British Oak Treenails.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At Wainford's Farm, Little Bardfield, 150 capital Elm Timber Trees, 50 Ash ditto, 10 Oak ditto, &c.

At Haslegrove, Queen Camel, Somerset, upwards of 1,000 maiden Oak, Elm, and Ash Timber Trees, now standing.

TO CORRESPONDENTS.

"S. H."—*An occasional notice, such as that sent, will be acceptable. Every week would be too often. Architectural news might also be forwarded.*

"J. G. C."—*The style of the Wesleyan Theological Institution, Richmond, is late pointed. We do not know the architect's name. An edition of Richman was published, we believe, at the beginning of present year.*

"Ants:"—*A correspondent says, that many of the houses in the neighbourhood of the Regent's Park, and in Regent-street, are infested with a species of* small ant, *to such an extent, that the kitchens and larders are rendered almost useless. Can any of our readers suggest a remedy?*

"G. F. T." (Repton) *would probably obtain the Report on Schools by addressing a letter to the Secretary of the Council on Education, Whitehall.*

"G. S."—*We are much obliged for the papers sent. They shall be returned.*

"Plans on Parchment."—*Another correspondent says, "colourless ox gall," mixed with the colours, ensures an even tint.*

"G. B."—*It is always understood that additional works, or alterations, shall not invalidate a contract. The difference should be estimated, and added or deducted, as the case may be.*

"A Subscriber" *is thanked for the Rules.*

"W. B. (Birmingham.)—*The address of the Carving Company is given in another page. Mr. Pratt's carving works (Eccleston-street, Pimlico), might also be applied to.*

"Subscriber and Builder" *objects strongly to the fee of 10s. charged by district surveyors when a pot or zinc tube above 4 feet high is fixed.*

"G. W." *is not sufficiently clear for us to reply. He would, probably, find the information he seeks in "Nicholson's Masonry."*

"An Architect." *If the letter was not acknowledged, it did not reach us.*

Several communications are again unavoidably postponed.

Correspondents are requested to address all communications to the Editor.

NOTICE.

The next number of the THE BUILDER will contain an engraving and description of the very singular triangular Lodge at Rushton, where the memorable "gun-powder plot" was arranged. Early orders should be given to the Newsmen to prevent disappointment.

ADVERTISEMENTS.

TO BUILDERS AND OTHERS.

MR. G. TETT, 38, Dean-street, Soho, begs to invite the attention of Builders and others to the fact that he has opened an Office for the Sale and Purchase of Freehold and Leasehold Property. No charge is made for the registering the particulars of property for disposal, or the inspection of the books. A moderate commission when any transaction is finally settled.

TO RAILWAY ENGINEERS, SURVEYORS, AND OTHERS.

LEVELLING STAVES, SCALES, &c., at the lowest prices that can possibly be charged without detriment to the quality of the goods.

Levelling Staves of the most convenient and best construction, now in general use on all the lines under survey, each	s. d. 38 0
Parliamentary Scale, and Offset for railway surveys, box wood	4 6
Ditto, Ivory	8 6

Curves, &c., made to order on the shortest notice.

WM. HOBCRAFT, Mathematical Instrument Maker, 38, Princes-street, Leicester-square, London.—Orders by post, containing a remittance, immediately forwarded to all parts of the country.

PATENT OFFICE, 5, CHANCERY-LANE, NEAR FLEET-STREET.

INVENTORS requiring protection by LETTERS PATENT should apply direct to the PATENT OFFICE, as above, where Patents can be speedily procured for the United Kingdom, &c., and by which a great saving of expense will be effected. CAVEATS are entered at this office, fee 1*l.* 1s. DESIGNS of all kinds are REGISTERED. Apply at the PATENT OFFICE, 5, Chancery-lane, near Fleet-street.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

HOLBORN AND FINSBURY SEWERS, MIDDLESEX.

THE COMMISSIONERS of SEWERS for the LIMITS give NOTICE, that their Office, Hatton Garden, is open daily between the hours of Ten and Four, where information can be obtained (gratis) by persons about to Purchase or Rent Houses or Property, or take Land for Building purposes, of the situation and level of the public Sewers, capable of affording sufficient Drainage, and which they recommend all such Persons to apply for at the above Office.

By the Court,
STABLE and LUSH, Clerks.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. (chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, or public way, or in any part intended to become a street, lane, or public way, or to carry or drain off water from any house, building, yard, or ground, into any sewer under their management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewer or sewers shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, upon application being made at this office previously to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, whenever the lower floors or pavements of buildings shall have been laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings must in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners will be cut off, and the parties making the same will subject themselves to a fine.

The provisions of the Metropolitan Buildings Act (7 and 8 Victoria, c. 84) do not supersede the authority of the Commissioners of Sewers in the above respects, but their powers are expressly reserved, and their regulations made subservient to the purposes of that Act. The execution of such works, under the superintendence of the district surveyor alone, cannot therefore warrant the making of any sewers or drains within this commission, nor relieve the parties making them from the penalties above mentioned.

By order of the Court,
LEWIS C. HERTSLET, Clerk.

PROSSER'S EXPERIMENTAL RAILWAY AND BURNETT'S PATENT.

THE attention of Railway Companies, Builders, and others, is respectfully called by the Proprietors of Sir William Burnett's Patent to the Wooden Rails laid down at Prosser's Experimental Railway on Wimbledon-common; part of which, having been prepared by their process, in addition to being effectually preserved from *Dry* Rot, will be found to exhibit all the characteristics of thoroughly seasoned timber, although only cut down in the month of May last, and prepared while in a perfectly green state. Hydraulic apparatus and Tanks. Millwall, Poplar, nearly opposite Greenwich; Offices, 53, King William-street, London-bridge.

PROFESSOR KELLER'S POSES PLASTIQUES.

ROYAL ADELAIDE GALLERY.—This day, and during the week, Professor Keller will exhibit at the Adelaide Gallery his Grand Tableau Vivans from the Ancient Masters, which have received so largely the encomiums of the press. Every morning at half-past three, and in the evening at nine o'clock. Great efforts have been made to add to the effects of this exhibition. A variety of new subjects have been added to those already presented to the public. The Concerts as usual.

Also Pilbrow's Atmospheric Railway model, with explanatory lecture.

ROYAL POLYTECHNIC INSTITUTION.—A Lecture on the prevalent disease in Potatoes, and the means of extracting the starch as an article of food, will be delivered by Dr. Ryan, daily, at half-past Three, and on the Evenings of Mondays, Wednesdays, and Fridays, at Nine. Lectures on the Music of Spain, by Don Joe de Clebra, with Guitar and Vocal Illustrations, on Tuesdays, Thursdays, and Saturdays, at half-past Two o'clock. Professor Bachhoffner's varied Lectures, with Experiments, in one of which he clearly explains the principle of the Atmospheric Railway, a Model of which is at work daily. Coleman's new American Locomotive Engine, for ascending and ascending Inclined Planes. A magnificent collection of Models of tropical fruits. A new and very beautiful series of Dissolving Views. New Optical Instruments, &c, Experiments with the Diver and Diving Bell, &c. &c.—Admission, One Shilling. Schools, Half-price.

DAY'S PATENT WINDGUARD, for ventilating churches, hospitals, factories, theatres, breweries, malt-houses, club-houses, shops, bed-rooms, smoking-rooms, school-rooms, nurseries, stables, larders, kitchens, offices, ships, mines, vaults, tunnels, &c. Also for preventing down draft; and is guaranteed to cure all smoky chimneys caused by wind; and entirely supersedes the use of revolving cowls, or any thing moveable or unsightly on the tops of chimneys or ventilators.

The object of this invention is to create a draft where otherwise it would not exist, by the spontaneous action of the external air. The Windguard forms a pleasing octagonal pillar, and by its peculiar construction to carry out the principle on which it is based, which consists of the wind giving a disposition for a vacuum within, thereby causing a continual upward current about equal to the velocity of the wind at the time acting upon it, which averages about six feet per second thirty days out of thirty-one; therefore, will nearly at all times ensure a continual change of air, being no impediment to spontaneous ventilation, even on a perfectly calm day. One five feet square will ventilate a building containing upwards of 1,000 persons. The Windguard applied to ships and steam vessels, in the form of a sky-light, prevents rain or the sea entering within, however boisterous the weather may be, thereby affording excellent ventilation as well as light. The Windguard is simply applied for effectually ventilating bed-rooms, nurseries, smoking-rooms, offices, &c., causing the air of the apartment to be at all times as pleasant as can be desired. It is fixed at the top of the chimney, in addition to which a cast-iron frame and valve (about one foot area), made to open and shut at pleasure, is let into the flue, near the ceiling of the room, to allow the constant ascending vitiated air being immediately carried off. The opening is guarded by a neat venetian blind or grating; and so powerful is the effect on a windy day that if a handkerchief be thrown up to the grating, it will remain there—i. e. if the valve be open. In winter the valve would be only partially open, to allow the smoke to ascend, but if the room be found too cold can be entirely closed. The Windguard applied to the tops of chimneys prevents all annoyance from smoke (caused by wind); indeed, where it does not, nothing else applied at top will (of the same size); care, therefore should be taken to have the proper size applied. It is simple in its application, reasonable in price, ornamental in appearance; no machinery or anything moveable in it, therefore, cannot get out of order; free from noise or any unpleasantness whatever; not liable to choke up with soot; no obstacle to the machine used for sweeping chimneys. May be had of all respectable ironmongers in town and country; and may be seen daily in operation, where its powers and usefulness are exhibited by the severest tests, at THE PATENT VENTILATING WORKS, COMMERCIAL-ROAD, PIMLICO, LONDON; where also may be seen Mr. G. T. Day's plans (illustrating the different applications of his Patent Archimedian Ventilator and his Portable Water Apparatus) for effectually Ventilating, Warming, and Cooling the Air of Buildings, Ships, Mines, &c. &c. By the use of these inventions many thousand cubic feet, or any quantity of pure warm or cold air, can be guaranteed to be continually exchanged per minute, day and night, winter and summer; thereby insuring, at all times, free ventilation to the rooms and passages of buildings, &c. from the basement to the roof, at the same time in such a manner as shall not be inconveniently perceptible. The size of the apparatus depends on the nature and use of the building and its occupants.

The Patentee has been honoured by his inventions being applied at the following places:—

Windsor Castle, Buckingham Palace, St. James's Palace, Claremont Palace, Walmer Castle, the Houses of Parliament, New Conservative Club, White's Club, Travellers' Club, Oxford and Cambridge, Parthenon, Wyndham, Army and Navy, Senior United Service, Junior United Service, Admiralty, British Museum, Somerset House, Custom House, Mint, Hon. Artillery Company, H. M. Salamander, Trinity House, Ordnance, Greenwich Hospital, Christ's Hospital, Westminster Hospital, Bethlehem Hospital, Surrey Lunatic Asylum, New Royal Exchange, Mansion House, Goldsmiths' Hall, Fishmongers' Hall, Haberdashers' Hall, Dyers' Hall, Grocers' Hall, Armourers' Hall, Weigh House Meeting-house, Hanover-square Rooms, Theatre of the Westminster Literary and Scientific Institution, Grand Cigar Divan, Strand, City Club, and many other Public Buildings in Town and Country, as well as to the Mansions of many Noblemen and Gentlemen.

Licenses granted for Manufacturing the above. Drawings and Plans made for Ventilating and Warming Buildings of every description.

HIP TILES to suit slate roofs in colour; Ridges, with plain or rebated joints, roll tops, and vertical ornaments; drains, many sizes, with plain or socket joints; paving in squares, hexagons, octagons, &c., different colours; roofing, in Grecian or Italian styles, other devices also, or plain; conduits, which do not injure pure water; fire-bricks and tiles; clinkers, and out-door paving; sundry wall-coping, garden-borders, chimney-tops; also tubular and other flues of peculiar material. No agent, but a depôt at 22, WHITEFRIARS-STREET, FLEET-STREET, LONDON, under Mr. PEAKE'S personal care, to supply genuine TERRO-METALLIC goods at fair prices as per quality; also, additional Stock at No. 4 Wharf, Macclesfield-street, South, City Basin.

The TILERIES, TUNSTALL, STAFFORDSHIRE, are near the centre of England, whence boats are sent direct to any inland place; or to the Mersey for the coasts, the colonies, and elsewhere.

MOREWOOD AND ROGERS' PATENT GALVANIZED TINNED IRON.

T. W. BEALE begs to acquaint the public in general, that he is prepared to lay roofing, plain or corrugated, and fix pipes, gutters, &c. Also every description of chimney-tops, and ventilating cowls, of this incorrodible and fireproof metal; and that he manufactures all kinds of baths, as hip, shower, slipper, Roman, open, and sponging-baths; also toilet-cans and pails, slop-pails, coal-scuttles, cash and deed-boxes, and fireproof safes of every description, 10 per cent. cheaper than any other house in London. An experienced workman sent to any part of the kingdom. All orders punctually attended to. For particulars, apply to T. W. BEALE, 46, Bridge House-place, Newington Causeway.

By Her Majesty's Royal Letters Patent.

MOREWOOD and ROGER'S PATENT GALVANIZED TINNED METAL.—This article was at first sold under the name of Galvanised Tin Plates, but the Patentees finding that the public, in some instances, overlooking the word Tin, confounded the article with Galvanised Iron, and that the character of their metal has thereby sustained injury, are desirous of giving it a name so distinctive as to prevent such mistakes, and consequent disappointment to purchasers in future. They therefore respectfully request purchasers to inquire for MOREWOOD and ROGER'S PATENT GALVANIZED TINNED IRON, in order to enable the public readily and at first sight to distinguish between the two metals, it may be well to inform them, that Galvanised Iron has a plain zinc-like appearance, while M. and R.'s Patent Galvanized Tinned Iron has a smooth crystalline surface.

MOREWOOD and ROGER'S PATENT GALVANIZED TINNED IRON, Patronized by the Admiralty and the Honourable Board of Ordnance, being extensively used in her Majesty's Dock-yards, at the Tower, and elsewhere, for every variety of Roofing, and other purposes, where a strong, light, cheap, and durable material is required.

It has been found by experience that this article is beyond all comparison superior to zinc; possessing, as it does, all the advantages arising from the strength and firmness of iron, combined with perfect immunity from rust; whilst it is free from the very serious objection which applies to zinc, viz. its contraction and expansion, consequent upon every change of temperature, and from which circumstance leakage must of course result.

This material is not likely to be destroyed by fire, as is the case with zinc and lead, which melt and run down, thus freely admitting fresh air to the fire, and causing it to burn more fiercely. It is, therefore, obviously well adapted for all the purposes above-named, and most importantly so, when there is the possibility of fire. It is also peculiarly suitable for chimney-tops, gutters, spouting, and out-door work generally, possessing the strength of iron, without its liability to corrosion. It is by far the most economical metal roofing that can be obtained, in consequence of its strength, as it may be laid without boards, and upon the lightest rafters.

This mode of preserving metal from rust does not only apply to sheet-iron, but also to manufactured iron in any form, as bolts, nuts, hinges, nails, &c. &c.

For full Particulars apply to S. HOLLAND, 34, Grace-church-street.

PREVENTION OF SMOKE AND SAVING OF FUEL.

COUPLAND'S PATENT FURNACE is confidently submitted to the public, as combining in an eminent degree the two great advantages of preventing smoke and saving fuel. The furnace is very simple, and is alike adapted for the boilers of land and marine engines, and for all purposes where a furnace is required. By its use smoke is altogether prevented, and the saving of fuel is, with ordinary coals used for furnaces, about 20 per cent.; but, when small coals or screenings are used (for the burning of which the furnace is well adapted), the saving is much greater. The proprietors of steam-boats will find the furnace well suited to their boilers, and as with it smoke is prevented, the nuisance and annoyance thereof to passengers will be avoided.

"We have been favoured with the inspection of Mr. Coupland's furnace for the prevention of smoke and saving of fuel; and we must confess that, whatever merits may be possessed by the numerous plans which have been brought forward (and we have seen them nearly all), our opinion is, that Mr. Coupland has achieved what none of them ever achieved before—not the CONSUMPTION of smoke, for there is none to consume—but the complete and thorough oxidation of the fuel, none of it going off in streams of solid carbon, but in those invisible gases, the result of perfect combustion, viz., carbonic and sulphurous acids, the vapour of water, &c.

The simplicity of the machinery for performing the necessary operation is another recommendation in favour of this plan; it does not require any power from the engine, but is merely a hand operation, performed with the greatest ease; and the machinery is quite away from the action of the fire.

We cannot help thinking, if a commission is appointed by Parliament to ascertain and report on the best smoke-consuming (as it is termed) furnace the one under notice must be successful."—*Mining Journal*, July 19, 1845.

The Furnace may be seen in operation on Mondays and Thursdays, between Ten and Four, at the Manufactory of Mr. COUPLAND, Pond-yard, Bankside, Southwark, (near Southwark-bridge), of whom a Prospectus and further information may be obtained.

PREPARED FLOORING BOARDS.

AT REDUCED PRICES.

ALWAYS ON SALE, a LARGE ASSORTMENT of DRY PREPARED FLOORING BOARDS and MATCHED BOARDING of all sorts, planed to a parallel width and thickness, from ¾ inch to 1¼ inch thick. Rough Boarding for Flats.

TIMBER, DEALS, OAK PLANKS, SCANTLINGS, SASH SILLS, &c.

Apply at W. CLEAVE'S Timber Yard, Smith-street, Westminster.

PREPARED FLOORING BOARDS.

ALWAYS ON SALE at A. ROSLING'S, SOUTHWARK-BRIDGE-WHARF, BANKSIDE, and Old-Barge-Wharf, Upper Ground-street, Blackfriars, a very large stock of well-seasoned Floor Boards of every variety.

A. R., in calling the attention of builders and consumers, confidently presumes on his being able to supply them on such advantageous terms, as will ensure and merit their favours and approbation.

MUIR'S PATENT  PLANING MACHINERY.

SAW MILLS, GILLINGHAM-STREET, PIMLICO.

TIMBER of any Size, PLANK, DEALS, and BATTENS, &c. Sawn on the most approved principle. Boards, &c., Prepared, Matched, and Grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor-canal. Goods fetched from the docks and carted home free of charge.

Address to HENRY SOUTHAM, Saw Mills, Gillingham-street, Pimlico.



THE GENERAL WOOD CUTTING COMPANY, TIMBER and DEAL SAWING and PLANING MILLS, Belvedere-road, Lambeth, near Waterloo-bridge.—SAWING in all its branches executed with the greatest precision and despatch. PLANING by the most approved Machinery, reducing the Boards to a parallel width and thickness, and grooving or matching with undeviating accuracy. The operation economizes time, money, and material.

PAYNE'S PATENT PROCESS FOR THE PRESERVATION AND IMPROVEMENT OF TIMBER, &c.

PAYNE and LODER beg to invite the attention of Engineers, Railway Companies, Architects, and others to the above process, and to state that they are prepared to erect the necessary apparatus in any part of the United Kingdom where the quantity is sufficiently large to cover the outlay of its removal.

Further particulars can be obtained at Whitehall-Wharf Cannon-row, Westminster, or at their other stations, Fleetwood-on-Wyre, Lancashire; Wisbeach, Cambridgeshire; Union-Wharf, Southampton; and Guildford, Surrey.

IN Warming Churches and Chapels, DAY and JOYCE'S PATENT STOVES have been found to answer the purpose where others tried have failed of their efficacy: will be forwarded by post, or otherwise. These stoves will render the atmosphere of a church, or chapel, or other large building, most agreeably warm, without producing unwholesome vapour, or injuring the vital quality of the air. The Patentees are prepared to supply them on the shortest notice. They may be inspected at the manufactory, 113, London Wall.

PATENT PORTABLE SUSPENSION STOVES.

MORE than FOUR THOUSAND of these STOVES were sold during the first season—the winter of 1844-45—so decidedly did the public sanction their distinguishing principle, by which a genial heat and a pure atmosphere are secured and combined.—They are now ready for delivery, of all sizes, from 19s. and upwards, at GEORGE and JOHN DEANES, opening to the Monument, 46, King William-street, London-bridge.

WILSON'S PATENT VENTILATING SPIRAL CHIMNEY POT, for the cure of smoky chimneys (manufactured by J. PORTER), is the ONLY article for the purpose which assists the draft of the chimney by an external propelling power. Upwards of fifty have been recently fixed on the chimneys of Buckingham Palace, and several on Windsor Castle, with great success. This Chimney-pot is not only the best and most effectual ever invented for the purpose named, but stands unrivalled in its ornamental appearance. The public may be supplied with the above useful article by any of the respectable ironmongers, or at the sole manufactory, Southwark-bridge Iron Roofing Works.

VENTILATION.

"A most ingenious, simple, and effective plan." Mr. Reid's Lecture on Ventilation, delivered June 7, 1845, before the Mechanics' Institute, Liverpool.

BAILLIE'S PATENT TRANSPARENT VENTILATOR, ventilates rooms or public buildings without causing unpleasant draughts of air—may be fixed as easily as a pane of glass, whose place it supplies—does not derange blinds, shutters, or other fixtures belonging to windows—most useful to public places of every description, especially smoking and coffee rooms, and moreover a simple remedy for smoky chimneys. This article may be obtained from all respectable glass dealers in London; Mr. Edgar Parks, ironmonger, 140, Fleet-street; Messrs. Stock and Sharp, and Mr. Samuel Beale, Birmingham; Messrs. John Hall and Sons, and Messrs. Dixis and Williams, Bristol; Messrs. Thos. and Will. Stock, Liverpool; Messrs. Davidson and Armstrong, Manchester; Mr. James Bell, Glasgow, &c.; who have models to explain its action, and will be glad to give any further information; also to be seen in use at Mr. Fred. Smith's, the Albion, 259, Blackfriars-road; Mr. Edward Baillie's, 12 B, Cumberland-market, Regent's Park; Mr. Seaton's, Dublin Castle, Park-street, Camden Town; 2, Coleman-street-buildings, Moorgate-street, and at the office of this Paper.

HEAL & SON'S LIST OF BEDDING.

CONTAINING a full description of Weights, Sizes, and Prices, by which purchasers are enabled to judge the articles that are best suited to make a good set of Bedding, sent free by post, on application to their establishment, the largest in London, exclusively for the manufacture and sale of bedding: no Bedsteads or other furniture being kept. HEAL and SON, Feather Dressers and Bedding Manufacturers, 169, Opposite the Chapel, Tottenham-court-road.

BUILDERS' AND CARPENTERS' IRONMONGERY WAREHOUSE.

THE Proprietor of this Establishment has, by his connections with the most extensive Manufactories, selected the largest and best-suited Stock of Builders' Ironmongery yet offered to notice. It includes every article in Ironmongery suited to Building purposes, such as Locks, Nails, Screws, and every requisite for internal fittings, finishing, and decoration; also Rain Water Pipe, Sash Weights, and all kinds of Castings, and combines (being entirely new) all modern improvements in principle and design. The Prices throughout, even in the most minute article, have been the object of the strictest economical consideration, the profit of the undertaking being anticipated only by a large return. From this Stock every article may be selected, exactly adapted for its intended use, of any required quality or quantity, at a moment's notice, and Catalogues of Prices had, per post (on prepaid application, enclosing posting-stamp), at 18, BLANDFORD STREET, MANCHESTER SQUARE, LONDON, leading from BAKER STREET, PORTMAN SQUARE.

JOHN YOUNG, Jun., Proprietor.

BRITANNIA, IRON, AND ZINC WORKS,

STOVE GRATE, KITCHEN RANGE, AND STEAM-COOKING APPARATUS, MANUFACTORY,

Wholesale, Retail, and Export Ironmongery Warehouse, 174, HIGH HOLBORN,

Established A. D. 1830; universally known by the "Dust Pan."

R. KAY BUTLER

Invites Architects, Builders, and the Trade to inspect his stock of STOVES, KITCHEN RANGES, &c., which is universally allowed to be the most extensive in London.

Bright Register Stoves from 4l. each to 30 guineas.
Best Black Metal do., 7d. 8d. 9d. 10d. 1s. per inch.
Ditto Ditto Elliptic Do. 3½d. 4d. per inch.
Cottage Ranges, with Oven and Back Boiler:

2 ft. 8	2 ft. 10	3 ft.	3 ft. 2	3 ft. 4
1l. 18s.	2l. 0s.	2l. 2s.	2l. 4s.	2l. 6s.

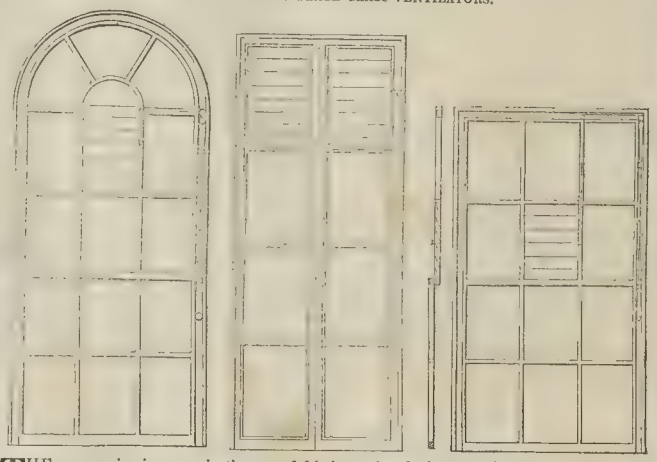
Strong Self-acting Kitchen Ranges, with Back Boiler, Oven, Wrought Bars, and Bright Fittings:

3 ft.	3 ft. 2	3 ft. 4	3 ft. 6.	3 ft. 8	3 ft. 10	4 ft
3l. 4s.	3l. 8s.	3l. 12s.	3l. 16s.	4l. 0s.	4l. 4s.	4l. 8s.

Sash Weights, 7s. per cwt.—Estimates given for every description of Wrought and Cast-iron Work.

VENTILATION.

FAIRS' PATENT PLATE GLASS VENTILATORS.

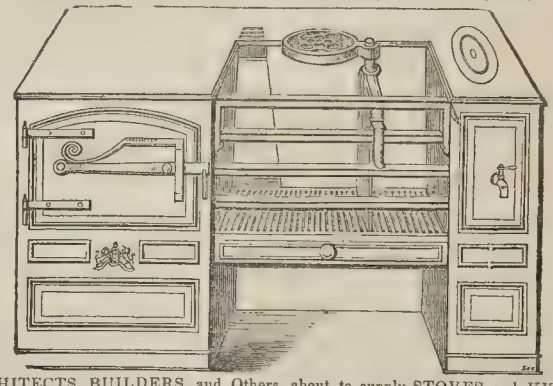


THE progressive increase in the use of this invention during a trial of seven years, in which it has had to contend with many spurious imitations, induces the proprietors to recommend it with the greater confidence to the public generally, and Building Trade in particular, to whom they are now enabled to offer greater inducements for its adoption.

Full particulars, with tariff of prices, may be obtained on application to FAIRS and Co., at the Manufactory, No. 15, Gillingham-street, Pimlico; FAIRS, 2, Hanover-street, Regent-street; and BUNNETT and CORPE, 26, Lombard-street.

THE PANKLIBANON IRON WORKS,

WHOLESALE AND RETAIL, 58, BAKER STREET, PORTMAN SQUARE.



ARCHITECTS, BUILDERS, and Others, about to supply STOVES and KITCHEN APPENDAGES, will find at this Establishment the most unique and elegant assortment of STOVE-GRATES, FENDERS, and FIRE-IRONS ever offered to the Public, at prices considerably below the usual charges. The Proprietors at the same time beg to invite attention to their extensive Stock of FURNISHING IRONMONGERY, Tinned Copper, Tin and Iron Cooking Vessels, Block Tin Dish-Covers, Japanned Ware, Table Cutlery, and especially their Sheffield Plate and German Silver Wares, embracing every Article suitable for the Table, comprising Dish and Plate Covers, Liquor Frames, Epergnes, &c. &c. The plan adopted by the Proprietors of affixing the price to each article for cash, enables all purchasers to have the same advantage. The Patent Thermio Stove is in daily operation. THORPE, ALLOWS & COMPANY, 58, Baker-street, Portman-square, London.

The Builder.

No. CXLIV.

SATURDAY, NOVEMBER 8, 1845.

WHEN the Common Council of the City of London decided, a few weeks ago, on appropriating 20,000*l.* a year for twenty years, out of the coal duties, for improvements in the various thoroughfares of the city, and other public works, the best mode of applying this sum was discussed out of doors. One party urged that the total amount should be made available, and improvement effected on a grand scale; and the other, that so far from absorbing the sum obtainable on the mortgage of this 20,000*l.* a year, in some immense achievement, steps should be taken to *prevent* the committee from spending more than the year's income in any one twelvemonth. "Everybody," said the *Morning Herald*, taking the latter view of the question, "can understand the difference between *splendour* and *comfort*. We are not saying that the metropolis of England should not aim at magnificence; but we do say, that if every thing that can be raised is to be spent in the main thoroughfares, so as not to leave an available shilling for the clearing away of a noisome key, or the widening of an impassable lane, the result will be—that which we all lament without being able to cure—that magnificence and misery, luxury and squalid wretchedness, will be for ever found dwelling in the nearest neighbourhood."

"It need not be feared that in this way improvement would proceed at a tardy pace. A sum of 20,000*l.*, in minor improvements, would effect a great deal. One year's income would probably complete the improvement lately commenced in Fetter-lane. A second would break through from the site of the Fleet-prison into Old Bailey. A third might open a road from Farringdon-street into Fetter-lane; and a fourth would carry that road on into Chancery-lane."

The writer then asks the members of the corporation to look round their own neighbourhoods, and see whether each ward in the city does not require some minor, but important, improvement, which a grant of 10,000*l.* or 20,000*l.* would easily effect. "And if they find this to be the case, let them determine, not to lavish the whole capital away (by a stoppage) on some *one new street;* but to keep the income always in hand, yearly accruing, never forestalled, but always disposable for real practical use, in those many necessary improvements which every part of the city requires."

The committee, to whom the question was referred by the common council, brought up their report on Monday last, and from this it would seem that the course urged by the journal in question is to be pursued. The report states that the committee "thought it desirable that some improvement should be carried into effect in the next year, and they had selected two plans which they considered would be great improvements and beneficial to the inhabitants of the city of London—one for making a street from the south end of Watergate, now called Blackfriars-street; and the other in the Old Bailey, from the south side of the New-inn to the south side of Prujean-square; and they recommended that they should be empowered to give the necessary notices of an application to parliament for an act to carry the same into effect."

Now, with the greatest respect for the common council, we are compelled to dissent, in the strongest terms, from such a mode of commencing the discharge of the trust committed to them. If the improvement of London be attempted in this way, it must inevitably prove a failure; half the money will be wasted, and discredit, instead of glory, be the result.

They have now the opportunity of rendering London the grandest and most convenient city in the world,—of cleansing, opening, connecting, and adorning its thoroughfares, of improving the arts, and handing down to posterity proofs of the opulence, knowledge, and taste of the nineteenth century. This, however, is not to be done by bit-by-bit, chandler's-shop dealings,—opening a back street here, taking off a corner there; knocking down one house in the north, and two in the south, without reference to some general plan, and a view to the ultimate result of the whole.

We see no reason to urge, the immediate realization of the whole sum proposed to be expended by the city in twenty years, but we do most strenuously call on the Committee to proceed *as if this sum were in their hands for immediate disposal;* to view the subject in a comprehensive manner; to see that every thing that is done be a part of a whole; and, overlooking merely local demands and personal claims, work out steadily a well-considered and settled scheme of improvement.

To obtain this, they should call to their assistance the first talent in the country; careful surveys should be made, and a general plan laid down, to which all private projects should be made to conform. At present there is not even a correct map of the metropolis, although Sir Robert Peel admitted its necessity several years ago, and promised that it should be made forthwith by the proper department. If this were now called for by the Common Council, it would probably be proceeded with forthwith; its paramount importance will be admitted at once, by all who have given attention to the subject.

In an "Account of the proposed improvements of the western part of London," by Mr. J. White, published in 1815, a copy of a treasury minute, dated July 1793, is given; wherein the surveyor-general of Crown lands recommends, that "before agreeing to any proposal for the alteration or disposal of any part of Marylebone Park, a general plan should be formed for the improvement of the whole of it, *lest such partial alteration should afterwards be found inconsistent with what should be deemed most for the benefit of the Crown.*" He further proposed that certain plans should be lithographed and sent to architects, and some "considerable reward" given to the person who should produce such a plan as may be adopted. The Lords agreed to the report, and directed the offer of a reward not exceeding 1,000*l.* for the plan. To what extent the offer was made known, and what was the result, does not appear.

Surely, however, this minute should be an admonition to the city authorities. In the discussion on the report that has led to our reports, and which, it must be mentioned, was ultimately agreed to by a large majority, it was insisted that the improvements referred to in it, could be effected without any considerable outlay, "and would be the most judicious precursors of the extensive changes which must rapidly take place." Why, who in the court will venture to deny, till the whole question of city improvement has been competently investigated, that the two streets now proposed to be formed, may require to be pulled down within five or six years, in order to carry out some general plan, or worse still, through dislike to removing what has been recently put up, may prevent the consummation of a comprehensive and efficient scheme? Indeed, remembering the decision to which the court came on the same day, as regards railway termini in Farringdon-street, it seems nearly certain that this must actually be the case.

OPENING MEETING OF INSTITUTE OF BRITISH ARCHITECTS.

ON Monday evening last the members of the Institute assembled to commence a new session; Mr. Tite, vice-president, in the chair. Amongst numerous donations announced were some works on Norwegian Antiquities, from the University of Christiana (with a very nice letter), and the concluding part of Mr. Owen Jones's fine work on the Alhambra—a work unequalled for beauty and costliness.

The chairman said it was customary for the president of the first meeting, to allude to the circumstances connected with architecture that had occurred during the recess, and he much wished the duty had fallen into abler hands. He was glad to say they were commencing the season well, the funds were increasing, and their connections extending. The principal difficulty, as they were aware, was to obtain papers and induce discussions,—a difficulty, however, which was not confined to them, but was found in all the societies. The latter he considered of great importance:—"Iron sharpeneth iron, so doth the wit of man his friend." It was desirable for men to rid themselves of *mauvaise honte*, and afford others the benefit of their experience. He would ask all to contribute a little; if they would do this, every evening of meeting would be spent not merely pleasantly but usefully. Since he last met them, he had twice visited the capital of France, and he considered it his duty to say how much they were doing there, not only to increase the elegance of the city, but its comfort, particularly by the construction of broad open streets, and good drains. The magnificence of the modern architecture was very striking, and was not confined to churches, but extended to the dwelling houses. The French architects had an advantage in the custom which prevailed there, of several families living in the same building, on different stories; this gave them larger masses to deal with than architects in England had. He then alluded to some of the principal public buildings lately completed there, the church of St. Vincent de Paul, Notre Dame de Lorrette, and the Hotel de Ville. Of the former building, already described in THE BUILDER,* he spoke at some length. On this 163,000*l.* had been spent. The stained glass there, was the best modern glass he had ever seen. The remembrance of these churches led him to express a desire felt by many of the elder members of the profession, that during the prevalence of the present fashion, as he would call it, for Gothic architecture, we should not overlook the effects that may be produced by classic architecture. The speaker then alluded to the melancholy death of Mr. Basevi, and sketched the principal events of his life, as already put forth in our pages.

Mr. Poynter, in continuation of the chairman's remarks on works in Paris, described the coloured decorations of the *Ste. Chapelle*, now completed, as the most perfect he had ever seen. In England, some detestable effects had been produced by the use of heavy colours, but there, from the manner in which all was detailed and relieved, the appearance was admirable. All the mullions and shafts, of vermillion or green, were covered with fine lines of gold, beautifully embossed. Every leaf and piece of foliage had a sharp black line round it, by which the effect was greatly improved. The vaulting (a deep blue, covered with stars) was not so satisfactory; still they had authority for all. It was worth remembering, that, when first constructed, this and St. Stephen's Chapel, London, were decorated

* See page 3 *ante*.

in rivalry. Of the stained glass at St. Vincent de Paul, it was impossible to speak too highly; it was better than any old glass he had ever seen, combining the ancient effect with really good art. The stained glass at St. Denis was detestable. The speaker then described the monument for the Orleans family, recently erected at Dreux, in Normandy, of which we gave an engraving in THE BUILDER, in June last.* It was originally of Italian character, and was afterwards made Gothic,—and although the details were bad, and the connection of the two styles not made artistically, the general effect was good. The execution of the sculptured decorations was beautiful; it was in this respect the French far excelled us.

Mr. E. Trotman then read a very able paper on the *economical* application of Gothic architecture to modern domestic purposes, illustrated by a large number of sketches. No one, he said, had yet fully urged the proposition included in the title of his paper. A few years ago the Gothic style was looked at as too expensive even for churches; he felt satisfied the more closely it was studied, down to the time of Wolsey's fall, the more clearly its economical application would become evident. He did not mean what he would term "Watering-place Gothic," of gables, pinnacles, crocketts, and decorations without meaning or purpose, but the actual architecture of our Gothic progenitors. He justly reprobated many of the Gothic buildings of a few years ago, especially some of the colleges, where the back and front, the outside and the in, were perfectly dissimilar, simply a Gothic facing being thrown on. The negligence, if not ignorance apparent, shewed that the architect had not thought with a gothicised feeling. All should be in the same spirit, even to the garrets and cellars. In the buildings of the period imitated, the same feeling was apparent in the palace and the cottage. For domestic architecture, he would not look for earlier models than works of the late perpendicular period; and these were not understood as they ought to be,—as regarded construction, character, and ornament. He would point them out for study. The progress of decay and the ravages of fire were fast diminishing our authorities, and no time should be lost in obtaining memorials of those that remain. All seemed to think in imitating Gothic works that much ornament should be used: parts were broken up merely to produce an effect, and the greatest pains taken to appear irregular. If we compared such modern gewgaws with an old English cottage, the difference was striking. The pitch of the roof determined the form of the gables; superabundance of wood produced the half-timbered houses; one story overhung the lower in wooden constructions as protection, and throughout, picturesqueness was guided by common sense. For every-day practice the desideratum was, cheap details. Some architects had taken their notions from *church* details; he himself had done so, but would then recant and retrace his steps.

Beginning with doors,—they did not require to be arched headed; even in chancel screens they were often square headed, indeed usually so. In some, there was no other moulding than a champher down the outer edge. At the main external entrances, however, he had never found square heads. In modern windows, we always looked for stone mullions; but in ancient examples, of about 1500, plain lights with deal uprights were general. Where stone was scarce, moulded bricks were often used; the Rye-house, near Hoddesdon, gave examples. In copings, cheapness and good effect were constantly combined. He then proceeded to illustrate internal fittings, and concluded his paper by urging the importance of secondary matters in building, which are too often disregarded.

The Chairman, in conveying the deserved thanks of the meeting to Mr. Trotman, said, the results of the investigation that had been brought before them shewed the good sense of our ancestors. Nothing was done without a good reason; all decoration grew out of construction. It was difficult now to adapt ancient forms to modern usages. It was no longer sufficient to copy merely, we must *think* in the style adopted. With reference to the necessity for making things seem to be what they are, the Chairman expressed an opinion, that if the ornamental gothic tower, at the Croydon Atmospheric Railway, had been made to look like a chimney, as it was, the effect would have been better.

Mr. Donaldson followed with his usual pleasantness, and urged, that if every member would send one example of a door or window, or other detail, easily obtained during their rambles, a valuable collection would be formed. In examining ancient buildings, even of the simplest class, it was impossible to avoid noticing the extremely good taste, without affectation, that prevailed; in modern times, the converse was often the case. He was satisfied that good taste depended on good sense.

The meeting was then adjourned till the 17th inst.

* See page 270 *ante*.

THE PRESENT STATE OF THE ART-MUSEUM OF NAPLES.

THIS Museum surpasses, in many of its departments, the great expectations entertained of it. The collection of large works in bronze fills a whole gallery, while other museums are satisfied if they possess single specimens of that magnitude. The dancing Faun, the sitting Mercury, the two youths reclined forwards, and who have been taken for discthrowers, but are surely wrestlers, in the very attitude of the beginning contest; the four so-called Herculanum maidens, shew what antiquity could accomplish in this its manliest and most noble branch of art—real *Plastic*. A short time ago, the collection was enriched by a Venus found at *Nocera;* about half natural size, dressed, up to the hips, arrangeing her hair with one hand, while the other held, undoubtedly, a glass. She surpasses in correctness and gracefulness of form, and sweetness of expression, every thing else in this, albeit richest collection. The smaller bronzes are endlessly rich in ancient utensils, less so in figures.

The collection of marbles contains, amongst a great completeness of specimens, about twenty, which can doubtless, range amongst the works of first rank—the very ancient combating—Diana, with traces of red painting in the drapery and gilding in the tresses; the combating Pallas in a more advanced, but still *archaic* style; a group, hitherto supposed that of Orestes and Electra, but perhaps representing Venus and Mars, in which from out of the compactness of limb of *primordial* art, the already *complete perfection* of Plastic is piercing. Then follows the wonderful figure of the Venus of Capua, a later copy of that of Melos, of the same beauty, but more finely worked than the latter—spoiled as to effect, however, by the Amor made of Paris-plaster, which, instead of the Mars, properly belonging to her, has been placed by her side; an incomparable Torso of a Bacchus; a Minerva, the finest we have ever seen;* the Faun who carries a Bacchus-lad on his shoulders; a Venus formed after that of Knidos, almost equalling that of Medicis; the lad encompassed and carried by a dolphin; the group of Pan and the young Satyr, whom he teaches to play the flute†—the latter, in the cabineto reservato (the reserved room). Then follow the *relievos* of Orpheus and Eurydice, of Paris and Helen, and the three famous works of the Farnese collection,—Flora, Hercules, and the group of Dirce. This *élite* also has been of late enriched by a new acquisition. It represents a Nereide sitting on a sea monster, found at Puzzuoli—the figure is of extreme gracefulness and fineness of form. It has most probably belonged to an array of Nereides, which were represented carrying the arms of Achilles—a representation recurring on several other relievos, which exhibit a figure quite resembling the above. According to those relievos, she ought to be restored with her hand holding up the helmet of Achilles, which is here broken off.

The collection of terracottas was found much under our expectation, as far as figures are concerned, and most of the delicate things may have been dispersed. The intaglios, on the other hand, have been surprisingly enriched by the *Cameos* of the Farnese collection. It is here also, where is to be seen that great famous cup of one piece of sardonyx, on the outer side of which the head of Medusa, on the inner a hitherto not quite explained scene are engraven—still, we think, that it symbolizes the occupation of Egypt by Alexander the Great. The diameter of this splendid show-piece is a full span, and nearly two inches deep. A few years back a vase of blue glass and white encausted figures‡ was added, from Pompeii, which represents a very pleasing Bacchic scene of a vintage, and a repast of *Amorines*—the delicacy of execution, however, is inferior.

In the collection of modern plastic works we were surprised by a specimen of the greatest importance of Michael Angelo. It is a bust of Pope Paul III., of exceedingly spirited character and life-full execution—from whose form bursts forth the comprehensive, deep-minded, and at the same time subtle and cunning character of this commanding *senile*. The worth of the bust is still increased by the pontifical garment, which descends on the neck and shoulders, ornamented by allegorical relievos, representing the achievements of the Pope in church and politics, and which breathe the very mind of M. Angelo—although very aged at that period. We shall not dilate on the treasures of the Picture Gallery, which, besides an array of real art-specimens, paintings of Gian Bellini, Pietro Perugino, Raphael, Correggio, and Titian—contains also the masters of the old-Neapolitan school, and those subsequently issued from that of the great Urbinite, all in great number and significance of specimens. A Madonna, *marked* as a work of Pietro Perugino, seems to point at Raphael in his period of transition. The Madonna is the true prototype of that represented by him in the Milan *Sposalizio*, and those little figures standing somewhat behind, are entirely in the character of Raphael, as it shewed itself shortly after his leaving the pupilage of Perugino. We like also to mention another Madonna of Raphael, which we found in the Palace of Principe Terranuova. The picture contains, besides the Virgin and the Christ-child, two other lads, John the Baptist and Evangelist, and it belongs to the second Florentine epoch of the great artist. By the complete beauty and suavity of execution, by the colouring, at the same time powerful and beauteous, and that *Raphælean* hue of expression—the very breath of his noble mind—it may be taken as one of the most striking works of that transition-period of the great master, in which he impressed on his creations the ultimate stamp of beauty and life; when, in fine, he was called to Rome, to execute works of the highest order, and in which he attained the highest attainable by man—the sublime.

[*From German sources.*] J. L——Y

* Our apology for copying this long list of statues is an easy one. Few casts, if any, of these splendid figures are to be found in our national collections, although they ought to be.

† Most of our readers know that the National Gallery possesses a splendid little picture on the same subject, by Poussin.

BATHS AND WASH-HOUSES FOR THE LABOURING CLASSES IN ST. PANCRAS.

A NOTICE of the establishment of the baths appeared a short time since in this journal (p. 470, *ante*). The building, which is one story in height, occupies nearly three sides of the square, at the foot of the reservoir of the New River Company, in the Hampstead road. It stands immediately behind the blank wall, the entrance being in Georgestreet, Euston-square; and the cost will be little short of 2,000*l*. The range of building is about 12 feet in width, and 800 in extent. The entrance is by a long passage, at the end of which is a committee-room and five vapour baths. The passage leads into a receiving room. To the left of this are twenty-two compartments for men's baths, each of which may be either cold, warm, or shower, at the option of the bather. The baths are made of slate, with which each room is floored and lined. The rooms are well ventilated by a small conical light, working by pullies and weights. At the end of these will be two swimming baths, 60 feet by 21 feet, with separate entrances: they will be charged two-pence and six-pence. To the left of the receiving room are the womens' baths, some of them being fitted up in a superior style. Beyond these, having a distinct door of entrance, without passing through the last room, is the washing department. This room is divided into compartments by slate par-

‡ This seems to be a *pendant* to our Portland vase.

tions, which are to be raised still higher than they are at present; and, when the room is under the superintendence of the matron, the different parties will be strictly private, and one of the objections, often brought against the scheme, avoided. Each compartment contains a double tub, the larger portion of which is intended for washing in, and the smaller, by means of a jet of steam, which will keep the water in a boiling state, to be made to answer the purpose of a copper. A slab of slate is laid in front of the tubs, which will receive the clothes as they are washed. In the published plan, which may be obtained at the building, the washing-room extends round the side of the square, containing in all sixty-four double tubs; but we believe, that certain alterations have been made in the plan, by which the accommodation is extended. At the angle, five coppers are shewn for boiling linen. An apparatus for wringing clothes is shewn on the premises, but there are extensive drying closets, and near them a table for ironing. These rooms occupy the extremity of the building; and near this point is the door of exit. The use of the double washing tub, with ample supply of hot and cold water, of the coppers, drying-room, and ironing apparatus, will be charged for at the rate of one penny for three hours. Mangling, as it might destroy the means of livelihood of many persons, will not be afforded. It has been objected to the plan, that many of the garments would not be free from vermin, and that they might infect others; it is therefore necessary to state, that passing a current of hot air through the clothes, at a certain temperature, is a most powerful disinfecting process, which will entirely destroy the means of contamination.

In examining this building, we saw with some regret, that a mode of construction was adopted in several respects injudicious. In a building to cost 2,000*l.*, indeed in any building, sound construction is always the cheapest. We believe, there is no architect at present engaged, the committee deeming his superintendence would entail unnecessary expense. Poor people always live at the dearest rate, and half the people who build, achieve it at a similar expensive outlay. Unstable building, and future annual disbursement are not thought of at the commencement, but are soon painfully evident. In the present case, we regretted to find, that the framing of all the partitions was not constructed in the best manner, that joists, which support them, were bedded upon blocks, or bricks — instead of continuous creepers,—and that they were at one end inserted in a wall, without any continuous support; a bit of slate under each joist is a miserable substitute. The joists are of old fir timber, and are about 2 feet 6 inches apart, the width of the slate flooring, which they support. The provision for draining the ground, behind the wall placed against the foot of the hill, is scarcely satisfactory; every precaution should be taken on such a site.—It only remains to be stated, that the different rooms are lighted by windows in the ceiling, close beneath it; that ventilation is provided for by openings in the roof, and that the timbers are open, and stained with asphalte, as a protection from the steam, and that the whole is slated. The place is open to inspection. • •

NEW APPLICATION OF AIR AS MOTIVE POWER.

A PATENT mode of working a railway, deemed so safe by its conductors, that the company who adopt it, propose to make every ticket issued a policy of insurance upon the life of the passenger, so that in the event of accident, or death, he or his representatives shall have a claim of so much a year upon the company for life, demands consideration. The subject alluded to is the invention of Mr. Pinchels, and is a new application of air as a motive power. A model has been laid down at Messrs. Keene's premises in the York-road, and is in daily operation. It works by means of condensed air, instead of an ordinary atmosphere against a vacuum, and the arrangement is novel. A tube, with air-tight compressible sides, and a partition down the middle of it, so as in reality to form two tubes, is laid in the centre of the line between the rails. Strongly compressed air is admitted into this, which suddenly inflating the pipes, their sides impinge upon two drums, or large wooden rollers, pressing upon them, which are by that means set in motion, and these being fixed by simple mechanism to the carriage above, carry it off with astonishing velocity, the conductor at the same time retaining a control of the movement.

The action, it will be seen, is that of the wedge; two or three superficial objections to the mode of applying power occur to us at the moment, sufficient to prevent us from expressing any opinion upon it at first sight, but certain it is that by the model exhibited, great speed is obtained, and very little air used.

THE INTELLECTUAL IMPROVEMENT OF OUR OPERATIVES.

SIR,—Your correspondent, of the 4th inst., *A Journeyman Carpenter*, makes the following request:—"What are we to do?" As he has alluded to my remarks, of the 4th inst., in THE BUILDER, I will endeavour to offer an answer to his request. In the first place, I will make a few extracts from my "Address to the Manufacturers, &c.," which I published in 1838, to induce the manufacturers and the legislature to establish schools of art, on a true foundation. Now, as there is no true artistic school established, it is evident that neither the one nor the other have that knowledge of the subject—the due cultivation of the faculties for the arts—which they ought to have, or they would have established, long before this, such schools for artistic instruction as the artisans of this nation should and are entitled to have; and if both parties knew their own interest, they would not have neglected the important duty they were long ago called upon to perform; the master manufacturers would have had more skilful artisans, and have stood unrivalled in every excellence that mind, handicraft, and machinery could produce, and the legislature would have made, by its wisdom, an intellectual and grateful people, capable of appreciating its legislatorial labours. In the first page of my address, above alluded to, are the following remarks:—"We know that no two human beings have ever been seen exactly to resemble each other in body or mind, and yet we conclude that mankind should think and act alike, and equally agree on all subjects whatsoever. In the belief of this, we are continually establishing schools of education for the purpose of making all equally informed; but what is the result? Any thing but what it ought to be," and, in page 2: "Throughout the whole of nature, variety is a striking feature. In plants and flowers, as regards their forms and colours, how often is it stated, in those qualities there is no difference. No one ever saw two roses or two blades of grass alike, or one pea perfectly corresponding with another. Knowing this, and that the highest of animated beings in the scale of intellect vary as much as the lowest order of the animal kingdom, we ought not to be surprised at the failure of the present educational systems, as they do not embrace a legitimate exercise of the faculties for the arts, and are consequently unsuited to the nature of the human mind," &c. Pages 3 to 11:—"How often has it been said that genius is buried in cellars and attics, and yet no one found to relieve it from that thraldom. But if a national system of education be soundly established, and based entirely upon a thorough knowledge of human nature, we should then have no genius wasted, no faculty lost, and the whole power of the human mind turned to good account. We should then see this nation rise in the greatest of all her resources—manufactures—and which it is at present so much in need of. Our manufactures have long been defective, through the arts being at such an immeasurable distance from them. The designs which constitute the ornamental part of our goods being imitative instead of inventive, keep us in the back ground, and lower us into the degraded state of servile imitators, of which no nation in the scale of intellect should ever allow itself to be. To raise ourselves, then, from this state of degradation, schools of art should be established in every city and manufacturing town throughout the United Kingdom, that the rising generation may no longer be excluded from that source out of which so much valuable knowledge springs. Such schools of art should be formed for the purpose of opening the wide field of nature, that the true foundation may be laid in the youthful mind, when the only materials for forming new arrangements and combinations will be received quickly, and permanently held, and so an endless store of information will be laid up in their minds for design—original thinking and invention.

To bring youth of different capacities to the fullest development of their peculiar powers will be more or less successful, according as their instructors are men of intelligence, of enlightened minds, and well informed on that part of creation that they undertake to demonstrate. Artificialists will be worse than useless, as they will worry the minds of their hearers with worn-out, hackneyed notions, instead of bringing to view nature's ever-varying features, which she is always ready to bestow.

On the supposition that men who have been active observers of nature, and well able to demonstrate that which they undertake to do, will be appointed, the mechanic will be raised in the scale of art, and have the power of delineating naturally all that he may contemplate constructing, and become a producer of good forms, instead of those of commonplace, which we too often see in every kind of manufacture," &c.

The instruction of our youth, to fit them as designers and artisans, should be conveyed by the demonstrators, by drawing on the *black board* all the rules for producing the object required on a large scale, that all the students may see them at one and the same time. This mode of conveying the information must be carried through from the rules of art—such as the construction of the geometrical problems, to the perspective appearances of nature's productions in the vegetable and animal kingdom;—shewing to the whole class the value of the rules in their application to all objects that are required to be drawn. Demonstrations of anatomy, of botany, chemistry, mechanics, and as much more of natural philosophy as can be obtained from the instructors, will be of the greatest consequence to the students intended for designers, as well as to artisans. Architecture, in its varied styles, must be explained, and its fitness for the purposes required, making that the first point for consideration in building, as well as its adaptation in form to the features that surround it.

As all knowledge must take its rise in nature, we should no longer have recourse to art—that is, the notions of others of the things we wish to be informed upon, instead of the things themselves, and which are within the reach of every one. Why should not our rising youth be directed to the fountain-head, and become original thinkers, instead of having the works of others placed before them for imitation? If the works of the ancient masters, as painting, sculpture, and architecture, stand supremely high in every variety of natural representation, should not that be a sufficient reason for directing our youth to do as they did, and become active observers in nature's boundless field, instead of being imitators of all sorts of art, much of which is of no use whatever, and indeed highly injurious. This round-about way of endeavouring to acquire knowledge should be immediately given up, and decryed in every part of the kingdom as being quite unworthy of this great nation. I do not wish it to be understood that engraved imitations of fine art in painting, sculpture, and architecture, are to be kept from the student's view—far from it; for works of art of that kind should be in every school establishment that the labours of great minds may be seen, but not to be placed as examples to be studied from, as that would be sure to bias the mind, and dispose it to copy, instead of gathering new materials for original works.

There is one point, above all, that I consider to be of the utmost importance in the instruction of youth as regards design, and that is, the greatest care should be taken by the instructors not to *enforce* their notions, or any others, of design, on their pupils, as that would have a tendency to destroy the peculiar combinations, arrangements, contrivances, and other qualities of the varied minds of the students, and thus arrest the progress of originality. There is nothing more mischievous than to endeavour to ingraft the peculiarities of one mind on that of another, which may no

only be dissimilar, and quite unfit to receive them, but may be so differently organized as not to be able to receive them, however good they may be, but if wisely directed would produce, by its own original ideas, designs equally as beautiful and extraordinary as those of its instructors. The instructors should shew how far natural forms and colours may be arranged, combined, and contrived, in every variety of way, to accomplish the design required; and when those of the ancients may be thought necessary, to refer to for a principle, and to ascertain the use they made of the like materials, so far it would be well; but they should not be brought forward for imitation. On this part of artistic instruction much more may be said, but that must be hereafter and elsewhere."

The journeyman carpenter's inquiry of "What are we to do?" is in some degree answered by the above extracts from my address. He and our artisans will see what ought to be done for them; and I would further state, that the school which should be established for them ought to be upon the soundest foundation, and the most efficient instructors should be obtained, if possible. It will be of no use to set up such artificial concerns, for so valuable a class of men as our operatives, as we have already. They are attended with too great a loss of time and mind for artisans to endure; for they want not to be entertained or amused, they want to be really instructed, and nothing less than the best of instruction should be offered to them, and even that should be gratuitously, for an artisan's wages will never allow him to pay for artistic instruction for himself and his children; and those who reap the benefit of his labours should not be backward in their benevolent assistance for promoting their intellectual cultivation, for the end of such aid would be sure to be in favour of the supporters of the artisans' artistic institution.

I trust that your valuable journal, THE BUILDER, will not lose sight of this important subject, but keep it alive before that part of the public who are able to appreciate and to further its purpose; when in the interim I will, as occasion may require, offer some further remarks upon artistic instruction in connection with the development of the intellectual faculties of our artisans.

I am, Sir, &c. GEO. R. LEWIS.
Upper Norton-street, Oct. 14, 1845.

THE GRAVE-YARD QUESTION.

SIR,—It is with great pleasure I have noticed in your columns frequent remarks and letters relative to the grave-yard nuisances, a subject which has forced itself into notice by its very monstrosity, breaking through every obstacle which careless indifference on the one hand, or interested motives on the other, could bring forward to "pooh! pooh!" and ridicule the question. The agitation (which, by the way, is the only legitimate means to induce reform of abuses) has, I am happy to find, extended itself to the provincial press, and it now only requires to be zealously followed up by the leading London journals, to enforce the attention of the legislature to a reform of the present system. The pertinent and practical remarks of your correspondent Z., in THE BUILDER of Nov. 1st, deserve the most serious attention. Can it be, for one moment, held a sufficient reason for non-interference, "that the interests of the clergy are involved?"—that a section should be greater than the whole? I cannot think so disreputable a motive can have any weight with the great majority of our clergy, it is possible that a few worldly-minded men, as in all other classes, may fatten upon the miseries of others, but they can be only blots and blemishes of their order, and should be swept away without compunction or pity. Sir, it is not with the clergy the difficulty lies,—it is rather with the inert mass, the *public;* they, in the toiling, stirring scenes of busy life, have, as a mass, little time or care to consider such questions, and, unless you can interest them by some profitable scheme or speculation, it is vain to hope for reformation in what, if they think at all about the matter, they would call a mere abstract speculation.

It may be thought, from this view, that all attempts were useless; far from this being the case, we are now in a fair way for success. The (press ever in the van of improvement), have already taken their position, a position creditable to themselves, and which will eventually call for the warmest thanks from the public. During the last session, they wrung from the unwilling commons an admission "that the frequent mode of interment in the metropolis and other large cities and towns, was injurious to the public health, and demanded the serious attention of parliament." This is the first introduction of the wedge, and it now remains, by a judicious application of blows to drive it home and compel attention. No columns can be more suitable for the purpose than yours; a reform of the present system necessarily requiring the selection of other sites as burial-grounds, &c. The peculiar talent embodied in your publication, could more skilfully point out the most appropriate positions and plans than other journals of a more general character. I trust to your praiseworthy efforts, and I, for one, have little fear for the result.—I am, Sir, &c.

Nov. 4th, 1845. H. C. H.

DECORATIVE ART SOCIETY.

OCT. 29.—Mr. Crabb, V.P., being in the chair, read an address, on opening the third session of the society's meetings, setting forth the advantages already derived from free and friendly communications between practical men on matters of taste, or in connection with decorative art.

Mr. Bailes read a paper "on Marquetrie;" he explained that he had been recently induced to devote his attention to the manufacture of Marquetrie, from the success of some experiments he had made as an amateur, and that his processes were essentially different from those generally adopted. He then referred to various descriptions of inlaying with wood of different colours, and the intermixture of ivory, pearl, tortoise-shell, precious stones, or metals, producing ornamental combinations upon furniture, &c., as known by the name of buhl marquetrie, mosaics parquetrie, Florentine, or Tunbridge manufacture. He assumed that marquetrie applied to the production of an imitative object by inlaying with wood in natural or dyed colors, and the ordinary mode of doing this is to attach in a slight manner to each other veneers of various colours (from four to seven), as may be required by the design, an outline upon paper is pasted on them, and the whole cut through with fine saws—the veneers are afterwards separated, and the parts interchanged, so as to produce varied arrangements of greater or less perfection—no two being alike—they are then glued down on a larger piece of wood, worked to an even surface, the pattern is enriched by engraving and scorched with hot sand in parts that require shadow, and finally polished.

This method, by using wood of different growths, causes in time, through their unequal contraction, &c., an imperfect surface and defective joinings, as is evident in nearly all old *marquetrie.* Mr. Bailes then explained his own method of using a white veneer, which, after cutting through the outline of the device, he separates, and dying each part to the required colours, restores them to the places they originally held in the veneer, and finishes the whole in the usual manner. He has also discovered (accidentally), a mode of discharging the colours in any part, so as to heighten the effects of light and shade; and he expects to acquire a skill in this, which will enable him to produce pictorial effects never before equalled in wood.

His process, besides possessing advantages on an even surface, and having more colours, is less costly than the usual method; and he believed, that as it afforded a fair field for cultivation by patrons and lovers of art, *marquetrie* would soon become more generally esteemed.

CHURCH LOCKS.—We have recently examined with much pleasure a door-lock, of Gothic patern, manufactured by Messrs. Chubb, for the "Industrial Schools" at Liverpool. The steel bandings and escutcheon are made to take an ornamental character; and the key is in accordance with the style. For a church-door we have seen nothing better: the workmanship is excellent.

THE BROAD AND NARROW GAUGE.

THE commissioners are still taking evidence. Mr. Brunel, in his examination said, he first formed the idea of changing the gauge during the progress of his surveys in the years 1833 and 1834, not considering the gauge of 4 ft. 8½ in. sufficient. He looked to the speed which would take place. He thought the machinery too small, and required to be made more commensurate with the mass and velocity of railway transit. The trains at that time used were comparatively lighter than they are at present. The impression [in favour of the broad gauge grew gradually upon him; he proceeded to carry it into immediate effect after the passing of the Act in 1835. He must have mentioned it before that time to the directors, as he had made great efforts to have the clause which fixed the gauge omitted from the Act. He should rather be above than under 7 feet, upon the principle that the machinery upon the 4 feet 8½ in. gauge was too small. Considering the work which was required to be done, he thought it would be better done with a still larger machinery, not only with regard to the engines, but the machinery of the system generally. There would of course result economy with regard to stokers and drivers. There must be economy, when with one engine they did the work of two. He, however, looked rather to the result of the system, than to any specific economy. They were required to take from 70 to 80 tons weight on passenger trains, and 200 tons on those for goods. Taking then these masses, and the speed at from 50 to 60 miles an hour for passengers, and 20 miles an hour for goods, he considered it better for such traffic as that, to have larger carriages and more powerful engines than those they formerly used. He thought that all the important lines in England, as the railway system extended, would be worked at a much greater speed than at present. Railways would eventually take the place of the turnpike roads throughout the country. There would be of course great traffic upon them, and consequently the application of larger machinery would be desirable. He did not consider the difference of expense great. There was but little difference between the expense of the longitudinal and transverse sleepers. With longitudinal sleepers there was more timber required, but the rails were lighter. He thought the cross sleepers were a little cheaper. He considered the system applicable in Ireland. The principal lines in that country would have nearly as large a traffic as those in England. The Irish are locomotive people.

RAILWAY JOTTINGS.

LAST week at a Court of Common Council Mr. Anderton presented a petition from James Moon, architect, proposing the formation of a railway terminus in the city on the site of Farringdon-street, &c., and suggesting that a new street should be constructed from Holborn opposite Hatton Garden to St. Bride's church and that a viaduct should be made from Hatton Garden to Sea Coal-lane. After some trifling opposition, the petition was referred to the improvement committee. On the same day, and at the same court, Mr. D. W. Wire presented a petition signed by between 600 and 700 merchants, traders, wholesale, and retail dealers, and others connected with the trade and commerce of the city, praying that requisite facilities might be given for establishing a terminus for passenger traffic in Farringdon-street. This petition was also referred to the Improvement Committee.——Preparations are now making for commencing the stupendous work of the High Level Bridge across the Tyne. As a preliminary step the engineers have lately been boring in the bed of the river for the foundations of the piers. In view of these and other extensive operations Mr. Hudson, M.P., and Mr. Robert Stephenson, have paid frequent visits to Newcastle.——Last week one of the large brick arches, in the continuation of the Glasgow and Garnkirk railway, now forming in Cowcaddens Quarry gave way and came down with a tremendous crash. The arch had been finished, but sufficient weight had not been laid on what are technically called the "haunches," and the effect was that it sprung. Fortunately no person was hurt.——Last week the directors of the Mid

land railway assembled at the Derby station for the purpose of receiving tenders for the construction of railways from Peterborough to Stamford, and from Syston to Melton, and for a junction from Sheffield to Manchester. The contract of Messrs. Mawson and Co., of Spittal, near Doncaster, to complete the latter in eight months for 12,762*l.* was accepted; and the tenders by Mr. William Worswick, railway contractors, of Sileby, Leicestershire, to form the line from Peterborough to Stamford, a distance of twelve miles, for 47,000*l.*; and a branch from Syston to Melton, a distance of nine miles and a half, for 48,000*l.*, were both accepted, and the two lines are to be completed in eight months. —— Southwark Bridge has been provisionally sold to the North Kent (Vignoles's line), subject to their obtaining a bill, and the consent of the proprietors. The terms are stated to be 300,000*l.*, or a rental of 12,000*l.* per annum. The Thames Embankment and Railway Junction contemplated the purchase and offered 150,000*l.* The width of the bridge is only 42 feet.—— Last week an accident occurred on the Midland Railway, near Barnsley, which caused the death of William Boteler, Esq., one of the commissioners of the Leeds Bankruptcy Court. Its origin is thus described in a local paper:—As the Leeds and London mail train, which is due at about five o'clock in the morning, was running between the Masborough and Cudworth stations, some part of the engine became out of order, owing to which the train was unable to travel beyond the rate of eight or nine miles an hour. In consequence of this, messengers were sent back to the Masborough station in order to procure another engine to carry the train on to Leeds. In the meantime the train proceeded at a slow pace, with the usual lights fixed behind, and when passing between the Wath and Darfield stations, the assistant engine came up behind at a rapid pace, and ran with immense force into the train. The concussion was of course a tremendous one. The last carriage, which was second class, was forced up from the rails, and the buffers were driven through into the first compartment of a first-class carriage which preceded it.——As a curious instance of the prevailing speculative mania warping the probity of sound and honest men, the following anecdote is given in the *Railway Chronicle*:—A friend, not at all of a speculative turn, has become a director of a good and substantial project, the execution of which would certainly be a great metropolitan if not a national benefit. Meeting him, the following colloquy took place between us:—"You haven't applied for any shares?" "No; I have studiously avoided every new project." "But mine will be a great improvement to London; you know it is one of my hobbies, and that is the reason why I have joined the direction." "Well, viewing the matter in that light," I said, "I have no objection to having five shares." "Five shares?" inquired the director, with an air of surprise, not to say contempt. "Yes, five shares; that is as much as I care to have, for of course I should keep them." "My good fellow, it's of no use your asking for *five* shares; nothing less than fifty will be heeded." 'What am I to do with fifty?" "Do! *sell them at a premium*, which they are sure to bear." Of course I declined. Now, Sir, here was a man who I believe had become a director chiefly from patriotic motives, so bitten by the plague that, though I made him a real offer to help his scheme to a small extent, he rejected my offer, or at least thought contemptuously of it, unless I converted it into a piece of unreality and of speculation.

FOREIGN ARCHITECTURAL AND COLLATERAL INTELLIGENCE.

Newly-discovered Mural Painting by "Raphael."—(Florence, 21st Oct.)—A surprising discovery has been made here of late—viz. a picture *al fresco*, representing the *Last Supper*, on the wall of the refectory of a monastery in the Via Faenza, Florence. The place had been used as a coach-house, and it was known that some old painting existed there, but a large covering of indurated dust prevented any further insight into the matter. Generally, it was considered a work of Perugino, until M. Zotti tried to cleanse it, when the very first attempts showed a far superior style to that of the above master, and shortly after, the initials of Raphael's name, and the date 1505, left no doubt as to its authorship. The picture, full of the youthful buoyancy of Raphael, and in the style of his first Florentine period, is very important for the history of art—the more so, as it will be easy to restore it completely. It belongs to the owner of the coach-house, who has had it already protected by a wall, but it is to be hoped, that such a splendid performance will pass into the hands of Government for the general use of the public.

Statuary embellishments of Brussels and other Cities of Belgium.—Statuary, like other arts, received some impulse at the late declaration of Belgian independence — as W. *Geefs* obtained a great name by the monuments he erected, commemorating the late political struggle; for instance, the imposing structure on the Martyr-place of Brussels; the statue of General Billiard in the Park, &c. This impulse was still more fostered, by Government deciding on erecting monuments to all their great; the expenses of which were placed on the rolls of the budget. Thus Antwerp obtained its monument of Rubens, Luttich Gretry; while it is certain, that the statues of Godfrey of Bouillon, Charles V., and Froissart, will soon adorn the public squares of Brussels, Ghent, and Chimay. The return, moreover, of religious liberty, has allowed the spirit of mediæval architecture to move unshackled in any direction. Thus the choir of the Holy Virgin church of Antwerp has been of late ornamented with carved stalls; which have not their equals in Europe, executed by *Geerts*, professor of sculpture in Löwen. He and Bouré have also been amongst the best late exhibitors of sculpture at Brussels. This art will now have the more scope in Belgium, as the Government and the Common Council (!) of that city have come to the resolution of having executed the 150 or 200 statues, which are required for the ornamenting of their Town-hall. M. Bouré has received orders for executing eight, at 800 francs each* — the price of the marble not included. It is said, that by the middle of next year, the new restored façade of the Brussels Guildhall will be ornamented with about twenty statues of their sovereigns and chief magistrates.—(*Allgemeine Zeitung.*)

Railway through, and "over" the Alps.—In these "times" of railway disappointment, we may as well say in the way of preface, that there is nothing adventurous or *unsound* in the *financiel* of the above gigantic plan—as the first nobility (landed proprietors) of Genoa, Turin, Milan, and Chur are amongst the originators and shareholders of this undertaking; Marquis Giustiniani (chairman) of Genoa, Barboroux and Co., of Turin, &c. 164,000 francs (the 120th part of the whole sum) have been, in fact, already put aside for the preparatory plans and other business. The line of this stupendous undertaking is the following. From Rorschach to Chur; it is to go over Rheineck and Ragaz. Up to this place, and even further up to Reichenau, neither the slope, nor other circumstances of the land, present any considerable difficulties. More difficult will be the further tract, either through the Vorder-Innthal, or the Bündten Oberland. Here, in a direction of E.N.E. to W.S.W. the slope is 3,400 feet in a distance of about sixteen leagues. On the north side, there are few valleys between the Vorder Innthal and the main tier of the mountains. Then follows the Medelser valley in a south-west bent, and reaches up to the *Lukmanier* pass. Most intelligent surveyors assume, that it will be over *this* mountain that the passing of the Alps (!) will be most easy, as it is the lowest of all in this part of the country, viz. 5,600 feet absolute height. The *Mons Lucumanius* was known in very ancient times, and constantly used as a transit point into Italy. (Another project independent of the present, of a railway from Lyon to Turin, is to pass *Mount Cenis.*) The exact place where the rails are to be laid here for meeting those of the Valley of Blegno, on the other side of the tier, is not yet decided upon. Other tracts also, for instance, over Bellenz to Locarno do not present insurmountable difficulties. It is calculated that ten years will suffice for connecting the lake of Constance with Turin and Genoa. It may be the case, that the first rails will be laid next spring, pushing the work in *two* directions, towards Chur and Olivone, and Locarno.

The Working Classes in Holland. — The educational system of that country is placed on a *universal* basis, as it affords to all children, of whatever condition or creed, the opportunity of learning to read, write, and arithmetics. It is now intended, that one step more should be made in this direction, and besides these schools of literal education, *schools of industry* are urgently called for, where *all* poor children are to be instructed in some or other branch of *technical* skill. The latter, very truly, is considered even, under actual circumstances, the more important, as this is the only way of vigorously combating *pauperism*; and until this second more important desideratum is accomplished, the state has done only half its duty.

Great Helvetic Railroad Company at Berne.—This company projects an important addition to the railway net of the continent, by connecting the Lake of Constance with that of Geneva. It will start from Constance, and after passing through the cantons of Thurgovia, Zuric, Zug, Luzern, and Berne, have its other terminus at Freiburg and Vevais. The society claims all metallic or other useful mineral substances laid open by their operations, and the free importation of engines and materials from foreign parts, if such be necessary.

Immense Fire-engine at Paris.—A company of the 42nd regiment of the line, which has been placed at the disposal of M. *Letestu*, the inventor of this powerful engine, are engaged to try its force, and the experiments up to this time have been very satisfactory. It is placed in a vessel moored off the Quaie Malaquais, near the Pont des Saints, Paris, and projects streams of water at a great distance. An especial commission of the Académie de Sciences (R.S.), and of the Minister of the Marine have been deputed for these experiments. There are 100 men placed at the beam, and the pump projects every minute 2,500 litres of water, at a height of 120-130 feet above the level of the river, which makes 1,500 hectolitres the hour. It was the common council of Marseilles, that in consequence of the great fires of last year, resolved to order Mr Letestu (surveyor of the marine and the bridge and road departments) to build a pump-vessel and engine, according to his views.—(*Le Constitutionel.*)

J. L——y.

* A very moderate price, indeed — even if the cheapness and greater simplicity of Continental living is considered.

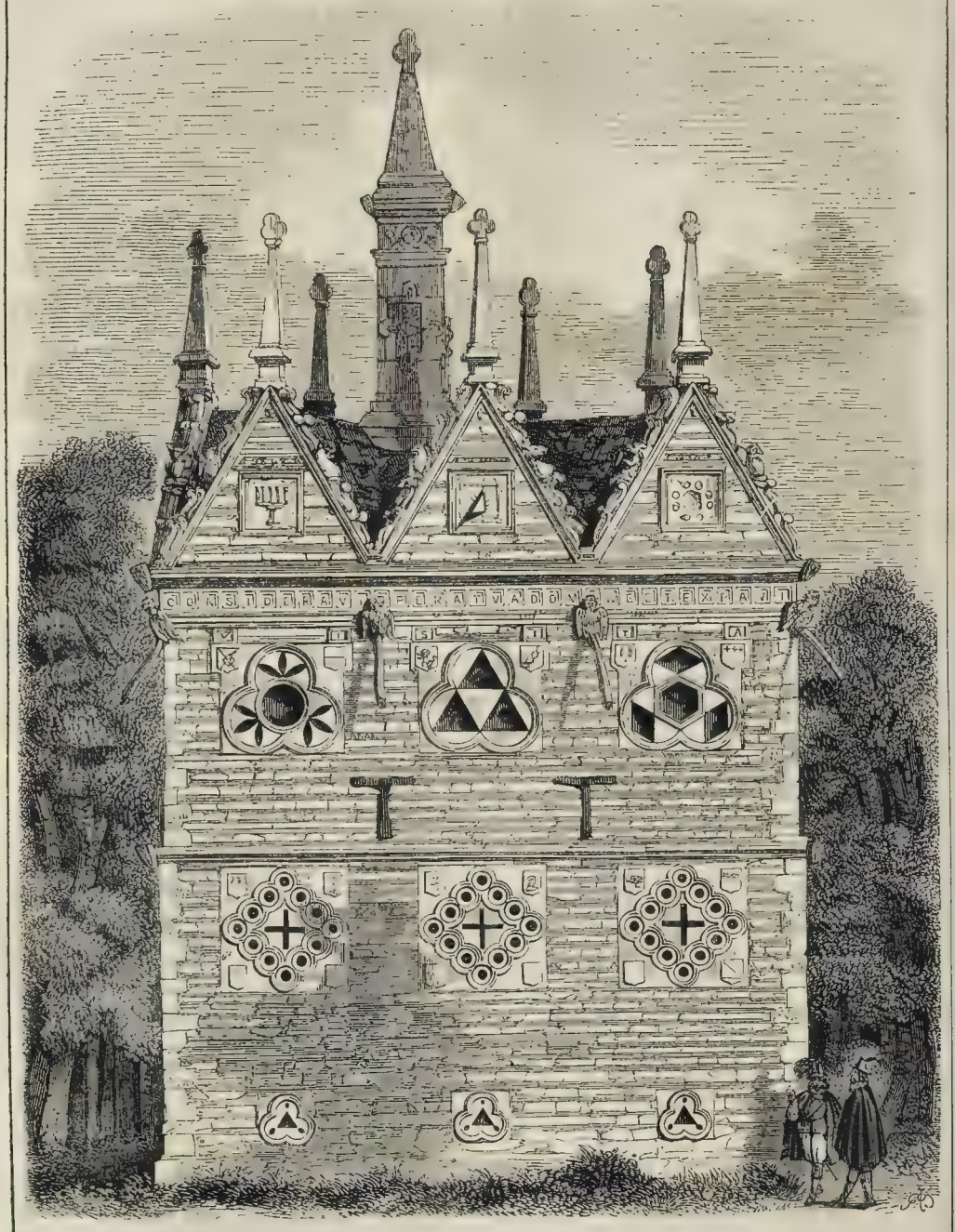
MUSEUM OF NATIONAL ANTIQUITIES.

Our anxiety on this subject is known to our readers, and many of them will participate with us in the wish that a report to the effect that Lord Prudhoe has offered his collection of national antiquities to the British Museum, on condition that the trustees will set apart a proper place for the reception of collections bearing on the same subject, may be true. The committee of the Archæological Institute are said to be the parties to the proposal.

Using Names without Permission.—Mr. Barry Baldwin, M.P, obtained summonses at Bow street, last week, against the projector and solicitor of a railroad for using his name in the list of provisional committee without first obtaining his consent. They were granted under the 7th & 8th of Victoria, chap 110, the 65th clause of which enacts, "That, as great injury has been inflicted upon the public by companies falsely pretending to be patronised, or directed, or managed by eminent or opulent persons, now, for the purpose of preventing such false pretences, be it enacted, with regard to every company, or pretended company whatsoever, whether registered or not, and whether now existing or not, that if any person shall make any such false pretences, knowing the same to be false, in any advertisement or other paper, whether printed or written, and whether published in any newspaper or handbill, or placard, or circular, then every such person shall forfeit for every such offence a sum not exceeding ten pounds."

New West-end Post Office.—Several houses on the south-side of Piccadilly, near St. James's church, have been sold for the purpose of being immediately razed to the ground, on the site of which is to be erected a capacious new Branch General Post-office.

TRIANGULAR LODGE, RUSHTON, NORTHAMPTONSHIRE.



TRIANGULAR LODGE AT RUSHTON.

About four miles north-east from the town of Kettering, in Northamptonshire, on the road to Rothwell, stands this singular building, a relic of strange times and strange men.

It appears at first view to have been intended for a hunting lodge, being in a lonely situation in the forest, but from the quantity of religious emblems and inscriptions upon it, and from the well known character of its first owner, it might have been a chapel, used for the practice of, at that time, a proscribed religion, and a place of shelter for its persecuted ministers.

The lodge is situated at one extremity of the park, in which stands the fine old building Rushton Hall. At the period of the erection of both buildings, the estate belonged to Sir Thomas Tresham, who, during the visit made by Queen Elizabeth to the Earl of Leicester, at Kenilworth, received the honour of knighthood. The family of Tresham appear to have first possessed Rushton in the sixteenth year of the reign of Henry VI., the estate having not very long afterwards become forfeited to the crown, in consequence of the attainder

the first Sir Thomas Tresham, who was headed at the commencement of the reign Edward IV., the property was subsequently tored to the family, which during the illus-ous reign of Elizabeth, seems to have at-ned the height of its greatness, possessing ge estates and several residences, and having med connection with the principal families the county, whose armorial bearings may l be seen upon the market house at Roth-ll, an unfinished monument, among others, the taste which Sir Thomas Tresham dis-yed in architecture. The succeeding reign rked a melancholy change in the fortunes the family; their extensive possessions were ain confiscated, and the head of it being at-nted, was confined and died in the Tower — cause of this was the memorable gun-vder plot, the downfal of several other fa-ies, and in which Francis Tresham, Esq., son of Sir Thomas, was deeply implicated. is person was, notwithstanding, the cause its discovery, and from his hand proceeded well known letter addressed as an anony-us warning, to the Lord Monteagle, who d married Elizabeth Tresham, his sister. Northamptonshire appears to have been a reat for the disaffected Jesuits and the Papal issaries present in this country during the gn of Elizabeth. Baker, the historian of s county, informs us that Sir William Cates-was on the 15th November, 1581 (23 Eliz.) ed before the Court of Star Chamber, with rd Vany, of Harrowden, and Sir Thomas esham, of Rushton, for harbouring the uits in their houses, and being present at ebration of mass; of which offences, ren-ed punishable by statutes recently enacted, y were convicted principally on the con-ion of Campion, one of that order, who s shortly after executed for treasonable ctices. Amongst the Harleian MSS. in the tish Museum, is a detailed account of his l, supposed to be drawn up by Sir Thomas esham, in which he states the reasons why Christian should refuse to answer upon oath matters of conscience, though such oath be dered by the lawful magistrate. This in-esting paper has been published at full in 30th vol. of the Archæologia, in a letter m John Bruce, Esq., F.S.A., to Sir Henry is.

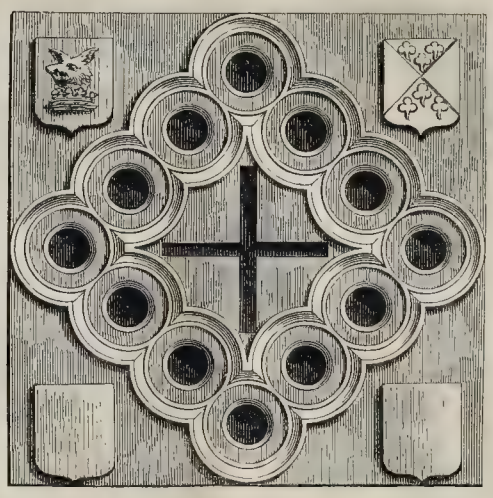
Mr. Bruce remarks, that Sir Thomas Tres-n was a great lover of architecture, and that is said to have been a Protestant, or per-os more accurately a non-conforming Ro-n Catholic, until the arrival of Campion l Parsons; by whom he was fixed in the urch of Rome.

Now, in an inspection of the triangular ge, it is evident that the religious charac-of the building was not considered at its t commencement. The crosses in the lower dows did not form part of the original ign, as they are cut or formed so roughly, t the mouldings round the small circular enings are injured by cutting through. In wood-cut, this is not shewn as I was de-ous of exhibiting, rather the architectural aracter of the window, than its history. e cross was certainly inserted after the dow was finished.* There can be little doubt t this lodge served as a shelter to Campion. at like places of concealment were very mmon we learn from Butler, in "Memoirs English Cathedrals," iii. 193, who tells us t a tangled dell, in the neighbourhood of nor-park, in Oxfordshire, is traditionally d to be the place in which Campion lay ncealed whilst he wrote his "Ten Reasons." The paper of Mr. Bruce is so interesting, d elucidates so completely the probable tory of the building now illustrated, that a extracts from it may be excused.

'The papal bull by which Elizabeth was communicated and deposed, and her sub-ts were absolved from their allegiance, was ued on the 25th February, 1570. Follow-immediately upon the great Roman Catho-rebellion of 1569, this bold exercise of pal authority could only be regarded by the otestant Government as a most dangerous itement to such of the queen's subjects as re disaffected towards the reformed faith, to new their revolt with better hopes of suc-s, and with a more certain assurance that,

It has been suggested that the crosses in various parts the building may have been introduced not as a religious bol, but as a monogram of the initials of the owner's istian and surname. — Ed.

WINDOW IN RUSHTON LODGE.



in having recourse to arms, they were playing the part of good subjects to the pope, if not to the queen. The Government met this daring attack upon the safety of the sovereign and the peace of the state by various penal enactments, which produced their desired effect; for, although the public quiet was for a time disturbed by the effrontery of Felton, and the conspiracy of Ridolfi, the Papal agent, in which the Duke of Norfolk was implicated, these troubles soon passed over, and, after a few years, the bull began to be 'slighted,' says one of the translators of Camden, 'as a vain crack of words that made a noise only."

"To stay the progress of this growing defection was, the great object of the priests sent into England by the foreign seminaries. They strenuously opposed occasional conformity of the 'protesters' (so called because they thought that they might go to church provided they secretly, and in their own minds, protested against the doctrines they heard there), and themselves supplied the places of the old 'Queen Mary's priests.' Their labours produced a very great effect; and in 1579 they received the assistance of a new band of co-adjutors, the English college at Rome being, in that year, taken from the secular clergy and delivered over to the Jesuits, then a recently instituted order, full of activity, and endued with a fiery zeal which, even in the annals of missionary enterprise, has perhaps never been surpassed."

"Of the general course of the proceedings of the missionaries we have information from members of their own body. They were dressed in strange antic dresses,* sometimes as soldiers, sometimes as gallant gentlemen, sometimes as roaring-boys or roysters, sometimes as clergymen of the national church,† sometimes as apparitors, or summoning officers of the Ecclesiastical Courts, and these various costumes they changed continually, as they also did the names by which they passed. In the morning they generally preached, and afterwards wrote, heard confessions, and determined controversies or cases of conscience. After dinner they removed to some fresh place, studying, whilst on horseback, the sermon of the following day, and escorted by some trustworthy persons who served as guides and guards. It is worthy of observation, and is not without its parallel in other periods of our history, that their escort was generally composed of young men of noble families. Besides the advantages of their countenance and wealth, the priests must have felt themselves more secure under their guidance than under that of persons exposed to the temptations of poverty; whilst it was amongst young men of family that they found their easiest converts, and their most faithful disciples. It followed, from their having such guides, that their course generally lay from house to house, either of their new converts, or of the members of those noble families amongst whom the unreformed faith continued to be affectionately cherished.

When thus escorted, a priest arrived at a house where he was about to remain, the general course was for the people of the house to receive him as if he were an entire stranger. After a time, he was conducted to an inner chamber, which was fitted up as an oratory, and there all present did homage to his office, by falling on their knees and entreating his blessing. Their first inquiry was, how long he would stay with them, which they entreated might be as long as possble. If he told them that he should depart on the morrow, which was the usual course, lest a longer stay should breed danger, all the inmates of the house prepared themselves for immediate confession. Early on the following morning, the mass was said, the sacrament of the eucharist was administered, and then the priest delivered an address, which in such circumstances of concealment and danger, spoken by a man who had defied difficulties of every kind in order to extend the blessing of religious sacraments to the persons whom he was addressing, and those persons themselves liable to prosecution for the very act in which they were engaged, and excited by a recent participation in the most sacred mysteries of their faith, could not fail to be in the very highest degree impressive and animating.

The uncertainties and anxieties of this way of life are strikingly delineated in one of the letters of the Jesuits. Sometimes, upon a sudden alarm, or during a hot pursuit, they were driven to the concealment of woods or thickets, ditches or pits, and sometimes they passed many days and nights in the secret places which the Roman Catholics were accustomed to construct in the chimneys, walls, cellars, or other almost inaccessible parts of their houses. 'Sometimes,' says this writer, 'when we are sitting at table, conversing cheerfully and familiarly of the things which concern our faith and devotion, for our conversation is most commonly of such things, if by chance any one knocks loudly at the door, so that it may be mistaken for a constable, we

* Campion described his dress thus: *Habitu dimentissimo sum, quem sæpe commuto itemque nomina.* Bridgewater's Concertatio. p. 24.

† Thomas Heath, brother of Nicholas, Archbishop of York, and Lord Chancellor to Queen Mary, under a license from the pope and the superior of the Jesuits, went the length, not merely of dressing as a clergymen of the established church, but of preaching puritanical sermons in churches. A paper, which fell out of his pocket whilst he was preaching in Rochester cathedral, led to the discovery of his real character. Strype's Annals, i. part ii., p. 272. Collier's Eccles. Hist. vi. 463, edit. Burham.

all start up like deer who have heard the voice of the hunter. Immediately every one is upon his feet, with open ears and beating heart. The refreshments are laid aside, we commend ourselves in a short prayer to God, and then no voice nor sound of any kind is heard, until the cause of the disturbance is reported to us."

The old manor-house of Rushton, fully illustrates this account by Mr. Bruce. We are told by the historian, that the most curious and undoubtedly the most ancient part of the building, is a small oratory, leading from the great staircase, containing a representation in basso-relievo of the crucifixion, composed of numerous figures, and a Latin inscription in gilt characters; the date 1577, appears above it, and underneath are the arms and motto of the Tresham family viz.:—sable, six trefoils slipped or, between two flanches argent.

The above date (if correct), is against the opinion expressed by Mr. Bruce, of Sir Thomas Tresham being fixed as a Jesuit by Campion, who only arrived in England about the middle of the year 1580. But he adds in a note, that Sir Thomas speaks of himself as being liable to be suspected as a well-known Roman Catholic.

As Northamptonshire was a retreat for the Jesuits, it cannot be matter of surprise that it formed the nursing place where the gunpowder plot was first conceived.

Historians point out the triangular lodge at Rushton, and a summer-house at Newton, belonging to another branch of the Treshams, as the places where the conspirators used to meet, to arrange their plans. Baker states, that Robert Catesby, Esq., the son and successor of Sir William, of Ledgers Ashby, is "damned to everlasting fame," as the projector of the diabolical gunpowder plot in 1605. He was a man of considerable talents, insinuating manners, and inflexible resolution; daring and fertile in expedients, but subtle and circumspect in the development of his purposes; and ready to sacrifice his life, his fortune, and every feeling of humanity, in defence of the Roman Catholic cause. Towards the close of the reign of Elizabeth, he and Francis Tresham, Esq., son of Sir Thomas, engaged with Garnet and Tesmond, two Jesuits, in secret intrigues for the overthrow of the Protestant establishment. It was Catesby who conceived the diabolical idea of accomplishing the restoration of popery by ingulfing the king and both houses of Parliament in one common tomb—it is needless to state the history of the plot, which is so well known, except that Francis Tresham contributed 2,000*l.* towards carrying the plan into execution.

The plan of the lodge is triangular; it appears to have been designed by Sir Thomas with some reference to the commencement of his own name. It will be seen that the upper windows are mostly triangular openings, and that all the finials are three-sided.

The building contains one room of hexagonal form, with a table corresponding to it in the centre. As the door to this room has several steps in front, there must be a vaulted apartment beneath. I regret that at the period of my visit no access whatever could be obtained either to the lodge or the manor-house, —the estate being in charge of an agent notorious all over the county for his boorish, rude disposition. The exterior of the lodge contains on its three sides the following inscriptions—over the door:—

TRES-TESTI,
MONIV. M. DANT.
5555.

In the centre of the gables "Visita mentes, non mihi: 3898, respicite, 3509." In the frieze round the building, each side having thirty-three panels, with a letter in each—"Aperiatur terra, et germinet Salvatorem: Quis separabit nos a charitate Christi:—Consideravi opera tua, Domine, et expavi:" In the different fronts of the building are the following dates, 1580, 1593, 1595, 1626, 1640, besides various religious emblematical designs, and thirty-six shields of arms. The date of the completion of the building is probably shewn by the iron ties in the three fonts, which are, T T. 15. 93. The turret at the top has the date 1595, the year that part was finished.

The manor-house on the estate is a much better specimen of the talents of Sir Thomas as an architect than the triangular lodge. The interior of this building is said to be very curious; the hall has one of those fine open roofs which are such masterpieces of ancient carpentry. Besides the market house of Rothwell, previously noticed, as a work of Sir Thomas Tresham, and which is now in ruins, in Farming woods, near Northampton, in the heart of the forest, are the unfinished remains of Liefden house, probably his last work. This is a very regular architectural composition, well worth inspection; it is now only occasionally seen by the sportsman while in pursuit of game. C. J. R.

*** The cut at the head of page 539 represents one of the lower windows at large. We shall give two windows from other sides of this very singular building, next week, so as to illustrate more fully an architectural caprice which is almost unique.

WILLIAM THE CONQUEROR'S DAUGHTER GUNDREDA.

MANY of our readers have heard by this time, of the discovery by railway workmen, of two cists amidst the ruins of the old Priory at Lewes, in Suffolk, containing the remains of Gundreda, fifth daughter of the Conqueror, and of her husband, William de Warren, the first Earl of Warren and Surrey, and founder of the monastery. Ancient records prove that Gundreda died in 1085, and William de Warren in 1088, and that both were interred in the Chapter-house of Lewes Priory, the latter being, as is stated, "buried in the Chapter-house, in a tomb adjoining that in which his Countess Gundreda was laid."

The priory was destroyed with the other monasteries by Henry VIII., and so complete was the destruction, that, as Horsfield observes in his history of Lewes, "the very site of the chapter-house could not be ascertained." This point, however, the present discovery will clear up.

In Southover church, hard by the site of the discovery, the monument that originally covered Gundreda's remains is preserved. According to the author already named, it was discovered about the year 1775 by Dr. Clarke, of Buxted, in the Shirley Chancel of Isfield Church. "It formed part of a burial monument of Edward Shirley, Esq., by whose father probably it was preserved at the demolition of the priory, and conveyed by his directions to Isfield. Dr. Clarke obtained permission of the representatives of the Shirley family to remove the stone from the chancel where it had been so long preserved. It was the intention to replace the stone over the spot where the body of Gundreda had originally been deposited; but as the very site of the chapter-house could not with certainty be ascertained, the stone was placed in Southover Church, that being the nearest ascertainable site of its original station."

It is a coffin-shaped slab of black marble sculptured with foliage in bold relief: a very interesting remnant of Anglo-Norman art. The cists, which are of lead, and about 3 feet in length, 1 foot wide, and 10 inches deep, have been removed to Southover Church: their contents will probably be transferred to the monument already mentioned. The discovery is one of great interest. Nearly eight hundred years have passed away since these bodies were interred, a period which may be said to embrace nearly the whole history of our country.

WESTMINSTER COURT OF SEWERS.

A SPECIAL court was held on Friday, the 31st ult., "To consider the steps necessary to be taken in consequence of the resolution, sanctioned by the court on the 3rd of October, with regard to contracts, and as to execution of jobbing works. In the absence of Mr. Edward Willoughby, Captain Bague, R.N., was appointed chairman; and a form, on the basis of the form in use in the Holborn and Finsbury divisions, was ordered to be prepared. The chairman then called on Mr. Leslie, who proceeded to state that he had always objected to the vague and uncertain information put forth to parties about to contract, as to cleansing of gully-drains, and the all but entire want of check on the cleansing of sewers, as also of the nuisance to the inhabitants of having the soil lifted up from the sewers, deposited the carriage ways, and carted away without a real check at so much per load. The cleansi of open and covered sewers and gully-dra cost annually, notwithstanding the imperf and objectionable manner in which it w done, about 2,000*l.* He was of opinion, th this sum could be more advantageously appli and that for all the works not comprehend in the resolution he had previously carried, be done by public contract for each separa work, that the remainder, including the clea sing of the sewers and gullies, should be dc by a small establishment of workmen a labourers; and that the cleansing in ev practicable case should be done within t sewers, thereby avoiding one of the greats possible nuisances in the metropolis. M Dowley and Mr. Doull, being called on, be stated to the court that they thought the ph well worth trying.

Mr. Leslie then proceeded to propos seriatim, the several motions to carry out t object; the whole having been seconded Mr. C. N. Cumberlege, were carried *nem. co* the few objections being as to detail.

"That the cleansing of sewers and gull drains, and all works not publicly contract for, be done by the establishment now propos to be commenced.

Proposed plan for works under 50*l.*, inclu ing the cleansing sewers and gullies:—

12 labourers, .. at 3s.	a day,	£561 12
4 bricklayers, .. ,, 5s. } 4 labourers to ditto, ,, 3s. }	—	499 4
A yard man		52 10
One cart and one mud-cart ..		
Horse hire		

In cases of emergency, an extra number workmen must be employed, but must be sp cially reported to the next court.

That the daily accounts be kept in the mo simple and intelligible way, so that each di trict may be charged with the correct amount

That the workmen and labourers be paid Friday in each week the certificate of th clerks of the works and surveyors be affixe thereto."

The surveyors were ordered to prepare short report of the quantity of materials, wate boots for the labourers, &c., that would be r quired when cleansing the sewers; and the be site for a shed in the yard, wherein the bricl layers could be employed, in spare time or w days, in preparing blocks of brickwork in c ment, for future use.

ASSERTED FAILURE OF SEWER IN GRAY'S-INN-LANE.

To the Commissioners of Sewers in the West minster Court.

GENTLEMEN,—My attention has been calle to a report at your meeting on the 24th ultim relative to a slip of earth at the end of th Queen's Road, Gray's-inn-lane.

I beg to state that no part of the sewer wa built. The workmen were levelling the ex cavation ready for the blocks to be put down that operation being finished, one of the me incautiously struck one of the struts abou three feet from the bottom of the excavation so as to enable the bricklayer to carry up th side walls, and turn the arch for a ten fee length. All being got ready for the brickwork a heavy fall of rain came, and also at tha time the engine was at work at the new rive head, and one of the mains runs through th excavation. This caused the fall of earth be fore alluded to, and not the giving way of th sewer. Finding more difficulties approaching timber was instantly procured, and placed acros the street from curb to curb on the paving all hands were put to work at this spot, an the fallen earth was removed with all dispatch the men worked both night and day, an again got ready for the bricklayers. They the got up the side walls, and turned over one-hal the centre, which was ten feet long, leaving five feet not turned; another slip took place and broke off quite short, the five feet o centering, and left the remaining portion under the sewer. No part of the brickwork was at all damaged, but all was perfectly sound when the centre was taken out.—I am, Gentlemen, your obedient servant,

GEORGE SMITH.

Newton Road, Bayswater, Nov. 1, 1845.

ALL SAINTS' CHURCH, WESTMINSTER ROAD.

A CHURCH is now nearly completed, situated n York-street, Westminster-road, which laims attention on the score of novelty. The ower, a slender structure, stands at some ttle distance eastward from the body of the hurch, and is in a line with the houses in the lew Cut. It will be connected with the church y means of a corridor or cloister, not yet uilt. Both the tower and the body of the hurch are of brick, but the upper story of the ormer has stone dressings, small shafts and rches on the face of it, coping, pinnacles, &c., nd is surmounted by a stone spire, in the hole 135 feet high, from the ground. The ain doorway too, is of stone. The church self is spacious, being as we were informed n the spot 125 feet long and 56 feet wide, nside. It consists of a nave and aisles, sepaated by a range of lofty cast-iron columns of mall diameter on each side, which carry semiircular arches adorned with the "open-heart" nd billet mouldings, executed in Martin's ement. There are galleries all round the hurch supported on cast-iron girders, rather leverly arranged at the east end, there is a emi-circular absis with a lofty semi-circular rcade against the wall, corresponding with he main arches.

There are no windows in the absis, but there s a small opening filled with stained glass in he apex of the half dome that covers it. The hurch is lighted by semi-circular headed indows in the sides, and a rose window (the racery of which is formed outside wholly of ricks) at the west end. The roof is open,— consists of a common queen post truss, with mall open brackets against the walls at each oot, and being of small scantling has rather a ean appearance. It is of deal, stained. The ews, pulpit, &c., are also of deal, varnished.

The style of the structure can hardly be chaacterised, but may be called Byzantine for want of a better term. It reminds the observer of some of the Rhine churches; like hem it has small arcades on the outside running p the line of the gable. Although there is nuch that may be cavilled at by a rigid ecclesiologist, we cannot refuse praise to the architect, Mr. Rogers, for some skill and boldness. Mr. Wilson of the Borough is the builder.

DESIGNS FOR LAYING OUT THE PUBLIC PARKS AT MANCHESTER.

OUR readers are aware that the committee or obtaining public parks and play-grounds, ffered prizes for the best plans for laying out he grounds already purchased. Applicants ere furnished with lithographed plans of the ites, levels, and instructions. From the latter e extract the following material portion:—

"The three sites to be laid out, are—No. 1. he Bradford property, containing about 31 cres; No. 2. The Hendham Hall property, ontaining about 30 acres; No. 3. The Lark Hill and Walness Vale property, containing bout 31 acres. Nos. 2 and 3 are partially aid out and planted. The sum which the ommittee contemplate laying out in planting, encing, draining, &c. &c. (including the proision of seats), for the three sites, is in all bout 4,000*l.* This sum does not include the osts of lodges, for which, and for other erecions, a sufficient sum will be provided. The ommittee, having but limited funds at their isposal, will be obliged to consider *facility* nd *cheapness* of execution in their adjudication. Each plot must have play-grounds, with ue appropriation for archery grounds, quoit, kittle, and ball alleys; a refreshment room, ne or more fountains, retiring places, and ufficient lodges; and the places for these must ppear on the plans. The houses on Nos. 2 nd 3 will be used as refreshment rooms, and he outbuildings may possibly be rendered vailable for some of the games contemplated. The utmost regard must be paid to giving mple room for the promenading of large umbers of persons; and the designers must eep before them the practical usefulness of the cheme, remembering that they are sketching *park* for the *public*, to be constantly accesible, and not a private pleasure-ground. A arriage drive round the parks would be deirable, but no carriage drive to intersect them. ootpaths or promenades will, of course, be suggested to the taste of the designers. * * Competitors desiring to append designs for lodges, &c. are at liberty to do so, should they think fit."

About thirty plans for each park were submitted, and these have been publicly exhibited at the Town Hall, the charge being one shilling each person for the two first days, sixpence the two next, and threepence for the two last.

The following observations are extracted from the *Manchester Guardian*:—

"Having had an opportunity of seeing the various plans about to be exhibited, we may offer a few general observations upon them, without the slighest desire to recommend or condemn any particular plan. As we have said, there are ninety different plans, thirty for each park, and these are numbered in the order of application, and, (for the reason stated) not consecutively. As to the estimates furnished with each, of the probable cost of carrying out these designs, they take a very wide range indeed, some being as low as 2,000*l.*, and one as high as 9,800*l.*; the limit stated by the committee being 4,000*l.*

There must be considerable difficulty experienced, especially by non-professional persons, in coming to a decision in preference of any one plan or set of plans over the others, from the following amongst other reasons:—The plans are drawn to a great variety of scales; some are delineated in pencil or faint tracing, others in Indian ink, others again in Sepia tint, and some are coloured, and hence made exceedingly attractive to the general eye. While most of the plans are strictly ground plans, others represent trees, hedges, &c., in elevation; and in one or two instances we have very pretty birds'-eye views of the parks, shewing all their "alleys green," their groves, and arbours, in full and luxuriant verdure. Some of the plans seem to us very jejune performances, and in several instances, one great consideration seems to have been overlooked. About 30 acres being the average area of these parks, it becomes important to make the most of this extent of ground; to plan the walks so that as much space as possible should be gained within those limits. Hence straight lines, intersecting each other at right angles, should be avoided; and winding curves, or what are called "serpentines," seem naturally to suggest themselves. Yet, some of the plans look like the laying-out of the streets of a city, rather than the walks and places of exercise and sport in a park.

In one or two of the plans, artificial lakes are the chief features; in others, the fountains are made prominent objects; while in some, the planting is so close as to resemble a maze. Only one or two furnish elevations for lodges, refreshment rooms, shaded seats, &c. One point seems to us worthy of consideration,—the retaining in one or more of the parks in one place, a large extent of green sward, on which to congregate on particular occasions of festivity, a considerable number of persons for a short time, as, for instance, to hear a short address from the civic authorities, or an open air concert, or to witness some display or exhibition suited to the scene. Some of the plans have left some such space, especially in the Walness portion of Lark Hill park; others of the plans have filled up every portion of the area with walks and hedges, leaving only small patches of grass between the windings of the walks. Some of the plans resemble the figures seen in a kaleidoscope, all the curves being made to converge to a common centre; others again, retaining the centre, have radiating straight walls, somewhat like the spokes of a cart wheel. Some of the candidates have sketched their designs on the small lithographic plans issued by the committee, and it is much to be regretted that all the competing plans have not been drawn to one scale. When these variations have been duly allowed for, it appears not to be very difficult to reduce the number of plans to some eight or ten, and then it will require a little more care, circumspection, knowledge, and judgment, to make the final election. We presume that it is quite open to the committee to adopt a plan of each of three different competitors for one park, or even to combine in one plan such portions of several as may be deemed most suitable or desirable in carrying out the object in view, as expressed in the instructions issued by the committee."

New Books.

A Treatise on Painted Glass; shewing its applicability to every Style of Architecture. By JAMES BALLANTINE. Chapman and Hall. London, 1845.

THIS very nice little book may be read by all with advantage, although it cannot be said to carry out the subject to the full extent of which it is capable. The chief point urged by the writer is, that while decorative art must be guided in her leading features by geometric proportions, she must also imitate in her details, the productions of Nature;—that Nature and art must go hand-in-hand in every artistic effort, or failure will be certain.

The writer objects to the imitation of bad ancient examples, simply because they are ancient: "As if in penance for former transgressions, the national taste has prostrated itself before the spirit of antiquity, and is now offering it a homage at once abject and indiscriminating. This folly has been most injurious to several of the decorative arts, and to glass-painting in particular, in which the good, bad, and indifferent have been all copied, and repeated with equal fidelity and zeal. Several glass-painters have acquired an extensive and profitable reputation, simply by pandering to this vitiated taste, and by anticipating the effects of time in their imitations of antique glass. The consequence is, that, even in new churches, we find painted glass windows deformed with numerous black spots, in order to produce the required antique appearance; a deception somewhat akin to that practised by needy artists, and swindling picture-dealers, when they manufacture and sell smoke-dried imitations of Teniers and Rembrandt as genuine originals. Defective drawing, meagre design, and unskilful composition, have been laboriously copied, while, in order to stamp the work with the features of genuine antiquity, and to imitate the awkward workmanship of the old specimens, the pieces of glass have been purposely fractured, then clumsily soldered together.

Glass manufacturers, too, taking advantage of the prevalence of this ridiculous taste, have of late years realized large profits by imitating the sandy texture and wavy uneven surface of the old windows. In several recent instances, laboriously executed designs, replete with appropriate meaning, and carefully adapted in form and character to the architectural style of the edifice for which they were intended, have been set aside for servile transcripts from old windows of these stereotyped figures, the repetition of which saves the trouble of invention. In the department of painted glass, art has been decidedly retrograding; and should the public suddenly awaken to a sense of its folly, in admiring and encouraging the deformities thus perpetuated, there is a danger that the art may be left without support, when it may both require and deserve it."

He afterwards refers to some recent attempts to make the imitation of natural objects appear a minor part of ornamental composition, and endeavour to refute the assertion, that little more is required in this department of art than graceful geometric combinations of lines, and harmoniously balanced combinations of colours.

"The advocates of such opinions seem to forget, that harmonic proportion forms but the pedestal on which the triumphs of genius are to be exhibited—the foundations of the temple of art. They would substitute the alphabet of æsthetics for the alpha and omega of art, and having discovered that, by a systematic arrangement of colour and form, without reference to sympathy or association, it is quite possible to produce an agreeable effect, they forget, that while the artist seeks to please the eye, he ought also to address himself to the feelings and fancy of the spectator.

Man is not a creator, he is a mere adapter. The most wonderful inventions of modern times are based upon discoveries made by diligent observers of the operations of nature. Those specimens of art, which have been transmitted to us from a remote antiquity, excite pleasurable feelings, proportioned to their approximation to the beautiful in nature."

"If the greatest triumphs of art be felicitous imitations of nature, and if it be its chief aim to achieve such imitations—as who can doubt it is—why should we not have the walls and windows of our apartments decorated with

these, the most interesting of all the productions of genius? Why should we be deprived of the pleasure of contemplating the representation of objects endeared to us by the most delightful associations? Why believe ourselves capable of producing or conceiving more beautiful forms than those of nature—more harmonious arrangements of colour than we find in earth and sky. Let it be remembered, that æsthetic proportion is the mere alphabet of colour, the mere anatomy of form, and that genius alone can arrange the former into eloquent sentences, or invest the latter with animation. Geometric combinations and proportions merely mark the limits within which genius ought to confine its aspirations, while, to the mediocre student, they are grammatical rules, the study of which will enable him to write correctly."

During the various modifications of pointed architecture that took place, painted glass changed its character; and this change, so far as relates to foliage and geometrical forms, the author endeavours to trace. The following are his views:—

The Norman Period.—"The ornamental painted glass of the eleventh and twelfth centuries, like the Norman architecture, of which it formed a part, was stately, and of a magnificent character. The colours were of the most vivid and positive description. There was no spot left for the eye to repose on—no neutral tints were introduced. The whole of the grounds and foliage were filled with intense colour, ruby and blue invariably predominating. The same love of violent and striking contrast, as is peculiar to man in a state of semi-barbarism, was manifested in the colouring of the windows of that period, and the general effect must have been congenial to the romantic and martial spirit of the age of chivalry. The leading forms, also, were at once massive and simple, although they were but clumsy imitations of the foliated ornament in Grecian and Roman friezes and capitals."

Early Pointed.—"In the thirteenth century the ornamental painted glass, like the primary pointed, or early English architecture, with which it was associated, was of a light and elegant character. The glass painters had then acquired a more correct idea of what constituted beauty, both in colour and form. The positive colours were now used more sparingly, and, indeed, were almost entirely confined to geometric bands, central points, chiefly quatrefoils, and borders continued round each entire window. The general grounds or intermediate spaces were of a beautiful tint of neutral grey, produced by lines intersected at right angles, from which were relieved, by bold black lines, scrolls of foliated ornament in clear, colourless glass. In this way the ornamental glass of this style was much more agreeable to the eye than that of the Norman; while the introduction of simple geometric figures gave it an entirely new feature, and evinced an adaptive power not formerly exhibited. Still, however, the foliated scroll ornament of classic architecture was closely imitated in the foliage of the general grounds."

Decorated Period.—"During the fourteenth century, when the secondary pointed or decorative style of architecture prevailed, the architects or glass painters seem to have become still more versant in the first principles of proportion, and to have advanced still further in the art of adaptation or invention. Thus, we find that, in accordance with certain fixed rules of proportion, they elongated, intersected, diversified, and arranged, rectangular, triangular, and curvilineal figures, and made these harmonious geometric combinations their leading points for colour. They were thus enabled with certainty to produce a pleasing general effect, and to fill up the detail according to their own fancy, with an imitation of the common weeds, flowers, and plants that they found growing around them. The ornamental glass of this period is, therefore, characterised by a rich, juicy freshness, as well as an easy play of elegant outline, and graceful proportion. In many instances, also, the grey background produced by intersected lines was abandoned, and a tint of grey-obscure substituted, which imparted to the whole a softer effect, and gave a better relief to the outlined foliage, of which the diapering was composed. There were now no adaptations from any other sources than nature and geometry."

Perpendicular.—"During the period of perpendicular architecture in the fifteenth, and a portion of the sixteenth centuries, the glass painters seem to have lost all idea of natural or geometric beauty. The leading forms are flat and unmeaning, and the combinations formed without any principle of balance or contrast. The foliage, also, is fantastic and artificial—the leaves and flowers have no prototypes in nature. All well-grounded freedom in inventing and adapting seems to have been lost, and in its stead there was established a sort of manufactory of stale and pointless conceits. The architects and decorative artists appear to have wrought without rule or plan, and with an utter disregard of the true principles of design."*

Elizabethan.—"The ornamental painted glass of this period appealed to no sympathy or association, and in form, as well as in colour, was vapid, vague, and indefinite. The mosaic mode of joining together various coloured glass was set aside, and the brilliancy which can only be obtained by that method, was superseded by semiopaque colours, imperfectly fused on the surface of large sheets of glass."

The work is illustrated by many coloured diagrams, and will be found useful by all who are interested in the subject.

* The heraldic blazon, and large figures, which at this period were much in use, tended in many cases to give the windows a very imposing appearance, but these belonged to what may be denominated pictorial glass; the ornamental branch of glass painting, which we are now illustrating, only embraces natural foliage and geometric forms.

Miscellanea.

Duties of Parochial Officers in Connection with the Repairs of the Church.—Such evils, then, it is ours to repair; and that in so many places you have so well and cheerfully begun the work, I heartily rejoice. But, if these evils are to be thoroughly removed, we must first form a just estimate of the disgrace of their continuance, and the duty of abating them. And this is the more necessary, because their existence is, I believe, in no slight degree to be traced to the action of a false principle of honour, which has attached especial praise to those parochial officers who have kept the church-rates lowest in amount. Now, such an administration of a common fund is worthy of all honour, if it is the result of a care, watchfulness, and prudence which have first secured the objects for which it is created: but if a low church-rate is obtained by the neglect or penurious reparation of the church, no such honour can belong to its appointed guardian; rather should it be his object, as it is his duty, to stir up his co-parishioners to willing, and united offerings, until their common house of God is a worthy expression of their hearty thankfulness for all their common blessings—until its decent fabric, ornaments, and fittings bear some due proportion to their common means. Surely he who acts in this spirit will best consult the welfare and honour of a parish; he best provides for the real wants of its poor; he will gain for himself the enduring praise of being "the repairer of the breach, the restorer of paths to dwell in."—*Charge of Archdeacon Wilberforce.*

Extensive Sale of Mahogany at Liverpool.—The largest mahogany sale at Liverpool on record took place last week. It consisted of 24 cargoes, and extended over several days. Messrs. Challoner and Fleming were the auctioners. The prices of Honduras mahogany, of which there were six cargoes, ranged from 6*d.* to 17*d.* per foot. St. Domingo mahogany, of which there were 10 cargoes, fetched from 6*d.* to 9*s.* 4*d.* per foot. Cuba mahogany from 5¼*d.* to 12*s.* 9*d.* per foot.

Something like Fatality.—Mr. Basevi, only a few days before his unhappy death, remarked to Mr. Sydney Smirke, with whom, as our readers know, he was associated in more than one undertaking, the risks architects were compelled to run in performance of their duty. Since then, Mr. Smirke has met with a nearly similar accident, which has confined him to his bed.

Church for Seamen.—The corporation of the city of London have just forwarded the sum of 105*l.* in aid of a fund for the building a "Church for Seamen in the port of London."

The Royal Academy.—Messrs. Elmore, T. S. Cooper, and Frith, have been elected associates of the Royal Academy.

Improved Door-latch.—A patent has lately been granted in America for an improvement in that kind of mortice-latch in which the bolt is thrown back by turning the knobs either to the right or left. Four cogs are made on the spindle above, two above and two below, and one above and one below in the space or opening in the bolt. The first cog above and below on the spindle are on the same plane, and act against the back face of the opening in the bolt, and the other two are on a plane further back, and act on the cog of the bolt. This arrangement of the cogs is necessary to admit of pushing back the bolt by turning the knobs in either direction; for when the upper cogs are in action, the lower cogs pass by each other, and *vice versâ*, which would not be the case if all the cogs were on the same plane. The name of the patentee is James M. Hoggan.

Effort to Advance the Arts of Design.—By an advertisement in the present number, it will be seen that the Council of the Manchester School of Design are about to open an exhibition of industrial art. We trust the day is not far distant when London will open an exhibition of products of national industry on the grand scale lately achieved in Paris. It is an important subject for the consideration of government, and a powerful aid to the progress of every branch of art. In the meantime, we merely direct attention to the effort in Manchester, which will be productive of much good, and will be well worthy, and will, we hope, receive, the co operation of many amongst our readers.

Sculpture at Cambridge.—Thorwaldsen's statue of Byron was placed in its permanent position in the Library of Trinity College last week; it is needless to say that it attracts very great attention, and is daily visited by numerous members of the University and others. The society has also been enriched this week by a statue of Bacon, by Weekes, presented by the Rev. Dr. Whewell, the Master. It is placed in the Ante Chapel, near the Screen, and almost under the bust of Wordsworth. The philosopher is represented reclining in his chair.

Monument to Mr. Vertue.—The contractors, agents, and sub-contractors on the Lancaster and Carlisle Railway have determined upon erecting a monument in Penrith churchyard to the memory of the late Mr. Robert Vertue, superintendent of the Penrith district, whose death we recorded about a fortnight ago.—*Cumberland Pacquet.*

Lady Shee's Pension.—The Queen has been pleased to bestow a pension of 200*l.* a year on Lady Shee, wife of Sir Martin Archer Shee, "in consideration of her husband's eminence as an artist, and of his services as President of the Royal Academy during a period of fourteen years."

The Strike of the Nailors.—The nailors have returned to their work, the masters having acceded to their demand of 20*s.* in the pound, or the full list price, as agreed upon on May 15th, 1838.—*Worcestershire Chronicle.*

Surveyor to the Guardian Assurance Company.—The following are the candidates for this appointment, lately held by Mr. Basevi:—Messrs. Hunt, Jennings, Mee, Henry Harrison, Tattersall, Mawley, and Mocatta.

The Rail *v.* the Drama.—The shareholders of Leicester have converted the theatre into a railway exchange.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the execution of works on the York and North Midland Railway, viz. the Harrowgate Branch, being a distance of about 18 miles. The works include a tunnel and viaduct.

For the execution of the works forming the 5th and 6th divisions of the Dublin and Belfast Junction and Navan Branch Railway, being respectively of the lengths 8 miles 128 yards, and 7 miles 1,523 yards. Both contracts comprise the usual works of excavations, embankments, bridges, culverts, &c.

For the execution of works required in making part of the Taw Vale Railway, viz., from Barnstable Bridge to Fremington; and also for constructing the Docks and other works appertaining thereto.

For the works necessary in extending a Sewer in the parish of St. John at Hackney, being about 4,500 feet in length.

For the supply of a large quantity of Fencing for the Victoria Park Cemetery.

For the works necessary in extending the sewer from the north end of William-street, along Green-street, to Preston-street, being about 980 feet in length, in the parish of St. Matthew, Bethnal-green.

For the works forming the Portsmouth extension of the Brighton and Chichester railway.

COMPETITIONS.

Plans for the enlargement of the Suffolk General Hospital, and tenders for the execution of the work, are required by the Hospital Committee.

Plans, specifications, and estimates are required by the committee for the erection of the South Staffordshire General Hospital, Wolverhampton. The sum of 1000*l.* will be given for the one selected.

The Provisional Committee of the National Glass Company of Ireland require plans and specifications, &c., for the erection of all the necessary Buildings, comprising an extensive manufactory for making crown (window) glass; also plans for an extensive manufactory of plate glass. 25*l.* will be given for each plan selected, or 50*l.* for both if to the same individual.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At the Black Lion Inn, Bradford, 49 prime maiden oaks, 15 maiden ash, 291 large pollard oaks, 18 pollard elms, 79 pollard ash, poplar, and swallow pear trees, now standing.

BY PRIVATE CONTRACT.

Now lying on Upper Comeytrowe Farm, two miles from Taunton, 180 maiden elms and 30 maiden ash trees, suitable for railway contractors.

TO CORRESPONDENTS.

"Cast-Iron Girders."—*We shall next week give an extended table for calculating beams.*

"Adolphus."—*We advise him to consult some respectable green-house builder.*

"Senex."—*If the cottages are not rendered fit for use before the 1st of January next, they will come under the operation of the Buildings Act. The alterations necessary in such cases, will probably be settled by special application to the official referees.*

"J. D." (Camden Town) *is thanked for the offered drawings: they are hardly sufficiently precise for our purpose.*

"W. R."—*We cannot answer for the competency of the person mentioned.*

"Works on levelling."—*Recommendations will be found in recent Nos. We cannot be expected to repeat replies to the same question.*

"R. Q."—*Bruff's Treatise on Engineering Field Work. Whishaw's "Railways of Great Britain and Ireland" is a very useful work, but no one book will give all that is required.*

"H. B. G."—*Varnish stained with asphaltum is much used.*

"Conveyance of Water."—*A correspondent wishes to know the cheapest and best mode of conveying a small current of water for 300 yards down a gentle inclination to a cistern, for the supply of one family; the smallest pipe that would preserve a regular current will be large enough.*

"Valuation of Freeholds, &c."—"*Inwood's Tables*" *will be found useful.*

"A Subscriber."—*Wax for moulds may be obtained from any plasterer.*

"Iron Work at Lincoln's Inn Hall."—*We are requested to say, that the name of the smith whose work at the new Hall we justly praised last week, is Jabez James, of York-road, Lambeth, not John James.*

"T. L."—*Next week. We shall be most happy to receive communications from so accomplished a correspondent.*

"F. M." (Lambeth.)—*The gentleman named must be Mr. John Martin (the artist), of 36, Alsop-terrace, New-road. We shall be glad to hear more on the subject.*

"Y. X. A."—*A letter addressed to Sir Henry Ellis, at the Museum, by any person of reputation, would obtain for our correspondent the required admission to the Reading-room.*

"Tenders."—*We do not propose to insert tenders, excepting for large works, or under peculiar circumstances.*

"Mr. F."—*We will take an opportunity to visit the work, without troubling him.*

"W." (Bridgewater.)—*If all the circumstances be stated, we think our correspondent would not recover payment.*

Received:—"G. R." "W. S." (Dorking.) "G. C." (Cardiff.) "Q." "W. J. S." "Budownik"

Books Received:—Kelland's new edition of "Dr. Young's Lectures," Part IX., completing the work. (Taylor and Walton, Upper Gower-street.) "Pictorial Gallery of Arts," Part X. (Knight.) "Old England," Part 23. "The Philathenic, or Institutional Intelligencer," No. III. (Gilbert.) Foster's "Pencilled Copy-books." (Souter and Law.)

*** Correspondents are requested to address all communications to the EDITOR.

ERRATA.—In our last number, page 525, towards the bottom of the middle and the top of the third columns, *for* "Adessa" *read* "Odessa."

ADVERTISEMENTS.

ROFESSOR KELLER'S POSES PLASTIQUES.

ROYAL ADELAIDE GALLERY.—This day, and during the week, Professor Keller will exhibit at the Adelaide Gallery his Grand Tableau Vivans from the Ancient Masters, which have received so largely the encomiums of the press. Every morning at half-past three, and in the evening at nine o'clock. Great efforts have been made to add to the effects of this exhibition. A variety of new subjects have been added to those already presented to the public The Concerts as usual.

Also Pilbrow's Atmospheric Railway model, with explanatory lecture.

ROYAL POLYTECHNIC INSTITUTION.—A Lecture on the prevalent disease in Potatoes, and the means of extracting the starch as an article of food, will be delivered by Dr. Ryan, daily, at half-past Three, and on the Evenings of Mondays, Wednesdays, and Fridays, at Nine. Lectures on the Music of Spain, by Don Joe de Ciebra, with Guitar and Vocal Illustrations, on Tuesdays, Thursdays, and Saturdays, at half-past Two o'clock. Professor Bachhoffner's varied Lectures, with Experiments, in one of which he clearly explains the principle of the Atmospheric Railway, a Model of which is at work daily. Coleman's new American Locomotive Engine, for ascending and descending Inclined Planes. A magnificent collection of Models of tropical fruits. A new and very beautiful series of Dissolving Views. New Optical Instruments, &c. Experiments with the Diver and Diving Bell, &c. &c.—Admission, One Shilling. Schools, Half-price.

TO RAILWAY ENGINEERS, SURVEYORS, AND OTHERS.

LEVELLING STAVES, SCALES, &c., at the lowest prices that can possibly be charged without detriment to the quality of the goods.

Levelling Staves of the most convenient and best construction, now in general use on all the lines under 3. d.

survey, each	38 0
Parliamentary Scale, and Offset for railway surveys, box wood	4 6
Ditto, Ivory	8 6

Curves, &c., made to order on the shortest notice.

WM. HOBCRAFT, Mathematical Instrument Maker, 38, Princes-street, Leicester-square, London.—Orders by post, containing a remittance, immediately forwarded to all parts of the country.

PORTLAND CEMENT of best quality manufactured by J. B. WHITE and SONS, of Millbank-street, Westminster. To be had at their Warehouses Druce's Wharf, Chelsea; Bell's Wharf, Paddington; and Earl-street, Blackfriars.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

Agent for Liverpool, Mr. WYLIE, 56, Gloster-street; ditto for Manchester, Mr. J. THOMPSON, Back King-street; ditto for Chester, Mr. J. HARRISON, Linen Hall-street.

ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architectural and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

KEENE'S PATENT MARBLE CEMENT.

THE PATENTEES of KEENE'S CEMENT beg to draw attention to the use of this material in the works recently executed at the COLOSSEUM, Regent's-park. The POLISHED COLUMNS in the Hall of Sculpture, the ornamental paving in the corridors and conservatories, and much of the stucco on the walls, are specimens of the very successful application of this cement. Patentees and Manufacturers, J. B. WHITE and SONS, Millbank-street, Westminster.

THE PROJECTED RAILWAYS.

ANALYSIS of the PATENT METALLIC SAND, or English Pozzolano, used in the foundations of the New Houses of Parliament, the great Tunnels on the Birmingham Railway, Sea-wall on the Great Western Railway, in Devonshire, and other important works referred to more particularly in the prospectus.

Silica	49	Lime	6
Oxide of Iron	32	Magnesia	2
Alumina	6	Zinc	3
Arsenic and Carbonate of Copper	2		

Price in Swansea, free on board, 6d. per bushel, or supplied in London at 1s. per bushel.

Used as an external Stucco the Metallic Sand Cement is unaffected by frost or wet; in appearance it resembles the best Portland Stone, requires neither colour nor paint, and is entirely free from vegetative cracks and blisters.—Further Particulars on application to Mr. C. K. DYER, 4, New Broad-street, London; and at the Metallic Sand Wharf, King's-road (opposite Pratt-street), Camden Town.

MARTIN'S FIRE-PROOF AND ORNAMENTAL CEMENT.

CAUTION.—Messrs. STEVENS and SON, Patentees, beg to caution their friends and the trade generally against confounding this invaluable Cement with others, erroneously said to be of the same description. S. and S. pledge themselves, that MARTIN'S CEMENT is totally dissimilar in composition and manufacture from every other, and, being a neutral compound, is not only free from chemical agency upon any substance with which it may come in contact, but completely resists the action of the strongest acids. They feel it a duty to direct attention to the following properties, which it exclusively possesses:—

1. It rapidly acquires the hardness of stone.
2. Unlike other internal cements, its hardness is uniform throughout its entire thickness.
3. Its surface (which may be made equal to that of the finest marble) never throws out any salt, and will receive paint in four days, without peeling, when put upon dry work.

It is peculiarly adapted as an internal stucco for walls, skirtings, architraves, mouldings, and enrichments of all kinds, to all of which purposes it has been extensively applied by Mr. Thomas Cubitt on the Grosvenor estate, &c.

For the above purposes, it possesses great advantages over wood, being more economical and durable, resisting fire, damp, and vermin.

For the floors of hall and fire-proof warehouses, its lightness, durability, and uniform surface give it an immense advantage over stone, being, at the same time, much more economical. The most satisfactory references can be given. To be had of the Patentees, Plaster of Paris and Cement Manufacturers, 186, DRURY LANE.

Agent for Liverpool and Manchester, Mr. R. PART, 28, Canning-place, Liverpool.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application to MANN and CO., SOLE AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOUR STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the suction, thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, producecable by no other Paint whatever. It is cheap in its application,—and may be used by any Painter, in any climate, even in the most exposed Marine situations.

GRAINING COLOURS AND LIQUID WOOD STAINS.

HENRY STEPHENS begs to call the attention of Architects, Builders, House Decorators, Painters, Cabinet-makers, and all those engaged in the erection of churches where the appearance of oak is desirable, and those also who are employed in the revival of old carvings, faded furniture, or other ornamental wood work, to his GRAINING COLOURS and LIQUID WOOD STAINS.

The graining colours are prepared in a damp state, and upon so true a principle, that the workman cannot fail in obtaining the natural colour, nor of giving to the work the same effect and appearance at all times. The difficulty of producing a true colour and of preserving the same uniformity with the admixture of earths and oxides, which are the ingredients used in graining, has long been acknowledged. This difficulty is at once removed by these preparations, and the grainer is enabled to confine his attention to his art in graining, without being perplexed in proportioning and mixing his colour.

The LIQUID STAINS are solutions of colours which not only carry additional stain on to the various woods on which they are employed, but when used on the particular wood whose object it is to revive, it combines with and heightens the natural colour inherent in the wood, and is therefore a valuable acquisition to the DECORATOR and to the RENOVATOR of old oak or other carvings. They are also capable of giving colour to the empty and defective parts of veneers and fine woods used by cabinet-makers and others.

In the decoration of churches, castles, baronial halls, and mansions, in which are often found beautiful specimens of ancient carvings; when the colour of the wood is changed and faded, these liquid stains will be found particularly serviceable.

They also impart to woods of inferior character and of soft texture, such as beach, birch, pine, deal, &c., the colour and appearance of such woods (whether oak, mahogany, rosewood, &c.) as it may be designed to imitate, and thus save the expense of more costly materials.

The above preparations for graining and staining for purposes of imitation and of revival, are prepared by HENRY STEPHENS, and may be obtained at 54, Stamford-street, where specimens of their application may be seen, and also at the Office of "The Builder," and Mrs. ROWLAND, Painter and Glazier, 3, Broad-street, Golden-square.

HOT WATER APPARATUS. — The attention of architects, builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of heating churches and chapels, halls, stair-cases, conservatories, forcing and green-houses, manufactories, and warehouses, kilns, rooms for drying timber, &c., and every variety of purpose for which artificial heat is required. Within the last twenty years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises. BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

PROSSER'S EXPERIMENTAL RAILWAY AND BURNETT'S PATENT.

THE attention of Railway Companies, Builders, and others, is respectfully called by the Proprietors of Sir William Burnett's Patent to the Wooden Rails laid down at Prosser's Experimental Railway on Wimbledon-common; part of which, having been prepared by their process, in addition to being effectually preserved from Dry Rot, will be found to exhibit all the characteristics of thoroughly seasoned timber, although only cut down in the month of May last, and prepared while in a perfectly green state. Hydraulic apparatus and Tanks. Millwall, Poplar, nearly opposite Greenwich; Offices, 53, King William-street, London-bridge.

POLONCEAU'S BITUMEN PAVEMENT for paving Foot walks, Terraces, Garden walks, Stables, Coach Houses, Granaries, Corn Stores, and Salt Warehouses. For the exclusion of Damp and Vermin in Basements it is particularly adapted, and for Roofing Dwelling Houses, Porticos, Balconies, and Sheds.

Price 3s. 6d. per square yard.

BITUMEN for covering the Arches of Bridges, Culverts, &c. &c. on Railways and other places (with instructions for laying it down), may be had at the rate of 45s. per ton, by applying to JOHN PILKINGTON, 15, Wharf-road, City-road.

TO ARCHITECTS.

IN consequence of many complaints having been made to the Company, by Architects, of a spurious material having been used in the execution of Works where the SEYSSEL ASPHALTE had been specified for, the Directors, with a view to ensure the fulfilment of any such specification, have authorized CERTIFICATES to be granted to Builders where the

SEYSSEL ASPHALTE

has been used. For the purpose of securing the use of the Genuine Article, Architects and others are recommended to insert in their specifications the "Seyssel Alphalte, Claridge's Patent," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used, gas-tar and other worthless and offensive compositions have been introduced. I. FARRELL, Secretary.

Stangate, near Westminster Bridge, Jan., 1845. Seyssel Asphalte Company.

Books of Instructions for Use may be had at the Office of "The Builder," and of all Booksellers in Town and Country, price 1s.

*** In proof of the necessity of the above advertisement, it may be mentioned, that it has come to the knowledge of the Directors, that in certain works which have been executed by Messrs. CURTIS, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

Also in the case of a work at Lewisham executed by Messrs. ROBERT and DANIEL YOUNG, of 10, Crown-row, Walworth-road, where Seyssel Asphalte was specified for, a spurious article was nevertheless laid down by them.

PLUMBER'S BRASS WORK, WATER-CLOSET PUMPS, &c.—These articles require the greatest attention and care in the manufacture, and will be found superior and cheaper than at any other manufactory. Best Pan Water Closets, 34s.; 2¼ Lift Pumps and Planks, 4l. 10s. 0d.; 3-inch Pumps, 5l. 10s. 0d.; 3-inch Bill Ball and Stop Cocks, 30s. per dozen, and every article in this branch equally low. Every article warranted.—Address, THOS. MILLINGTON, 87, Bishopsgate-street.

VARNISH.

THOS. MILLINGTON begs to inform the Trade, Builders, Painters, and others, that this article can be had at his Manufactory, of the best quality and at the very lowest price. T. M. has long been a manufacturer, and has devoted much time and attention to it, using only the best of gums, and sparing no expense in the manufacture. Fine Pale Oak or Wainscoat Varnish, per imperial gallon, 10s.; Fine Carriage Varnish, 12s.; Copal, 16s.; Body Copal, 24s.; Gold Size, 10s; White Hard, 18s.; Brown Hard, 18s.; French Polish, 18s. per gallon. Paint, Dryers, Colours, ready and ground, and every article in the trade. If quality is taken into consideration, this will be found the cheapest house in London. Address, 87, Bishopsgate-street Without.

FOREIGN WINDOW GLASS.

THOS. MILLINGTON begs to inform his friends, that he continues to receive weekly large consignments of FOREIGN GLASS, which he is determined to offer upon the very lowest terms. Address, 87, Bishopsgate-street Without.

SASH, SHOP-FRONT, AND HOTHOUSE MANUFACTURER.—ESTABLISHED UPWARDS OF 70 YEARS.

87, Bishopsgate-street Without.

THOS. MILLINGTON begs to inform his Friends, that he still continues to manufacture the above in the same manner, and using only the best materials, that have given so much satisfaction for many years past. Every article will be made in the best manner, and the very lowest price charged. Lists may be had upon application. Drawings prepared.

BRITISH and FOREIGN SHEET GLASS, for Horticultural purposes, Sky-lights, &c. may be had at JAMES BROMLEY'S 315, Oxford-street, London, at the reduced prices, also Microscopial Glass, French Shades, Plate and Crown Window Glass. J. B. will be happy to furnish Lists of Prices, or any other particulars that may be required.

DUTY OFF ORNAMENTAL WINDOW GLASS.

CHARLES LONG begs to inform his Friends and the Public, that he can now supply Ornamental Glass from 1s. 3d. per foot superficial; and borders from 9d. per foot, run; and having just built two of the largest Kilns in London, is enabled to execute extensive Orders with unprecedented dispatch, 1, King-street, Portman-square.—Terms, Cash only.

PATENT PLATE GLASS, Sheet and Crown Window Glass, Coloured and Painted Glass, wholesale and retail, at CLAUDET and HOUGHTON'S, Window Glass Warehouse, 89, High Holborn.—Lists of the reduced prices forwarded free on application.

GLASS SHADES.—For the Preservation of CLOCKS, ALABASTER ORNAMENTS, WAX FLOWERS, or any other articles which may be spoiled by dust or flies, are since the repeal of the duty on glass sold at very reduced prices at CLAUDET and HOUGHTON'S Wholesale and Retail Glass Shade Warehouse, 89, High Holborn.

COLOURED GLASS for WINDOWS, —CLAUDET and HOUGHTON, 89 High Holborn, beg to notify that they are now able to supply COLOURED GLASS at prices so greatly reduced as to make it available for many purposes from which it has hitherto been excluded on account of its expense. They have always on hand the largest variety of colours which can be obtained, of which they invite an inspection.—Lists of prices may be had upon application.

SASHES PRIMED and PROPERLY GLAZED, at 5½d. per foot; GLASS ONLY MEASURED; Sheet Glass 6d. per foot; Pancloset, complete, 36s.; White Lead, 26s. per cwt.; Sheet Lead and Pipe, 21s. 6d. per cwt.

Builders, Plumbers, Painters, and Glaziers, supplied with CROWN and SHEET WINDOW GLASS, LEAD PIPE, COLOURS, VARNISHES, BRUSHES, Stained and Ornamental Glass, and all materials generally required by them, at the lowest cash prices. Picture-frame and Cabinet-makers may rely on having their Sheet, Plate, and Flatted Crown Glass selected with the greatest care. Gas-fitters and Glass-dealers supplied with Lamp Shades and Gas Glasses of all descriptions at wholesale prices.—Address, JOHN WINCH, 15, High-row, Knightsbridge.

WINDOW GLASS, MILLED LEAD, and COLOURS, Pumps, Closets, Pipe, Basins, Brushes, Dry Colours, Ground ditto, and all materials at the lowest wholesale prices for cash.

Crown sqr. not exceeding 12 by 10, 5d. per foot.
Sheet squares, not exceeding 12 by 10, 6d. per foot.
White Lead. Milled Lead cut to size.
Linseed Oil. Pan Basins.
Turps. Plumbing, Brass
Warranted Varnishes. Work, &c.

Superior Spruce Oker, for Plasterers and Painters, at 6s. per cwt. Gilders, Print Publishers, Picture Frame and Cabinet makers supplied with patent sheet, plate, and sheet, and flatted glass of superior colour, and carefully selected.

SURVEYORS, CONTRACTORS for PUBLIC WORKS, and the TRADE generally, sending specifications of quantities required, will receive by return of post an invoice at the very lowest cash prices. — For complete lists (priced) apply to R. COGAN, 5, Princes-street, Leicester-square, London.

Also may be had, Wholesale and Retail,
LAMP SHADES AND GAS GLASSES.

Gas Contractors, Fitters, Glass Merchants, and others supplied with any description. Lists of nearly 100 patterns, with prices affixed, sent to any part of the kingdom gratis.

CLOCK MAKERS, ALABASTER FIGURE MAKERS, ARCHITECTS, MODELLERS, and others, supplied with FRENCH ORNAMENT SHADES,

for covering Models of Public Buildings, Geological Curiosities, &c., &c., of all sizes and shapes. List of Prices may be had on application. Bee Glasses, Striking Glasses for Nurserymen, Fish Globes and Confectioners' Glasses, &c., of every size and description.

TO THE PLATE-GLASS TRADE.

THE BIRMINGHAM PLATE and CROWN-GLASS COMPANY beg to call the attention of the Trade, that their LONDON WAREHOUSE, 141, Fleet-street, is now open for the sale of their Crystal Plate-Glass, which for Brilliancy and Colour will be found to stand unrivalled by any other manufactory.—All orders, addressed to B. MOSS, London warehouse, or to the works, Smethwick, near Birmingham, will be promptly attended to.

WALLIS'S PATENT LIQUID WOOD KNOTTING. — This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; a boy can use it as well and effectually as the best workmen: it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20s. per gallon.

VARNISH.—It has long been a desideratum amongst the consumers of Varnish to obtain a good and genuine article; brilliancy, facility of drying, hardness, and durability are the qualifications necessary, but these are seldom or ever found united. The experience of a life-time devoted exclusively to the manufacture of this article, the great and important discoveries of modern chemistry, and the daily improvements in machinery, have enabled Messrs. George and Thomas Wallis to produce Varnishes (both oil and spirit) unrivalled in every respect, and they confidently recommend them to the trade, as deserving of notice both in price and quality.

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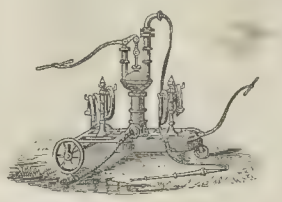
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The Builder.

No. CXLV.

SATURDAY, NOVEMBER 15, 1845.

THE pages of THE BUILDER contain a larger amount of information, connected with the Metropolitan Buildings Act, than is to be found in any other work. They have been open always to communications on the subject; and we have from time to time laid before the public the more important awards and directions issued by the official referees, and all the modifications of the Act, ordered on their recommendation, by the Commissioners of Works and Buildings. Our anxious desire has been to render the operations of the new Act as extensively known as possible, to explain any doubtful points as they arose, and to prevent litigation: to induce the expression of public opinion with a view to an early improvement of the Act, and, by a vigilant *surveillance* of those who were in authority, to aid in securing a proper administration of it. Our efforts in this respect, we say it with gratitude, have been favourably viewed on all hands.

A right honourable lord, interested officially in the administration of the Act, has been pleased to offer his approbation of the conduct of THE BUILDER, and to express an opinion of "its practical utility;" and from the public generally, we could give many gratifying proofs of confidence, if we thought it right to do so. Even at the risk of a charge of egoism, however, we cannot avoid availing ourselves of this opportunity, of mentioning one unexpected testimonial, recently received from a class of our readers, for whom, though humble, we have much respect, and whose interests and progress we desire, with all earnestness and sincerity to advance. We allude to a letter from the Institution of Builders of Foremen (signed W. Allard, secretary), which we should print, if it were not personally flattering.

We have been led without wishing it, away from the simple object of the present notice, which was to say, that from this time forward our opportunities for illustrating the workings of the Buildings Act, will be much greater even than they have been. EVERY AWARD AND CERTIFICATE PUBLISHED BY THE REFEREES, WILL COME BEFORE US THE MOMENT IT IS ISSUED, and the gist of all that are important, will be immediately laid before our readers. Careful references to these cases will be given in the index, so that the volume when completed, will be found of the greatest importance, indeed, we may almost say, indispensable, not merely by architects and builders, but by all who are interested in house property, as owners and holders.

The following are amongst those recently issued:—

CHIMNEY-BARS, CURB-ROOFS, DRAINS, AND COPING.

Mr. T. H. Wyatt gave information against Mr. W. Bellamy, that in building various dwelling-houses in Hackney, he had "done certain matters or things contrary to the provisions of the said Act, namely, having formed certain chimney openings, the jambs whereof project from the face of the wall more than 4½ inches, and the front on either side is less in width than two-thirds of such opening, without inserting proper iron chimney-bars; and having built the walls of the said houses to a height of 10 feet, without having properly built and made good the drains thereof; and having built the party-walls between the said houses, so as not to project 18 inches in front of the curb-roof; and without being coped with brick on edge in cement, or stone, or being plastered with cement."

The referees, by their award, ordered, "that the said William Bellamy do forthwith provide and let in an iron bar over the opening of every chimney in the said houses (not already provided with the same), as directed by schedule F of the said Act; and that the said William Bellamy do forthwith pull down and replace, by a proper external wall, of the thickness of 13 inches at the least, all the lower and nearly vertical portion of the curbed roof in the back of each of the said four houses, or do make the same conformable to the said Act by adding, upon stone corbels, and to the satisfaction of the surveyor of the district, so much to the party-walls between such roofs as that the said party-walls shall project, at the least, 1 foot and 6 inches beyond every such roof, measured at a right angle with the back of the rafters of such roof, or do in some other way make the same conformable to the said Act; and that the said William Bellamy do forthwith finish the top of each of the said party-walls, with some properly-secured and sufficient water-proof and fire-proof covering, as directed by the third part of schedule D of the said Act.

As regards drainage, the award sets forth what may be important to many of our readers: it states, that "upon the express understanding that it is intended to make sewers, and that the same are now about to be made, and that the said William Bellamy has paid, or has engaged to pay, seven shillings per foot towards the expenses of the said sewers or part thereof, and that it is his intention to form proper drains, from all of the said houses into such sewers as soon as the same shall be made, and inasmuch as many instances have occurred, in which buildings are commenced in streets and roads, in which sewers have not been built, but in which it is the declared intention of the parties immediately to build sewers: and inasmuch as the said official referees are of opinion, that the intention of the said Act to promote the improvement of the drainage of buildings would be defeated if, in such cases, cesspools were made, and the buildings drained to such cesspools instead of sewers, and have therefore determined to recommend to the Commissioners of Works and Buildings a modification of the said rule, to the effect that it shall be lawful in such cases to defer the making of such drains, with the special consent of the official referees first had and obtained,"—they will make no direction thereon, until the result of such recommendation be known.

TEMPORARY WORKSHOPS.

Mr. S. Fowler having erected a workshop at Bermondsey for temporary use, not in accordance with the Act (through ignorance), received notice from the district surveyor to that effect, and appealed to the referees.

It was admitted that the external inclosures were not wholly formed of brick or of stone; "that the said Building is detached from any other building, and that it is separated from the next adjoining premises by a brick wall; that the roof is covered with pantiles, and that no fire-place has been built therein; and further, that the said building has been built as a temporary workshop for the execution of a pressing contract, and that it will be pulled down in the course of four or five months from the date of hearing."

Mr. Hosking determined "that the building in question is not conformable to the said Act, but I defer to make any direction thereon for a period of six months from the 22nd day of September last."

INSULATED BUILDINGS.

With reference to an application from Mr. Lee, for leave to erect smiths' and coopers' shops (of timber and wood-work) at Wandsworth, at the distance of 22 feet from one building, and 25 feet from another, both in his own occupation, the referees awarded, "that if the buildings be in the same possession and occupation with the proposed building, and be themselves insulated within the meaning of the said Act, and if the proposed building be so situated that there be not within 30 feet therefrom, any land or any building not in the same possession and occupation therewith, then such proposed building will be an insulated building within the meaning of the said Act."

Wood construction was therefore permitted.

SLAUGHTER-HOUSES.

With regard to a request by Mr. Weymouth, to know, amongst other things, whether a small slaughter-house, at Crouch End, Hornsey, was a building of such a nature that, in accordance with the 55th section of the Act, no structure could be erected nearer to it than 50 feet, the referees decided, "that if the slaughter-house be used for the slaughtering of animals for human food only, and be not used for the business of a general slaughterer, but in connection with the trade of a retail butcher, and particularly with the trade of a butcher's shop thereto adjoining, then the said slaughter-house is not to be deemed to be a building used for the business of a slaughterer, or for a business noxious or offensive within the meaning of the said Act."

OBSTRUCTION OF LIGHT AND AIR.

Messrs. Elger and Kelk, being about to erect premises at the back of No. 16, St. James's-square, which Mr. Howell, the owner of No. 15, considered would obstruct the light and air of his premises, applied through his architect, Mr. Marsh Nelson, for the interference of the official referees to prevent the builders from proceeding. The opinion of Messrs. Barry, Hardwick, Tite, and Pennethorne confirmed his view as to the obstruction. An area was to be left as prescribed by the Act. It was contended for Mr. Howell that if the referees were called on by the Act (as is the case) to prevent any *projections* from a wall which would obstruct the light and air, or be injurious to the adjoining houses, the Act could not permit the wall itself to be built or raised, so as to effect in a greater degree, that which the projections from it would do in a smaller degree.

The referees determined that so far as related to the interruption of light and air, they had no jurisdiction in the matter referred to them.

SCHOOLS AT CARDIFF.—A building for a day-school on the British system is now being erected in Cardiff by subscription, principally of the Baptists in that town and the vicinity. The style is Tudor. Mr. Clinton is the architect.

THE ROYAL SOCIETY.—The session will commence on Thursday next, the 20th instant. The anniversary meeting will be held on Monday, December 1st.

CLAY SOILS AND CONCRETE.

SIR,—The observations in No. 142 of THE BUILDER, by Henry Liddell, on the dangers accruing to buildings erected on clay soils, without due precautions being given to the foundations, and the instances which he brings forward of the fatal results exemplified in the buildings about Hull, are of serious importance, and merit the consideration of all practical persons. I will venture to make a few additional remarks.

In all foundations, but especially in uncertain soils, a great degree of security is obtained by making the footings and lower part of the walls of increased thickness. The foundations, from the better bond thus obtained, are less liable to fracture and are more capable of bearing heavy weights by the greater spread of surface over which they are diffused. In illustration of the security thus obtained, the use of snow boots in Canada has been referred to, which extend, almost like sledges, under the feet, and thus effectually prevent the impression which the small extent of the bearing surface of a foot would inevitably make. By the diffusion of the weight scarcely any compression takes place, and the same result may be obtained by similar means in soft or clayey soils, by extending the width of the footings.

In clay soils, another point to be attended to, is that the foundations be of sufficient *depth*, to prevent the soil on which they are constructed being affected by the changes of the weather, from wet to dry, or otherwise. The cracking of these soils by the heat of summer, and their swampiness in winter is well known. If it is necessary for an architect to take into consideration the effect of the dilatation of iron by heat, how much more should he consider the effect which such changes have upon a soil, the very foundation of his building. In clay lands, I think the bottom of the footings should never be less than five feet below the surface, to avoid the effects of temperature. The drainage for buildings also on these soils should not be made *below* the level of the foundations, as great injury is likely to arise from withdrawing the natural moisture of the ground beneath them. I have known serious injury to arise, and a building to be fractured in all directions, from the sinking of a well in a clay soil, whereby the under soil was drained of its moisture.

Your correspondent alludes to concrete, and doubtless it is a most efficient means for securing good foundations, but I apprehend its beneficial effect arises, in a great measure, from its enabling the builder to effect the two conditions above named, at a moderate expense; viz. of extending the width of the footings and increasing the depth of the underground work:—for it must be remembered that the concrete itself is only an artificial wall, and subject therefore to all the contingencies which may affect the soil on which it rests. In addition to concrete on clay soils, I have adopted the plan (and with much success) of building all the footings four or six courses in height of brickwork in cement, each course strongly bonded with iron hooping, laid both longitudinally and diagonally. Iron hooping has been looked upon so much as a mere substitute for wood bond, that its advantages of being a connecting tie to the individual bricks, and the increased mutual strength which they thereby obtain, are not sufficiently appreciated. I make this observation, as the use of iron hooping in footings has been objected to as unnecessary and useless by several practical builders; but I hold that the footings thus constructed of sound stocks and cement, linked together by iron hooping, form a stronger and more compact bearing surface than could be obtained by Yorkshire landings. The connecting bond is in no part broken throughout the footings, as must be the case with landings.

I should have supposed the use of concrete was too well known to need your correspondent's inquiry, had I not myself found a difficulty sometimes of getting it executed in the country. In London, the ballast from the river bed is invariably used, but in the country, any clean pit gravel, fragments of stone and brick, the shingle from the sea-shore, and broken flints, may all be advantageously used, mixed with coarse, rough sand sufficient to fill up the interstices. Six parts of this material with one of ground lime is recommended; or, if the lime is strong and hydraulic, a smaller portion of it may be used. As it is difficult in the country to obtain ground lime readily, a labourer can be set to pound it into powder. To slake it with the other material is wasteful. I subjoin a translation from one of the chapters in Philibert de L'Ome's work, published in 1568, giving an account of the use of concrete in his time, which I have not seen noticed in any publication on the subject.

2nd Book, Chapter 2:—"How foundations are to be made, when large stones cannot be obtained, for building bridges across rivers, harbours on the sea-coast, and other works in marshes and in water.

"The excavations being made, whether for houses, harbours, bridges, or buildings, in a marshy soil, or even on land, and if being deep and wide, stones of a large size cannot be obtained for the foundations, the best and surest method is to prepare a *mortar*, composed of quick-lime recently burnt, as described in the first book, mixed with a river sand, which contains a quantity of pebbles of all sizes, provided the largest be not larger than the fist, or the size of an egg, and that the whole be also interspersed with smaller pebbles and gravel, such as are usually found in rivers. This material, moistened with water and mingled with lime, serves both for mortar and stone, and mixed with a sufficient quantity of sand, must be thrown at once into the excavation without any labour from the mason's trowel. It is only necessary to dress it with the spade. Having thrown in a layer, about half a foot in thickness, large single stones may also be thrown in, and mixed here and there with it as may be convenient, but without touching each other; after this, you will again throw upon them the mortar of pebbles and gravel as before done, and this must be repeated till the excavation is full, throwing the whole from above with all sorts of small pebbles. This composition thus executed hardens and solidifies so firmly in the foundation, that being heaped up in a mass, and bound together, it becomes a uniform body or rock, such as Nature forms, of a single block, and it is so strong and hard, that when dry, it cannot be broken either by piles or any other instrument, nor can the pebbles be separated from it without breaking them in pieces. The reason is, that the excavations, retaining their humidity dissolve the mortar and prevent its drying for some time, so that the large gravel and pebbles during this period imbibe and draw in the fatness and power of the lime even to their very centre, as I have myself observed; for on examining the pebbles thus employed, and breaking them, I have found them white to their very centre, and of the same colour as the lime. Quarry stones can do the same, for they attract the fatness and power of the lime. A foundation of small size cannot be executed in this manner, as the stones or pebbles would dry too rapidly, and before they had time to absorb the virtue of the lime. Lime made from hard stone or marble is the most penetrating and proper for this purpose, but observe especially that soft free-stone lime is useless."

It is needless to continue the extract, and your readers will probably not understand the old architect's philosophy; but the chapter is interesting as evidencing the use of a material three centuries ago, which we are inclined to consider a modern discovery. I am, Sir, &c.

October, 1845. T. L.

*** In the prize essay on concrete, published in the first part of "Transactions of Institute of British Architects," 1836, numerous instances of the use of concrete in very early times are cited. In reply to our first correspondent, Mr. Liddell, we give the following brief extracts from the essay in question.

"The concrete now generally employed is compounded of Thames ballast and Dorking lime, in certain proportions, varying, according to the opinion of the user and goodness of the materials, from one of lime and four of ballast, to one of lime and twelve of ballast. They are sometimes mixed together, slaked as mortar, and thrown into the foundation from a certain height; sometimes the ballast is laid on the site of the intended erection, and the lime poured over it, in the shape of grout; while at other times the spaces to be concreted are filled with water, and the lime and ballast, having been first mixed in proper proportions, are thrown into it dry. Instead of gravel, Kentish-rubble and broken pieces of granite, properly grouted, have been extensively employed, more especially by Sir John Soane, who has used a preparation of this sort for most of the public buildings in Westminster executed under his direction; viz., at the Law Courts, the additional buildings to the House of Lords, the library of the House of Commons, the Board of Trade and Privy Council Offices, the State-Paper Office, and others. The foundations of these edifices were formed of granite, or other hard stone, broken in small pieces (none exceeding the size of an ordinary hen's egg) and laid in layers, closely rammed, and grouted every third layer with a grout composed of Dorking lime and sharp river-sand; other layers of similar pieces of stone were then laid, and rammed and grouted as before; and so the operation was repeated, until the required thickness was attained."

"In order properly to apportion the quantity of lime necessary to be used with the ballast, it will be well that you ask yourself this question: What are you in reality doing when forming a mass of concrete? or rather, what *ought* to be done? To this the answer must be, that you are building a stone wall.

The pebbles, then, are *the materials with which it is to be built*, and must be regarded only in that light; so that in considering the quantity of lime necessary to be added, in order to form a *proper mortar* wherewith to unite them, regard must alone be had to the sand contained in the ballast, and according to the quantity and quality of that ingredient must be apportioned the lime. It is true, that upon the proportion borne by the pebbles to the mortar, the strength and goodness of the concrete materially depend; but this, except under peculiar circumstances, must but little interfere with the preparation of the mortar: it is another question separately to be considered.

Now, practice and a variety of experiments have shewn that Dorking stone lime, being ordinarily good, will form a most excellent mortar when mixed with three times its own quantity, by measure, of sand; and although it is quite certain that if it be well burned, ground, and used hot,—and thus it *must always* be for concrete—it will make excellent mortar when mixed with four of sand,* even better if the lime be powerful than with less, this may serve us as a generally admitted good proportion.†

With respect to the amount of stones essential to a good concrete, it is generally maintained by those practical men who have thought upon the subject—unfortunately but few—that it should be double that of the sand by measure; and my own experience fully bears out this belief."

Various experiments shewed that *two parts of stones and one of sand, with sufficient lime—dependant on the quality of the materials—to make good mortar with the latter, formed the best concrete.*

Thames ballast, of the best sort, consists, nearly, of one of sand and two of stones; in ordinary practice, one of lime to seven of ballast is used, and found amply sufficient.

ARCHITECTURE AND ART IN MANCHESTER.

AFTER a long period of depression, art in Manchester has sprung into vigorous existence. The tide of prosperity in trade has influenced architecture, and the town is now a striking example of prevailing good taste. An increased want of buildings of every description, churches, houses, warehouses, manufactories, and public buildings; the formation of several new and large streets, and the widening of old ones, have created a demand for the services of architects, such as we do not recollect any other instance of. A new school of architects has sprung up, including a large number of individuals, many of them very young men; and it is greatly to the credit of the merchants of the town, that they have had the judgment to use the services of architects, in buildings, in which they are seldom appealed to, and to the credit of the architects, that these appeals

* It was usually thus compounded by the late John Nash, Esq.

† Vitruvius says the Romans used three parts of sand to one of lime; but Pliny says four to one. There is little doubt but that their opinions were as various as are ours. Dr. Higgins recommends one of lime *by weight* to eight of sand in his "Treatise on Calcareous Cements," p. 780.

have been replied to by them, almost universally, in the best manner, and so as to confirm the impression of the advantages to be derived from professional assistance. The speculative mania has infected Manchester, probably in a greater degree than any other place in the kingdom; and it would be easy to name several most remarkable instances of good fortune. Tradesmen, attorneys, surgeons, dentists, and many more needy adventurers of one time, we now find metamorphosed, every man of them, into share-brokers. They are the monarchs of the day; note-book and pencil in hand, they crowd the Exchange, and reap all the advantages of the lucky game. The quondam shop-boy, to whom a yard-stick was the familiar instrument of success, and who sped from his ill-digested dinner punctually to the hour of two, now books the name of a new client, and whistles as he books it, or alights at the door of the stock-exchange, in all the consciousness of well-appointed horse-flesh. The man of lint and bandages, whose early career was brightened only by an occasional tooth, now invites you to dine at his country-house, and calls for you in a carriage, which people look at, as it runs by. Amidst all this good fortune, in which all, for the present, seem to be partakers, there are many who condemn, and who talk of impending ruin, yet none who show the influence of example; few to recollect a time when shares were at a discount, and scrip could be had for asking. People consider the questionable issue out of the approaching climax, but, with the infatuation of the hazard-table, hope, that one more cast may yet yield gain. In drawing attention to the prosperous state of architecture in Manchester, we have thought it necessary thus to allude to the causes, which might soon there, as well as elsewhere, produce a state of things the exact reverse; and should the scarcity of money be felt for some period to come, as seems too probable, the arts will be affected to a disastrous extent. But to return to our more immediate object.

It is not only in the *art* of architecture, that great progress has lately been made; an equal advance is apparent in the arts of construction. The railways have brought excellent stone from the immediate neighbourhood of the quarries, at so low a rate of carriage, that its cost is often exceeded by brick work, and consequently it is much used for whole fronts of buildings. That bad substitute, stucco, generally unsightly, and often entailing an *annual* expense, is seldom made use of, and we could wish that everywhere, where stone is expensive, people were equally aware of the superior advantages of good brickwork. The stone most used is known as "Yorkshire pier-points;" it is a sandstone of good yellow colour, and according to one architect, is nearly as cheap as the best red facing bricks, and quite as cheap as what are called in Manchester "seconds," and much cheaper than brickwork, according to another. It is used with the natural fracture for the beds, and is rough dressed on the face; it is generally laid in blocks, averaging perhaps, 9 inches by 6 inches on the face. It is generally backed with brickwork, but sometimes with the red sandstone of the neighbourhood (Collyhurst stone), of which the Collegiate church is built, but which is only adapted for parts protected from the weather. Collyhurst stone is, at present, much cheaper than brickwork. For buildings and for finer work "Summit stone" is still used; it is a very good stone, and is highly crystalline. The use of iron is still greatly extending in Manchester, where the principles of its application are well understood, and all the casting establishments are in active operation. The most novel application of this material is in the Independent Chapel, erecting in Salford, near the Broughton-bridge, from the designs of Mr. Richard Lane. The roof is framed of cast-iron principals, curved, and meeting at the top in a Gothic arch. Each half is in two pieces firmly bolted together, and the principals are connected by tie-rods. The feet of the principals are spread out, and rest on blocks of stone, and are further supported by iron columns, bolt into the wall, which stand upon stone pedestals at the ground level. There are shoes, cast on the principals, to receive the purlins. There will be a school-room underneath. There are two heights of iron columns, the upper supporting the iron girders for the galleries. These girders are curved in form, so as to approach nearer to the section of the steps of the galleries. The roof may be made a very effective feature; and that a similar treatment of iron work in Gothic architecture is desirable, has been pointed out in a former number of this journal.* The style adopted in this building appears to be "perpendicular." The windows are in two heights, and the roof spans the whole width of the building. The principal front will have a window with crocketed canopy over the entrance door, and is divided into three compartments by canopied buttresses, surmounted by crocketed pinnacles. The style is not well treated, and the mouldings are exceedingly meagre, and spiritless, but the constructive effort is worthy of some praise.

St. Simon's Church, Springfield-lane, is not far from that just described. It is on the Salford bank of the river, in a very favourable situation for the display of architectural skill. It is also by Mr. Lane, and is certainly an improvement upon the Independent Chapel, though neither much better, nor much worse than the general run of cheap early English churches. It consists of a nave, and aisles, a short chancel, with octagonal east-end, transepts, a south porch, and a western tower. It is built of Yorkshire stone, backed with Collyhurst stone. The tower will support an octagonal spire, rising to the height of 150 feet. The chancel will be groined, and will have three windows to the east. At the ends of the transepts will be windows of three lights, with quatrefoil tracery, and the aisles will have windows of trefoiled tracery, with two lights. There will be cusped windows in the clerestory, and a window of three lights over the western door. The tower is ascended by a turret in the angle formed by the tower, and the north aisle. There will be open benches.—Near the Norman church, built about four years ago, near Broughton Bridge, are some schools in the same style, and though we are not usually inclined to commend its adoption, we must allow, that it has here been rather effectively made use of.—St. James's Church, at Birch, is a very elegant structure in the early English style, and is, in every respect, a striking instance of the present tendency in church building. The estimated cost is 3,500*l.*, but this is exclusive of the spire. It will accommodate 700 persons, 400 of the sittings being free. The design is by Mr. Derick, of Oxford. The plan consists of a nave and aisles, with the tower at the south-west angle, a chancel, a chamber for the organ in the position of a north aisle to the chancel, and a sacristy, north of the chancel. At the west end will be a large double window, surmounted by a quatrefoil, and in the aisles will be double windows. At the east end will be a triplet, and a rose window. The clerestory will have windows and arcades. The proportions of the parts, throughout the whole church, are excellent, especially in the piers and arches. The roof is an open timber one, of very good design. All the arrangements of an old Gothic church will be here reproduced; and there will be sedilia, credence table, and piscina (?) When quite completed, there will be a considerable amount of decoration; and it seems a judicious proceeding to provide for future decoration, by leaving blocks of stone, which may be carved into bosses, and corbels, as opportunity may arise. Subscription lists have been opened for different objects of detail, and these are filling rapidly.—St. John's Church, at Longsight, is in the early English style, and is from the design of Mr. Gregan. The plan consists of nave and aisles, tower at the south-west angle, and chancel with short aisles, and a sacristy, on the north side. The church has no great amount of decoration, but is effective in outline, and highly creditable to the architect, who had many difficulties to contend with, from alterations in his design. The three chancel arches are effective. There is a stair turret to the tower, a south porch, and a north door. There are two lancet windows at the west end, and an eastern triplet. The aisle windows are plain lancets coupled. The roof is of plain open timbers. It seemed, that the capitals of the pier arches would have been more effective, had their mouldings been a little bolder.—A church, now building of terra cotta, at Platt, we must reserve for future description.—The church of the Holy Trinity, in the Stretford New-road, is in the early English style, and is a good composition, with a considerable amount of decoration. It has a square tower, with detached shafts, arranged at the various stages in a very effective manner. It is a cross church, with a western tower, a north porch, and short chancel. There are aisles to the nave. The porch is inclosed with gates of wrought iron, which are in good taste. In this porch there is a benatura, or stoup for holy water. We suppose it is not used, and see no reason why it should be there. The inclosure-wall and gates are excellent. The interior of the church is of lofty proportions. It is fitted up with open seats, and has a row of candelabra, in the form of floriated crosses, down each side of the nave. The font is a copy. The pulpit, which is of stone, stands on a short pillar. At the opening of the church, it stood on the north side of the chancel arch, in the angle, formed by the responds of the chancel, and transeptal arches. It was soon found, that the clergyman could not be heard, and it was therefore brought out to the western face of the transeptal respond, and there is now no difficulty in hearing. This alteration, which was one demanding some constructive and artistic skill, has been very ably managed by Mr. Travis, architect, of Manchester. The architects of the church are Messrs. Scott and Moffatt, of London.

The church at Red Bank is one, which we are sorry we cannot speak of in terms of commendation. It consists of nave, aisles, and chancel, with porches in the usual position of the chancel aisles, the east end being next the street. The aisles are very lofty, with coupled lancets of enormous length. These aisles have lean-to roofs, with sham-gables towards the street. The style intended is Early English, but has some mixture of "perpendicular," and much of a style, not to be associated with any thing previously known in architecture. The porches have each two gables, and in the centre a door with square label head. The buttresses are surmounted by pinnacles of most attenuated form. The enclosure wall and gates might pass for meagre imitations of those of the Holy Trinity Church. The gable crosses, the triangular window, with its volutes, or twists at the angles, the bell-turret at the end of the south aisle, are all points which a certain contemporary, who is less given to encouraging criticism than THE BUILDER, would do well to notice. There does not seem to be any sufficient reason for placing the entrances at the east end. They are designed in what some one called the two and two principle, though, *in*side, one of them is a vestry. Certain chimney-pots are to be seen on the roof. There is an open timbered roof, and some very bad stained glass. The church has pews. The proportions of the interior are very ill arranged. The chancel roof is of steeper pitch than that of the nave.—The Catholic church of St. Wilfrid, Hulme, of which views have been published by Mr. Pugin, the architect, in the two papers in the *Dublin Review*,* is a plain structure of red brick, with very little stone, and is in the Early English style. The chancel has lately been decorated in colour and gold, and has a very splendid appearance.† Approached from the nave, which is extremely plain, it is strikingly effective; and is not less so by night, when we saw it, lit up with numerous candles, than it is by day. The stained-glass windows of course require the effect of daylight. The diapering, in red, blue, and gold, is carried over every part of the surface, amongst which may be discerned, the lily, emblematic of the Virgin; the monograms of the Saviour, and the letter *W*, for Wilfrid. In the heads of the arched compartments of the reredos, are the heads of saints, painted by Mr. Keeling, of Manchester. The decorative printing was executed by Boardman. There is a large proportion of blue in the colouring, yet the effect is by no means cold. The roof, which is of plain rafters, is powdered with stars. All the accessaries of the altar, which would require a long description, have been designed by Mr. Pugin, and evince much thoughtful consideration. There are three sedilia. The piscina is elaborately embellished; it has a deep bowl, and is furnished with a shelf for the cruets.

* Vide "Gothic Ironwork," *ante* p. 397.

* Ecclesiastical Architecture, by A. W. Pugin, reprinted from the *Dublin Review*.

† Some account of these decorations appeared, *ante*. p. 356.

The rood screen is richly embellished with colour and gold, and supports a rood, with images of the Saviour, of the Virgin Mary, and St. John. The chapel of the Virgin is in the north aisle of the chancel, and is also embellished with colour and gold. The eastern triplet, and rose window above it, are of elegant design, and all the east windows are glazed with stained glass. The church itself, exclusive of the decorations, was erected at a cost of 5,000*l*. The font is a very beautiful one, of original design. The tower is not yet completed, it will, probably, not be as represented in the *Review*. The house of the priest immediately adjoins the west end; it contains some good fire-places and grates. A remarkable feature in the exterior of the church, is the weathering out of the base of the wall, to the extent of the projection of the buttresses.

A Presbyterian church, and schools have lately been erected near the workhouse, from the designs of Messrs. Travis and Mangnall. The architects had great difficulties to contend with, which we are bound to say they have surmounted in an able manner; and, notwithstanding the restrictions of site, and the injunction placed upon them, to avoid all impediment in the nature of piers, they have succeeded in producing a highly meritorious work. The style is perpendicular; there is a square tower, and an open timbered roof. The schools are to the east of the church. The whole is built of stone, and will cost 3,400*l*. Much skill is shewn in the arrangements for ventilating the school-room: the air is admitted by three apertures, which take the form of quatrefoils, and thence by perforations through the floors; being carried through other apertures into the space above the ceiling, whence it passes out by the louvre on the ridge of the roof.

A new Catholic chapel is in progress in Chapel-street, Salford. It is in the Decorated style, and is wholly of stone. The architects are Messrs. Weightman and Hadfield, of Sheffield. The plan consists of a nave and aisles, four bays in length, a chancel, a north transept and chapels. It occupies a large space of ground. The windows contain some good tracery.—A new steeple is being built to Christ Church, Salford, which is Italian in style, in accordance with the rest of the church.—The Methodist chapel at Red Bank is remarkable only from its ill-success as an attempt. It is designed by a mason, and is built of red brick and stone, with clumsy and ill-proportioned details. The roof, in part an open timbered one, is very faulty.—Some alterations are making in the seats of the Collegiate Church, under the direction of Mr. Gregan, and it is proposed to devote the western door to its original use as an entrance. There are many other churches in progress in the neighbourhood of Manchester, which we have not here space to notice.—Amongst the schools we may mention, the Roby schools, in a street leading out of Portland-street. The style is Elizabethan, and they were designed by Mr. Walters, who has succeeded in producing a very meritorious work. The building is supported upon iron columns, being built over the play-ground. The lower story has a series of arches of different sizes, filled with iron-work. Above are lofty bow-windows, projecting chimneys and gables; the whole arranged in a very skilful manner. The materials are red brick and stone.

The Queen's Hotel, in Piccadilly, is also by Mr. Walters. It is a large building in the Italian style. The porch is projecting, with a broken pediment. The capitals of the pilasters are original, and in very good taste, and this is equally true of some other ornamental parts.—The station of the Manchester and Birmingham Railway is a very clever design. It is considerably elevated above the street, the carriage ascent being by a long inclined road, and that for foot people by a staircase. The principal building is entirely of stone, Italian in style. The front consists of a projecting centre, with a large segmental-headed gateway, and two wings. Each wing has a door and window on each side, the mouldings, rustics and basement, being well designed. The cornice is peculiar in the stone imitations of tiles, which project to the edge, from about two feet back. There are two heights of windows, the upper ones being square. The basement in the street is of brick, the entrances to the staircase being of stone. Each entrance has an arch rusticated, inclosing a doorway flanked by an order. The stairs are ascending and descending in the same well-hole, quite distinct, so that the two streams never meet, and as this arrangement is not common, we subjoin the dimensions. The well-hole, is 22 feet 9 inches square in the clear, and the height to be ascended 29 feet. The stairs are six feet wide, and each tread is 12 inches. There are 72 steps and landings, each riser being nearly 5 inches high.—Two wings have been added to the Manchester workhouse; they are of good plain brickwork. The offices near this building pleased us much. They are in the Italian style, of red brick, with stone dressings. The cornice, coins, and decorations of the windows are all excellent, if we except those of the upper range of windows, which are rather too meagre. The bell tower would have been improved by an addition to the height. The central doorway and porches manifest much ability, with some novelty. The architect is Mr. Dickson.

The greatest change in the architecture of Manchester is apparent in the warehouses; in many of which there is much architectural display. That of Messrs. Philips and Co., in Church-street, is of brick and stone; the windows having architrave and cornice. The whole is of "fire-proof" construction, though its safety is interfered with by the central well-hole staircase, adopted for the advantages of light, an arrangement lately much in vogue in that class of buildings. The rapidity with which fire was communicated from floor to floor, by this arrangement, in several instances, led the insurance offices to increase the rate for that class of buildings, and they are now seldom adopted.—There are many other warehouses of red brick with stone dressings; one in the Oxford-road, with a stone basement, enriched with pilasters. Some of the warehouses have very good doorways, particularly one in George-street. Mr. Walters is the architect of a warehouse in George-street, which has the entire front of stone, backed with brickwork. The work is rough dressed: it cost 5,500*l*., which is less than it could then have been built for in brickwork. The design is in the Italian style, plain, but expressive of the use.—Near this warehouse, we noticed another, with a stone front, finished with a pediment. There is also a warehouse, building in Falkner-street, of stone, in which there is some attempt at design, the upper stories having an order of Grecian Doric columns, with a fret in the freize; but we cannot report favourably of the result.—The joint station of the Manchester and Leeds, and Manchester and Liverpool railways, at Hunt's bank, is a wonderful work for any age. The line is carried across the river, and the road, by bridges, each of one arch, of great span; and as works of construction, they are, perhaps, unrivalled. The passengers' shed above is of great length, and has a roof of wrought iron. To form the road for carriages, it was necessary to arch over the river Irk, for some distance. Some new offices are building at this spot, in which fire-proof construction is largely used. The ground had to be excavated from 31 feet to 37 feet down for the foundations, and the difficulty must have been increased by the near approach to the river. Near the station, is the Palatine Hotel, a plain Italian building of stone, but in good taste, in which there is a staircase wholly of iron. It was executed by Bellhouse and Co., and whilst admirably conducive to its object of providing a means of escape from fire, is not inelegant, and may be given as an example of the successful treatment of ironwork. The strengthening ribs beneath each tread are arranged, so as to intersect each other, with good effect, when seen from below. Some gilding might be introduced with a good result.—The directors of the Bank of England are erecting a new branch bank in King-street. It is from the designs of Mr. Cockerell, but is not sufficiently advanced to enable us to speak of its merits. It is expected to cost between 17,000*l*. and 18,000*l*. In private houses, less progress has been made than in larger buildings. Some of the Gothic houses lately built, as for example in Broughton, are the most whimsical designs, we ever saw. We ought, however, to mention, that the Broughton rectory and schools are creditable productions; and a chancel in the decorated style is about to be added to St. John's church by Mr. Gregan.

The Free Trade Hall was lately decorated for the Anti-Corn Law Bazaar, by Grieve, of London. It was styled a Tudor Hall, but had very little in common with that class of apartments, further than the character of the painted decorations. These were done on canvas and then nailed up; the colours were red, blue, and gold. The dimensions of the hall are 136 feet by 105 feet, and on the late occasion of the Athenæum Soirée, it is stated that 3,800 persons were present. Some mention of this meeting was made in a late number.* The Manchester Exhibition, which has now closed, contained some good pictures. Poole's picture, of Solomon Eagle preaching, gained the principal premium. There was also Roberts's Interior of Roslin Chapel, and Stanfield's Castle of Ischia. The architects seem to have quite given up contributing; the only drawings worthy of praise were a design for a Gothic church by T. Worthington, and Pullan's clever design for the Queen's robing-room, lately in the exhibition at the St. James's bazaar. The last has been deservedly rewarded. In saying there were few architectural drawings, we had almost forgotten, some attempts, which are so bad, that the very porter ought to be ashamed of them. Martin had some good drawings, one of them rewarded, and, on the whole, the exhibition, which was of great extent, had several pictures of sufficient merit, to make us regret the presence of some glaring exceptions. The hall has lately been repainted, and a plentiful application of the brush, having been given to the casts of the Elgin marbles, these fine works, which were presented by George the IV., have lost nearly all their beauty.† * *

THE IDENTIFICATION OF ARCHITECTS.

Sir,—That architects should affix their names to their productions as other artists, at least sculptors and engravers do, would seem to be only reasonable and proper, and had such always been the practice, we should now know with certainty, who were the architects of many structures whose authorship is either entirely unknown, or exceedingly doubtful. For instance, it has never been clearly decided if the late Royal Exchange, and Temple Bar, ought to be attributed to Wren or not. In some few cases, indeed, the authorship of a building is of such universal notoriety, that its architect's name cannot possibly be unknown or ever fall into oblivion. One would as soon think of asking "Who wrote Shakspere?" as of inquiring who built St. Paul's, who made the alterations at Windsor Castle, or who is erecting the new palace of Westminster? But there are a great many other buildings, some of them of sufficient public note, the names of whose architects are not known either to the public or to architectural writers. In this latter class is the India House, which has all along (till very lately, when it has for the first time, I believe, been claimed for Holland, the architect of Carlton House), been confidently attributed to Jupp, who was, it seems, only the East-India Company's surveyor, and who certainly is not known to have ever done any thing else.

If it matters not at all whom buildings are by, why is so much importance attached to the ferreting out from old records the names of mediæval architects, which when brought to light are mere names, *nominum umbræ*, and only so many letters of the alphabet?

It is not, indeed, to be recommended that architects should display their names on the fronts of buildings, as conspicuously as those of "Barclay and Perkins" meet our eyes upon many *public* structures, that make no secret of their publicity. But a name and date may be recorded much more modestly, and where it may not be observed until sought for; for which reason they ought to be inscribed uniformly in some one particular situation about the level of the eye, or rather below than above it. Basevi did so in Belgrave-square, where his name may be read on a plinth next one of the porches to the houses; and the same has also been done in one or two instances by other architects.

BUDOWNIK.

* Vide p. 526.

† For some remarks on this disease, vide "The Plague of Whitewash," p. 39, *ante*.

LIGHTING AND VENTILATING.

The lighting and ventilation of the Central Criminal Court are much, spoken against. During a trial there on the 1st inst. the Chief Baron complained that he could not see the gentlemen of the jury, and that counsel were exposed to the same inconvenience. Mr. Clarkson hoped to be excused if he suggested to his Lordship that he should use his influence with the city authorities to relieve the bar, and indeed every person sitting in the body of the court, from the intolerable annoyance which arose from the operation of Dr. Reid's system of ventilation. At one moment they were exposed to a volume of hot air which was insupportable, and at another, to currents of cold wind, forced into the court by the workmen engaged outside. He could assure the Court, that it was almost killing his brethren of the bar, two of whom were now suffering in consequence of their attendance in court, and consequent exposure to those varied currents, during the present session. The Chief Baron said, that he had taken a severe cold on Wednesday last from, he presumed, the same cause.

The Jury, at a subsequent period of the day, made an appeal to the Court, to give directions that they might be relieved from the cold draughts of air which were poured upon them. Mr. Ballantine remarked that the nuisance was most serious, in its prevention of the due and proper administration of justice. The jury were more likely to be thinking how they should escape from stiff necks and sore throats, than to be attending to the case submitted to their consideration.

In connection with this subject we have received the following letter:—

Sir,—It was not without considerable surprise that I read in the *St. James's Evening Chronicle* of the 4th inst. an account of the defective state, or rather the complete failure, of the system of ventilation adopted at the Central Criminal Court. It appears the court and jurymen were seriously affected with colds and sore throats, by the hot and cold air alternately admitted. If this is the professed system of ventilation adopted in large buildings in the great metropolis, it is apparent, notwithstanding the various advertisements for perfect ventilation, that there is a very great deficiency of knowledge on the subject. The scientific gentlemen do not appear to have hit upon a simple system, by which churches, chapels, courts of justice, or any large room, can be ventilated, without subjecting those in the buildings to inconvenience. Yet it is possible to be done, by a far more simple and cheap method than by blowing in volumes of hot air or by blasts of cold: it really is laughable to read of such a system. It reminds me of an eminent medical gentleman being called in to give his advice on the best method of ventilating a large public building, containing then about 200 persons, many of whom were afflicted with fevers and smallpox; moreover, several had died. The learned gentleman, though an excellent M.D., was entirely unacquainted with ventilation: he proposed a system which would have hazarded the health, if not the life, of every person in the building subjected to his system. It was objected to, and the opinion of an obscure country individual was asked: his plan was approved of; the building was ventilated under his direction, and though six years have elapsed, not a single case of either fever or smallpox has occurred as yet, though the means were as simple as possible. No volumes of hot air, nor blasts of cold, are admitted.

It appears, by the weekly advertisements in the Builder, that various remedies are proposed, but they are not considered by any means perfect, by persons who have had some little experience in ventilation.

It is the same with smoky chimneys. Advertisement follows advertisement; but it really is astonishing that, among so many scientific men in London, there should be so few who understand the method. What induces me to make this remark is, having noticed, in most parts of London, the tops of chimneys, and, consequently, the houses, disfigured by various sorts of chimney-pots, cowls, &c., more particularly in the West-end. The noble buildings—I may name some of them palaces—in Pimlico, are, I think, more disfigured than any other part. I could not help saying, when looking at them, what a pity such beautiful structures should be disfigured. It is matter of surprise that both ventilation and the cure of smoky chimneys should not be made the subject of study, by practical experienced workmen, more than they are; the difficulty surely might be surmounted in a great majority of cases, unless, which is too often the case, the fault is in the construction of the flues. There are many causes of chimneys smoking; the means made use of to cure one would make another worse; the first object should be to find out the cause; practical experience will point out the remedy. I have known large buildings in the country, erected in the Elizabethan style, in which nearly every chimney smoked; many of the flues, which ought to have been 14 inches by 14, or 14 by 9, were not more than 7 by 7, in parts of the flues. The architects, or their clerks, forget, that the larger the fire the larger the flue is required. The practical workman, when engaged in building, knows what will be the effect, but he is compelled to work according to the plan, right or wrong. If he points out the error, he being only a workman, it is thought nothing of. This brings to my mind a complaint in The Builder, a short time since, of the want of scientific practical workmen. There is nothing surprising in this, because few, if any, meet with the encouragement they deserve; if they see any thing going on wrong, and mention it, very likely they experience a rebuff; they are thought to be nothing more than labourers, to be discharged when no longer required. This knowledge deters and keeps many a scientific man from exercising his talents to advantage. The drawing clerk in the office is generally thought more of than the best of workmen. I might have added much more on this subject; let this suffice at present; at some future period I may resume the subject, if you think this worth a place in the columns of The Builder.—I am, Mr. Editor, yours, &c.

A Working Bricklayer.

Sudbury, Nov. 10, 1845.

NEW CHURCHES AND BUILDINGS IN THE NEIGHBOURHOOD OF BRISTOL.

The number of new churches lately consecrated, especially in the western part of the country, is very striking. In Wiltshire there have been half a dozen within a few months.

St. Saviour's Church at Coalpit Heath, near Bristol, was consecrated on the 9th ult. It is situated about seven miles from that city and is spoken of in the neighbourhood as a good specimen of modern skill. *Felix Farley's Bristol Journal* contains a description of the building from which we extract the following:—"The principal parts of this church are a nave and chancel with open roof; north and south aisles; vestry situated at the east end of the north aisle; and south porch. The south porch is the only entrance for the congregation; there is a private entrance for the clergyman on the south side of the chancel, and an entrance to the vestry from the churchyard.

The nave is lofty, 60 feet long, and 20 feet wide; the chancel, 28 feet by 17 feet; the aisles 11 feet wide. The nave and aisles are filled with substantial open oak seats, with carved heads. On each side the nave are four pier arches, but no clerestory windows. The west window has three lights; in the windows of the nave are two lights, with quatrefoil heads. The chancel is entered by one step, and distinguished from the nave by a perforated wood screen, of a light and elegant design. The floor of the chancel is laid with encaustic tiles, arranged in devices. On the south side of the chancel are a piscina and sedilia, and a credence table on the north; there is an east window to the chancel with three lights and three trefoils in head, filled with stained glass. The lower part of this and the other three windows of the chancel, are also filled with stained glass. The altar is approached by three steps.

The pulpit is of stone, panelled, with chamfered base and corbel, and entered by a flight of steps from the vestry. The lectern and reading-desk are of oak. The font is octagonal, with trefoil cusped panel, and surmounted by a handsome oak canopied cover. It stands against the pier to the left of the south entrance.

In the vestry we observed a massive oak chest studded with wrought-iron work. The hinges and furniture on all the doors are also of wrought iron.

Upon entering the church, it presents a more than usually ecclesiastical appearance. The open and substantial oak seats with carved heads, the light piers and arches, and above them the framed timbers of the roof, the quatrefoil headed windows of the aisles, the oak lectern and font, with its canopy, the stone pulpit, and lastly, the capacious chancel emblazoned with the rich and solemn light proceeding from its stained-glass windows, produce a good effect.

As to the exterior, the high pitched roofs of the nave and chancel, the tower pierced with its belfry windows, and terminated by a foliated wrought-iron cross, the oak doors, the decorated stone crosses on the nave, chancel, and porch gables, the geometrical headed windows and massive buttresses, and the free-stone quoins and dressings, contrasting with the various grey tints of the native stone, render the appearance of the exterior remarkably picturesque.

About 100 yards on the north-west side of the church, stands the rectory-house, of similar date to the church.

The churchyard is surrounded by a neat, low wall, flanked with shallow buttresses, and is entered through a lich gate, of massive character, with stone covering."

In this description we cannot avoid remarking on the introduction of a *piscina*, as being unnecessary in a Protestant place of worship and quite out of place.

The lich-gate, some of our readers may need to be informed, is a covered gate into a churchyard to rest the corpse under, and shelter the mourners. Its literal meaning is *corpse gate*.

Fylton church, three miles from Bristol, was opened publicly on Tuesday se'nnight. It has been entirely re-built on an old foundation with the exception of the tower at the west end. An aisle and porch have been added on the south sides of the nave, and a robing-room on the north side of the chancel. The style is early decorated. The materials used are rag, and bath stone dressings. The structure is very small, the chancel quite a miniature, but nevertheless contains *stalls*, a credence table (with the outward semblance of a piscina) in the north wall of the chancel, and is paved with encaustic tiles. The roof, both of nave, chancel, and aisle, is open, the seats (without doors) are of deal, varnished. The pulpit is of stone, and is attached to the north wall of the nave in the angle formed by the pier of the chancel arch; the reading pew is in the opposite angle. The lower story of the tower is open to the church. The tower externally is a low square structure, with a slated pyramidal roof. The parapet of the tower projects before the face of the walls and is carried on rudely sculptured heads.

Mr. Hicks was the architect; Brown and Phillips, both of Bristol, executed respectively the mason's and carpenter's work.

The hinges, locks, latches, and other iron-work, have received attention. Throughout the country very great improvement is to be observed, both in church-architecture and church-building. Minute points are attended to, and a good feeling is observable even where great excellence has not been attained.

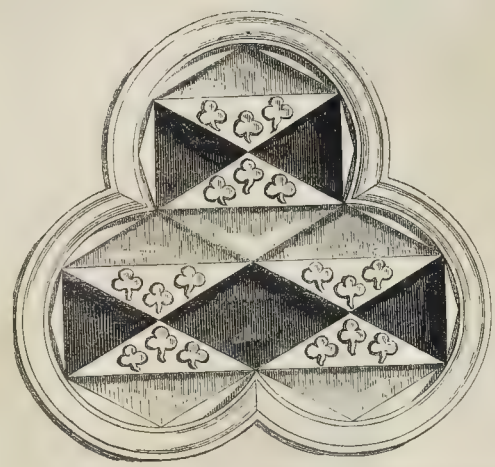
Some extensive barracks are in the course of construction in the Gloucester-road, between the church last named, and Bristol. Numerous villa residences are also springing up around the city, to which a respectable appearance is given by the use of stone-facings, there cheaply attainable.

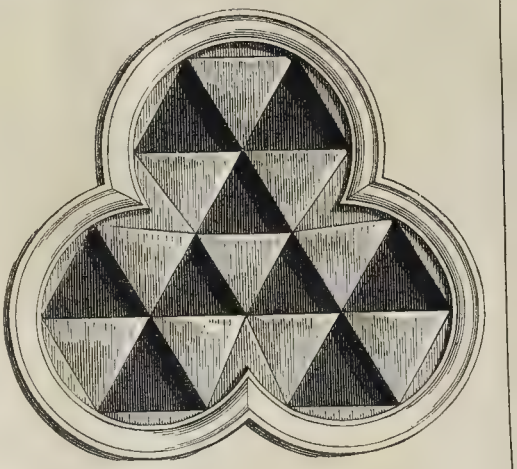
The foundations are being laid, adjoining the new Guildhall in Bristol, for a branch bank, from designs by Mr. Cockerell. Willcox and Son are the builders.

Norton Hall.—The Earl of Ripon's family mansion in Lincolnshire, which was destroyed by fire in 1834, has been rebuilt, and is now nearly completed. The first stone was laid by Viscount Goderich on the 25th of October 1841, with some ceremony. Mr. Shearburn, of Dorking, is the architect.

Novel Project for London Streets.—A project is said to be contemplated that would strikingly alter the aspect of London; it is to cover the footways with transparent verandahs, projecting from the houses, so that even on the wettest day the metropolis could be traversed from one end to another without an umbrella.

WINDOWS FROM RUSHTON LODGE.





WINDOWS FROM RUSHTON LODGE, NORTHAMPTONSHIRE.

In the last number of THE BUILDER* we gave illustrations of the very curious triangular lodge at Rushton, in Northamptonshire, built by Sir Thomas Tresham, and noticed as one of the hiding places where the gun-powder plot was concocted. The annexed engravings represent two of the windows, and are further illustrations of the punning reference made to the owner's name, throughout the structure, previously pointed out: the openings themselves are trefoils; the divisions are all triangular, and the three-leaved shamrock, in threes, appears as a decoration. Any correspondent who may be able to send us an account of the interior of this building, would oblige us by doing so.

FREEMASONS OF THE CHURCH.

Nov. 11.—The Rev. G. Pocock, L.L.B., in the chair. The minutes of the last meeting were read and confirmed. The completion of the seal was announced, and the probability of conferring the diplomas by the next meeting.

Mr. Wm. Harry Rogers then read a paper on the subject of "Illuminated Books in their connection with Architecture," illustrated with a series of diagrams, about thirty in number, enlarged from MSS. preserved in various public and private libraries. The first point insisted upon was the fact, that the miniatures of illuminated MSS. of the middle ages, contain a peculiar style of architecture which has never been carried into effect, but that in these examples, the successive changes by which the architectural character of each century is distinguished, are clearly traceable. They are, however, varied, from causes which in many cases are to be ascertained. The Anglo-Saxons, for example, in their edifices always gave the columns, of which they made a most frequent use, a short and stunted form, consistent with their ideas of immense durability, but it was by no means the case in the architectural details which they introduced into the miniatures of their books. In these we find them in almost every case of an extraordinary length; indeed, an enlarged drawing from a MS. of the tenth century was produced, in which the shaft of a column, formed of two parallel lines, was found to be eighteen diameters. From the celebrated "Durham book" the capital of a column was enlarged; in this example, as in others from the same and similar volumes, the dog was a very prominent characteristic, a circumstance which was endeavoured to be accounted for by the fact, that this animal was venerated by the Ancient Phœnicians, "and we may," remarked Mr. Rogers, "by no tortured hypothesis assume, that what was originally represented from motives of devotion, habit contrived to perpetuate." The dog was afterwards the customary grotesque in Anglo Saxon, and eventually in Lombardic manuscripts. From a remarkably early volume of the Greek Gospels, the chair of St. Matthew and a tower at the back of St. Luke were given, and interesting specimens they were of architecture of a period with regard to which so little is generally known. In MS. architecture of the beginning of the twelfth century, the columns are represented very short, much enriched, and having bases generally of a disproportionate size, but towards the end of this century we again find that yearning after attenuated forms and long columns, which formed so remarkable a feature in the architecture of the early English style, which was soon so totally to supersede it. An example of this, from Mr. Holford's collection, was referred to as described by Noel Humphreys, and a curious diagram from a MS. in the British Museum, exhibited a column of considerable length, and a lectern, in the formation of which lightness seemed to have been procured at the sacrifice of strength. A lectern of the early English period was enlarged from "the Chronicles of Johan de Walingford," in the Arundel Library, and the next volume glanced at was a superb book executed in England in about the reign of Edward I., and kindly contributed by Mr. Sedgwick, from the College of Physicians. The example enlarged from this MS. was an illustration of the 79th psalm, in which men, with various instruments, were represented in the act of demolishing a temple. Some examples were next given of MS. architecture of the "*Decorated*" period, and to elicit the style of the fifteenth century, drawings were prepared from "The Life of Richard, Earl of Warwick," in the British Museum. Mr. Rogers next referred to the discovery of the baths of Adrian in Rome, as an important crisis in the history of book illustration. The Italian style was exemplified by some beautiful MSS. contributed by Mr. Jarman. The last specimen given was from an edition of Eusebius, of the sixteenth century, beautifully illuminated and preserved in the Harleian Library.

The next lecture was announced for December 9, "On Architectural Acoustics," by Mr. Richard Cull.

* See page 538, *ante*.

BURFORD CHURCH, SALOP, DIOCESE OF HEREFORD.

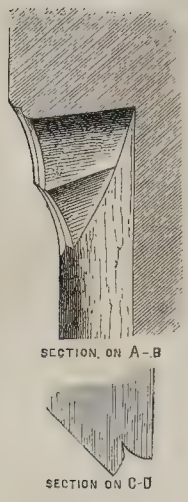
This church contains a nave, chancel, and tower at the west end; the chancel has been recently restored by the present rector, the Rev. J. W. Joyce, the ceiling taken down, and roof thrown open. The stained-glass window which was put in a few years ago, in what was called the modern style, viz. with a circular head, has been taken out; in doing which the arch of the original window was brought to light; the tracery had been taken out. This is now restored. In taking down the old parsonage-house, the tracery of *the window* was found in part of the foundation. The altar steps are relaid, and encaustic tiles, with proper devices, laid to the floor, the sedilia and piscina restored, and a new arch formed between chancel to nave. In this chancel are buried some noble and ancient families, the barons of Burford, owners of the manors, and, amongst others, the daughter of John of Gaunt. The tomb stands in a gothic arched recess in the north wall, on which reclines a sculptured stone figure of the above lady, supported by angels at the head, and a dog at the foot; over the figure is the following inscription:—

"Here lieth the body of the most noble Elizabeth, daughter of John of Gaunt, Duke of Lancaster, own sister to King Henry the fourth, wife of John Holland, Earl of Huntingdon and Duke of Exeter, after married to Sir John Cornwall, Knight of the Garter and Lord Fanhope. She died the fourth year of Henry the sixth, Anno Domini MCCCCXVI."

A new organ has recently been given to the church by the Hon. Misses Rushout, whose brother, Captain Rushout, nephew of Lord Northwick, is patron of the living. The same ladies have presented a new carpet and altar cloth, with appropriate figures, worked with their own hands. In the churchyard stands the remains of the stone cross, upon three steps the top and arms are broken off. Adjoining the churchyard stood three parsonage-houses which were formerly occupied by the incumbents of the different portions of the parish. Only one of the houses now remains, and this has recently been rebuilt. S.

New Theatre at Lisbon.—The new theatre of "Donna Maria Segunda" which was commenced in the spring of 1843, was opened to the public on the 29th ult. It is of the Ionic order, and adorned with a portico of six columns crowned by a pediment. Its extent may be inferred from the fact that its front contains two rows of seventeen windows each. The architect is Senor Lodi, brother-in-law of the Count de Farobo. Its cost is said to be 50,000*l*.

STOPS TO CHAMFERS IN GOTHIC ARCHITECTURE.



Figs. 6 and 7.

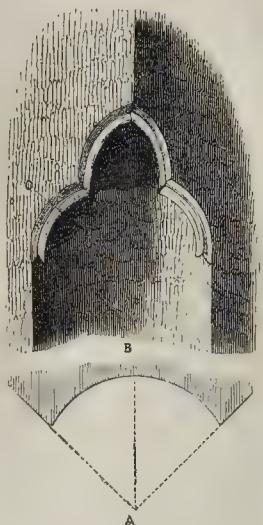


Fig. 5.

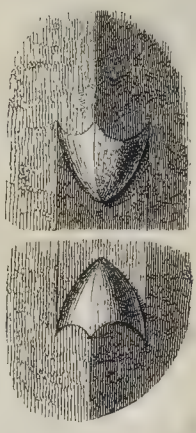


Fig. 4.

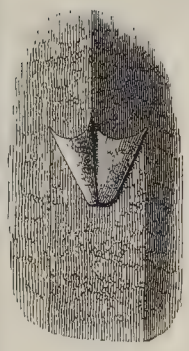


Fig. 1.

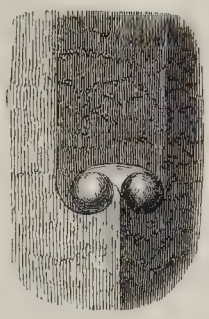


Fig. 2.

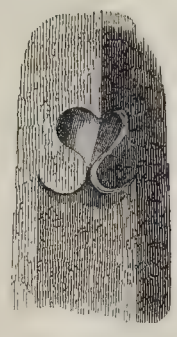


Fig. 3.

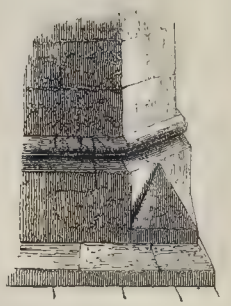


Fig. 8.

STOPS TO CHAMFERS IN GOTHIC ARCHITECTURE.

In all the architectural works of the middle ges, the greatest ingenuity is everywhere ap- rent, producing pleasing effects even when tending wholly to convenience and useful- ss. It is shewn even where the angle of a all or pier has been cut away in part, to give om; the junction of the angular line where ft, with the plain face formed by cutting it way below (or chamfer as it is termed), being everly made into an ornament. Figures 1, 3, and 4 (sketched by Mr. Wylson), shew orman stops to chamfers, in Sherburn church, orkshire. Figure 5, represents a termina- on to a hollowed angle in Elgin Cathedral, orayshire. Figures 6 and 7 shew the sec- on on line A B, and line C D. This last ode of termination is often found in buildings the thirteenth and fourteenth centuries.

Figure 8, represents the base to pier of cen- al tower, Kirk-Fenton Church, Yorkshire; church which has lately been restored by r. G. F. Jones, of York.

WORKS IN THE PROVINCES.

The foundation-stone of an extensive Gaol was laid last week at Winson Green, a distance of about two miles and a half from Birmingham. The ceremony was performed by Thomas Phillips, Esq.; Mr. Hill is the architect, and Mr. Walthen the builder.——The corner stone of a New Church at Alnwic, to be built and endowed at the sole expense of the Duke of Northumberland, was laid last week by His Grace in person. A glass plate, bearing the following inscription, was deposited underneath the stone, in a cavity prepared for its reception: — "Saint Paul's Church, erected by Hugh, third Duke of Northumberland, A.D. 1845." The plan is arranged as a nave and chancel, with aisles capable of containing 1,000 persons, in open seats, without galleries. The principal entrances are by a door in the tower at the west end, and a porch on the north side. The style selected is the decorated, of the time of Edward III., with the high pitched open roof, the clerestory, and varied windows of that period. Mr. Salvin is the architect, and Mr. Novell the contractor.——The church of St. James the Apostle, at Greensted, Essex, was consecrated last week by the Bishop of London. The *Essex Herald*, in giving an account of the ceremony, says, — The design is Gothic, in the early English style. It consists of a nave with two rows of open benches, carved, terminating in the west by a recess, formed by the tower, wherein seats for children. The chancel is ornamented with two stained-glass windows on one side, and one on the other, also one in the east end. This window forms the most striking object to the eye on entering the church; in the centre is a representation of our blessed Redeemer upon the cross, and the remainder is taken up with scrolls, containing biblical inscriptions. There are also like inscriptions in ornamental scrolls upon the walls of the church, in various parts. The roof is highly ornamented; the pulpit and font are of stone, elaborately carved. The pavement is tesselated. Messrs. Scott and Moffat were the architects, and Mr. Johnstone the builder.——The long-agitated question as to the locality for a general railway terminus at Perth has lately been settled and finally decided by the award of the Lords of the Privy Council on Trade. The situation chosen is a part of the western portion of the South Inch, immediately in front of Marshall's-place, which is to be used for the accommodation of *passenger traffic solely*, and another site provided beyond the limits of the western portion of the

South Inch for the engine, carriage, and waggon buildings of the companies, as well as for their merchandise establishments.——A new Moravian chapel has lately been erected at Bath. A local paper says, it is a "specimen of architectural taste, highly creditable to Mr. Wilson, by whom it was designed. Mr. Aust, the builder, has astonished all observers by the rapid advancement of this substantial structure. It was commenced about the end of March, and is now complete for the use of the congregation."——The first stone of a new quay, at Wisbeach, was laid yesterday week, by Dr. Whitsed, the mayor. It is said that the authorities, in the construction of this work, are determined to combine ornament with utility.——A new church has lately been erected at Leeds, and said to be of very costly and splendid architecture, bearing many of the features of the churches prior to the Reformation. Report states that it is designed as a model of the churches approved by the highest puseyites.——The restoration of the Norman Tower, Bury St. Edmunds, is proceeding. The Cambridge Camden Society has lately voted the sum of ten pounds towards the work, "which they trust will be received as a token of their good-will, and as a proof that, did their funds allow, they would be happy to appropriate a much larger sum to so praiseworthy a restoration."——There is a rumour prevalent in the town and garrison of Woolwich, that her Majesty's government have it in contemplation to cause an extensive and commodious pier to be erected by the side of Globe-lane, on the bank of the Thames, in a direct line with Beresford-street, which leads to the Royal Arsenal, to accomplish which a number of old dilapidated houses, nearly fallen into decay, between Beresford-street and the water side, will have to be razed to the ground, which can easily be done, as the leases are nearly expired.——A lithographed plan of a projected dock at Sunderland has been issued. It appears that the dock will be situated a little to the south of the harbour, having an outlet into Hendon Bay; it will embrace an area of twenty-six acres, 3,160 feet in length, and 350 in width. A sea wall will be constructed, commencing a little beyond the commissioners' works, and, proceeding to the south-east of the Dove Rock, will be partly built upon the rock, and protected by jetties thrown out into the sea. Between the jetties an additional natural barrier will be formed by the accumulation of banks of sand. In the dock 350 vessels will be able at all times to lie afloat. The project is brought forward under the auspices of Mr. Hudson, and excites great interest in the north of England.——Many plans have been proposed to supply the deficiency of water felt in Glasgow. We have this week to record another, which in novelty, extent, and practicability, seems to warrant attention. The scheme is to bring water by gravitation from Loch Katrine, by an aqueduct, to one or more distributing reservoirs adjacent to the city. The plan of taking the water from so large a natural fountain reservoir as Loch Katrine does away with the necessity for artificial fountain dams, at once very expensive and involving considerable risk. The water of Loch Katrine is very soft, and of perfect purity, even in seasons of drought, being collected from a district of steep bare hills, of the primitive formations. The level of the lake is so high above the level of the Clyde, at Glasgow, that the water may be conducted from it to the highest ground in the neighbourhood of the city.——At Killerton House, near Exeter, the seat of Sir Thomas D. Acland, Bart., a new range of hot-houses is in course of erection by Mr. Clarke, the hot-house Builder of Exeter, who has introduced all the modern improvements in construction, as well as in ventilating and heating. The *Western Luminary*, in giving a description of the house and grounds, draws attention to a novelty which may prove worthy the notice of those engaged in similar constructions. Where vines are planted outside the house, instead of cutting the sill or bottom rail of the front sashes, to admit the vines, a false sill is introduced on the top of the main sill, and fastened to the uprights by means of a bolt at each side. This answers the purpose admirably, and without weakening any part of the building.——Notice has been inserted in the *London Gazette* to the effect, that application is intended to be made to parliament in the ensuing session for an act to authorise the erection of an Exchange, News Room and other public buildings, together with approaches thereto, in the parishes of the Holy Trinity and St. Mary, or one of them, in the town of Kingston-upon-Hull, and to incorporate a company, for the purpose of carrying such objects into effect.——At a general meeting of the subscribers to the Hull Cemetery Company held last week, after hearing the report of the provisional committee read, it was resolved that immediate steps be taken for securing the purchase of the very suitable site near the Old Waterworks, offered by Henry Broadly, Esq., M.P. It was stated that in case the cemetery was formed on Mr. Broadley's ground, application would be made for the Government grant for making a promenade on the spring bank, as had already been proposed.——After a long and careful inquiry into the state and capabilities of Hull as a port, lately made by the Tidal Harbour Commissioners, Captain Washington, R.N., and Aaron Chapman, Esq., M.P. Those gentlemen declared the capabilities of the port to be infinitely superior to Liverpool, and to be absolutely *unparalleled* in the country. They declared that proper attention to its facilities for trade during the last forty years would have rendered its trade at this moment double what it is, and that nothing but the most reckless apathy of its inhabitants can prevent its rise, within a limited number of years, to a degree of business of which few of its residents have more than the faintest idea. To their certain knowledge there was no port possessing equal natural advantages in the kingdom—none superior in the world.——On Thursday, the 30th ultimo, the first stone of a new church was laid by Lady Adeliza Manners, at Woolsthorpe, Lincolnshire, the birth place of Newton. The estimated cost is 2,500*l.*, of which 2,000*l.* has been raised.——It is understood that the Ecclesiastical Commissioners intend pulling down the old deanery at Lincoln, and building a new one for the residence of the new dean.——Among the projects in the north, we observe one for a tunnel to connect the opposite shores of the Clyde, beneath its bed—the spot chosen being a little above Govan, at or near the lands of Heatherby Hall.——The new church at Woodford lately erected under the superintendence of Messrs. Wyatt and Brandon, was consecrated last week by Bishop of Salisbury. The old church with the exception of the tower, which is comparatively of recent date, was entirely removed.——The town of Galway has been fixed on, as the capital of the western province, for the site of one of the new Irish colleges.——A colossal statue is about to be erected to the memory of Sir James Shaw, late Chamberlain of the city of London. Mr. Fillans is the sculptor selected. It will be placed conspicuously in Kilmarnock, the birthplace of Sir James.——Llanelly church, which has lately undergone a thorough repair and been considerably enlarged, was re-opened last week by the Bishop of St. Davids.

Bust of Robert Lord Clive, K.B.—We understand that a splendid bust of the great Lord Clive has arrived at Powis Castle. It has been executed in Carrara marble, of the purest quality, by desire of his grandson, the present Earl of Powis, K.G. It may be mentioned, that although several portraits of his lordship were painted, this is the first and only bust in existence being modelled from a full-length portrait at Walcot, and does infinite credit to the correct taste and skill of the sculptor, John Evan Thomas, F.S A., of London, whose chisel has imparted to this fine intellectual head, a life-like appearance, beaming with that benevolence and generous feeling which characterised his lordship's life; while the features are strikingly formed to command, and marked with determination to carry out its resolves. His lordship represented the town of Shrewsbury in parliament for nearly fourteen years; he was elected mayor in 1762, and filled the honourable office of recorder from 1771 to his decease, November 22nd, 1774.—*Shropshire Journal.*

Accident at St John's Church, Woolwich.—An account has reached us, of the fall of part of this edifice. As we are ignorant of the real cause, and have not yet inspected the building personally, we postpone comment.

RAILWAY JOTTINGS.

The station at the Eastern Counties is t be enlarged by taking down the houses betwee the station and Spitalfields church, clearin ——away the whole south side of Union-stree ——An attempt is being made to establish a institution at the West-end of London, for th collection and promulgation of informatio respecting railways, mines, &c., and to co operate with the several public places of mee ing in the city by means of the electric tel graph. It is proposed to purchase the Ad laide Gallery for the *locale*, and to alter it ve considerably for the purposes required.—— The South Eastern has concluded contrac for the Ashford and Hastings. Within eig months the line between Ashford and Rye is be completed.——The London and Birmin ham has decided upon immediately layin down a second line of rails between Pete borough and Northampton, the traffic upo the present single line far exceeded expect tion.——The contract for the Altrincha line, seven miles in length, was taken Mr. Brogden, and the South Junction by M David Bellhouse, of Manchester. The latt line, which will connect the Manchester an Birmingham with the Liverpool and Man chester will commence at London-road, an terminate at Ordsall-lane, Salford; the whol length, one mile and three-quarters, being ca ried on brick and stone arches, and thirtee large iron bridges, three of which will be re spectively 105 feet, and 71 feet in span.—— Mr. Nash, the prosecutor of the two railwa robbers, Maynard and Garratt, terminate his praseworthy labours, by offering th following advice to travellers: —"1. Le the passengers watch and see their lug gage put into the luggage van or trai and not be content with seeing it on the pla form. 2. As far as practicable, take small lug gage and packages into the carriages wit themselves. 3. Not to mention that thei packages are valuable. 4. To have their name and addresses, and particularly the place goin to, pasted on the outside (and not merely tie on) their luggage. 5. To advertise an make known to the chief superintendents an police authorities (to have put in the *Police Gazette*) their losses, and contents and mark of property lost. Bearing in mind that it is o the platforms most of the abstractions tak place, mistakes and exchanges are effected, an more will happen, until a quick and secur arrangement be made."——The purchases o land for the Berks and Hants, which is t unite the Great Western and South-Western are nearly completed. The directors of th Great Western, also, have let the works betwee Hungerford and Basingstoke to contractors The workmen are engaged shaft-sinking.—— Mr. Hudson, as the representative of the New castle and Darlington Company, has offere to take the Durham and Sunderland Railway with all its liabilities, amounting to 300,000*l.* paying the shareholders 31*l.* 10s. per share and his offer has been accepted.——Mr. Rober Stephenson has left England for Italy an Spain, to superintend operations on variou railways in those countries. He is not expecte to return until the close of the year.——Wit the view to prevent or lessen the evils of acci dents resulting from collision, it has been sug gested that every passenger train should b accompanied in the rear by a carriage con structed entirely of powerful springs and some such material as India-rubber, of elasticit enough to act and recoil effectually under violent collision, performing in those extraor dinary circumstances the purpose that the buf fers serve in ordinary.

St. Alban's Architectural Society.—The object of this society is to aid in promo ting a more general acquaintance with thos memorials of past ages which tend to illustrat the history and principles of architecture i England. With this view, its attention wil be principally directed to the Abbey Church o St. Alban's and the several churches within the country; not, however, excluding other examples of the earlier or middle ages. The society is at present but in its infancy, yet it already numbers amongst its patrons and mem bers, the Marquis of Nothampton, president o the Royal Society, the Bishop of Oxford, the Archdeacon Burney, the rector of St. Alban's, and a considerable list both of clergy and laity.

TABLE

For facilitating the computation of the strength and dimensions of Cast Iron Beams, such as are usually employed in Buildings for all depths of the transverse section, and for every sixteenth of an inch, from Zero to 5 feet, embracing the utmost range of depth that has hitherto been employed.

ARGUMENT.—Inches and sixteenths in the depth of the section.

In.	$\frac{0}{16}$	$\frac{1}{16}$	$\frac{2}{16}$	$\frac{3}{16}$	$\frac{4}{16}$	$\frac{5}{16}$	$\frac{6}{16}$	$\frac{7}{16}$	$\frac{8}{16}$	$\frac{9}{16}$	$\frac{10}{16}$	$\frac{11}{16}$	$\frac{12}{16}$	$\frac{13}{16}$	$\frac{14}{16}$	$\frac{15}{16}$
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
0	0·0001	0·0015	0·0059	0·0131	0·0233	0·0371	0·0534	0·0727	0·0950	0·1202	0·1484	0·1796	0·2138	0·2509	0·2909	0·3340
1	0·3800	0·4290	0·4809	0·5359	0·5938	0·6546	0·7184	0·7852	0·8550	0·9277	1·0034	1·0821	1·1638	1·2484	1·3359	1·4265
2	1·5200	1·6165	1·7159	1·8184	1·9238	2·0321	2·1434	2·2577	2·3750	2·4952	2·6184	2·7446	2·8738	3·0059	3·1409	3·2790
3	3·4200	3·5640	3·7109	3·8609	4·0138	4·1696	4·3284	4·4902	4·6550	4·8227	4·9934	5·1671	5·3438	5·5234	5·7059	5·8915
4	6·0800	6·2715	6·4659	6·6634	6·8638	7·0671	7·2734	7·4827	7·6950	7·9102	8·1284	8·3496	8·5738	8·8009	9·0309	9·2640
5	9·5000	9·7390	9·9809	10·2259	10·4738	10·7246	10·9784	11·2352	11·4950	11·7577	12·0234	12·2921	12·5638	12·8384	13·1159	13·3965
6	13·6800	13·9665	14·2559	14·5484	14·8438	15·1421	15·4434	15·7477	16·0550	16·3652	16·6784	16·9946	17·3138	17·6359	17·9609	18·2890
7	18·6200	18·9540	19·2909	19·6309	19·9738	20·3196	20·6684	21·0202	21·3750	21·7327	22·0934	22·4571	22·8238	23·1934	23·5659	23·9415
8	24·3200	24·7015	25·0859	25·4734	25·8638	26·2571	26·6534	27·0527	27·4550	27·8602	28·2684	28·6796	29·0938	29·5109	29·9309	30·3540
9	30·7800	31·2090	31·6409	32·0759	32·5138	32·9546	33·3984	33·8452	34·2950	34·7477	35·2034	35·6621	36·1238	36·5884	37·0559	37·5265
10	38·0000	38·4765	38·9559	39·4384	39·9238	40·4121	40·9034	41·3977	41·8950	42·3952	42·8984	43·4046	43·9138	44·4259	44·9409	45·4590
11	45·9800	46·5040	47·0309	47·5609	48·0938	48·6296	49·1684	49·7102	50·2550	50·8027	51·3534	51·9071	52·4638	53·0234	53·5859	54·1515
12	54·7200	55·2915	55·8659	56·4434	57·0238	57·6071	58·1934	58·7827	59·3750	59·9702	60·5684	61·1696	61·7738	62·3809	62·9909	63·6040
13	64·2200	64·8390	65·4609	66·0859	66·7138	67·3446	67·9784	68·6152	69·2550	69·8977	70·5434	71·1921	71·8438	72·4984	73·1559	73·8165
14	74·4800	75·1465	75·8159	76·4884	77·1638	77·8421	78·5234	79·2077	79·8950	80·5852	81·2784	81·9746	82·6738	83·3759	84·0809	84·7890
15	85·5000	86·2140	86·9309	87·6509	88·3738	89·0996	89·8284	90·5602	91·2950	92·0327	92·7734	93·5171	94·2638	95·0134	95·7659	96·5215
16	97·2800	98·0415	98·8059	99·5734	100·3438	101·1171	101·8934	102·6727	103·4550	104·2402	105·0284	105·8196	106·6138	107·4109	108·2109	109·0140
17	109·8200	110·6290	111·4409	112·2559	113·0738	113·8946	114·7184	115·5452	116·3750	117·2077	118·0434	118·8821	119·7238	120·5684	121·4159	122·2665
18	123·1200	123·9765	124·8359	125·6984	126·5638	127·4321	128·3034	129·1777	130·0550	130·9352	131·8184	132·7046	133·5938	134·4859	135·3809	136·2790
19	137·1800	138·0840	138·9909	139·9009	140·8138	141·7296	142·6484	143·5702	144·4950	145·4227	146·3534	147·2871	148·2238	149·1634	150·1059	151·0515
20	152·0000	152·9515	153·9059	154·8634	155·8238	156·7871	157·7534	158·7227	159·6950	160·6702	161·6484	162·6296	163·6138	164·6009	165·5909	166·5840
21	167·5800	168·5790	169·5809	170·5859	171·5938	172·6046	173·6184	174·6352	175·6550	176·6777	177·7034	178·7321	179·7638	180·7984	181·8359	182·8765
22	183·9200	184·9665	186·0159	187·0684	188·1238	189·1821	190·2434	191·3077	192·3750	193·4452	194·5184	195·5946	196·6738	197·7559	198·8409	199·9290
23	201·0200	202·1140	203·2109	204·3109	205·4138	206·5196	207·6284	208·7402	209·8550	210·9727	212·0934	213·2171	214·3438	215·4734	216·6059	217·7415
24	218·8800	220·0215	221·1659	222·3134	223·4638	224·6171	225·7734	226·9327	228·0950	229·2602	230·4284	231·5996	232·7738	233·9509	235·1309	236·3140
25	237·5000	238·6890	239·8809	241·0759	242·2738	243·4746	244·6784	245·8852	247·0950	248·3077	249·5234	250·7421	251·9638	253·1884	254·4159	255·6465
26	256·8800	258·1165	259·3559	260·5984	261·8438	263·0921	264·3434	265·5977	266·8550	268·1152	269·3784	270·6446	271·9138	273·1859	274·4609	275·7390
27	277·0200	278·3040	279·5909	280·8809	282·1738	283·4696	284·7684	286·0702	287·3750	288·6827	289·9934	291·3071	292·6238	293·9434	295·2659	296·5915
28	297·9200	299·2515	300·5859	301·9234	303·2638	304·6071	305·9534	307·3027	308·6550	310·0102	311·3684	312·7296	314·0938	315·4609	316·8309	318·2040
29	319·5800	320·9590	322·3409	323·7259	325·1138	326·5046	327·8984	329·2952	330·6950	332·0977	333·5034	334·9121	336·3238	337·7384	339·1559	340·5765
30	342·0000	343·4265	344·8559	346·2884	347·7238	349·1621	350·6034	352·0477	353·4950	354·9452	356·3984	357·8546	359·3138	360·7759	362·2409	363·7090
31	365·1800	366·6540	368·1309	369·6109	371·0938	372·5796	374·0684	375·5602	377·0550	378·5527	380·0534	381·5571	383·0638	384·5734	386·0859	387·6015
32	389·1200	390·6415	392·1659	393·6934	395·2238	396·7571	398·2934	399·8327	401·3750	402·9202	404·4684	406·0196	407·5738	409·1309	410·6909	412·2540
33	413·8200	415·3890	416·9609	418·5359	420·1138	421·6946	423·2784	424·8652	426·4550	428·0477	429·6434	431·2421	432·8438	434·4484	436·0559	437·6665
34	439·2800	440·8965	442·5159	444·1384	445·7638	447·3921	449·0234	450·6577	452·2950	453·9352	455·5784	457·2246	458·8738	460·5259	462·1809	463·8390
35	465·5000	467·1640	468·8309	470·5009	472·1738	473·8496	475·5284	477·2102	478·8950	480·5827	482·2734	483·9671	485·6638	487·3634	489·0659	490·7715
36	492·4800	494·1915	495·9059	497·6234	499·3438	501·0671	502·7934	504·5227	506·2550	507·9902	509·7284	511·4696	513·2138	514·9609	516·7109	518·4640
37	520·2200	521·9790	523·7409	525·5059	527·2738	529·0446	530·8184	532·5952	534·3750	536·1577	537·9434	539·7321	541·5238	543·3184	545·1159	546·9165
38	548·7200	550·5265	552·3359	554·1484	555·9638	557·7821	559·6034	561·4277	563·2550	565·0852	566·9184	568·7546	570·5938	572·4359	574·2809	576·1290
39	577·9800	579·8340	581·6909	583·5509	585·4138	587·2796	589·1484	591·0202	592·8950	594·7727	596·6534	598·5371	600·4238	602·3134	604·2059	606·1015
40	608·0000	609·9015	611·8059	613·7134	615·6238	617·5371	619·4534	621·3727	623·2950	625·2202	627·1484	629·0796	631·0138	632·9509	634·8909	636·8340
41	638·7800	640·7290	642·6809	644·6359	646·5938	648·5546	650·5184	652·4852	654·4550	656·4277	658·4034	660·3821	662·3638	664·3484	666·3359	668·3265
42	670·3200	672·3165	674·3159	676·3184	678·3238	680·3321	682·3434	684·3577	686·3750	688·3952	690·4184	692·4446	694·4738	696·5059	698·5409	700·5790
43	702·6200	704·6640	706·7109	708·7609	710·8138	712·8696	714·9284	716·9902	719·0550	721·1227	723·1934	725·2671	727·3438	729·4234	731·5059	733·5915
44	735·6800	737·7715	739·8659	741·9634	744·0638	746·1671	748·2734	750·3827	752·4950	754·6102	756·7284	758·8496	760·9738	763·1009	765·2309	767·3640
45	769·5000	771·6390	773·7809	775·9259	778·0738	780·2246	782·3784	784·5352	786·6950	788·8577	791·0234	793·1921	795·3638	797·5384	799·7159	801·8965
46	804·0800	806·2665	808·4559	810·6484	812·8438	815·0421	817·2434	819·4477	821·6550	823·8652	826·0784	828·2946	830·5138	832·7359	834·9609	837·1890
47	839·4200	841·6540	843·8909	846·1309	848·3738	850·6196	852·8684	855·1202	857·3750	859·6327	861·8934	864·1571	866·4238	868·6934	870·9659	873·2415
48	875·5200	877·8015	880·0859	882·3734	884·6638	886·9571	889·2534	891·5527	893·8550	896·1602	898·4684	900·7796	903·0938	905·4109	907·7309	910·0540
49	912·3800	914·7090	917·0409	919·3759	921·7138	924·0546	926·3984	928·7452	931·0950	933·4477	935·8034	938·1621	940·5238	942·8884	945·2559	947·6265
50	950·0000	952·3765	954·7559	957·1384	959·5238	961·9121	964·3034	966·6977	969·0950	971·4952	973·8984	976·3046	978·7138	981·1259	983·5409	985·9590
51	988·3800	990·8040	993·2309	995·6609	998·0938	1000·5296	1002·9684	1005·4102	1007·8550	1010·3027	1012·7534	1015·2071	1017·6638	1020·1234	1022·5859	1025·0515
52	1027·5200	1029·9915	1032·4659	1034·9434	1037·4238	1039·9071	1042·3934	1044·8827	1047·3750	1049·8702	1052·3684	1054·8696	1057·3738	1059·8809	1062·3909	1064·9040
53	1067·4200	1069·9390	1072·4609	1074·9859	1077·5138	1080·0446	1082·5784	1085·1152	1087·6550	1090·1977	1092·7434	1095·2921	1097·8438	1100·3984	1102·9559	1105·5165
54	1108·0800	1110·6465	1113·2159	1115·7884	1118·3638	1120·9421	1123·5234	1126·1077	1128·6950	1131·2852	1133·8784	1136·4746	1139·0738	1141·6759	1144·2809	1146·8890
55	1149·5000	1152·1140	1154·7309	1157·3509	1159·9738	1162·5996	1165·2284	1167·8602	1170·4950	1173·1327	1175·7734	1178·4171	1181·0638	1183·7134	1186·3659	1189·0215
56	1191·6800	1194·3415	1197·0059	1199·6734	1202·3438	1205·0171	1207·6934	1210·3727	1213·0550	1215·7402	1218·4284	1221·1196	1223·8138	1226·5109	1229·2109	1231·9140
57	1234·6200	1237·3290	1240·0409	1242·7559	1245·4738	1248·1946	1250·9184	1253·6452	1256·3750	1259·1077	1261·8434	1264·5821	1267·3236	1270·0684	1272·8159	1275·5665
58	1278·3200	1281·0765	1283·8359	1286·5984	1289·3638	1292·1321	1294·9034	1297·6777	1300·4550	1303·2352	1306·0184	1308·8046	1311·5938	1314·3859	1317·1809	1319·9790
59	1322·7800	1325·5840	1328·3909	1331·2009	1334·0138	1336·8296	1339·6484	1342·4702	1345·2950	1348·1227	1350·9534	1353·7871	1356·6238	1359·4634	1362·3059	1365·1515

TABLE FOR CALCULATING THE STRENGTH OF CAST-IRON BEAMS.

WHEN the table for facilitating the computation of cast-iron beams, which appears at page 499 of the present volume, was drawn up for insertion in the BUILDER, it was thought sufficient to limit the argument or depth of section, to about four feet, on the supposition that *that* would be found to embrace the usual range of practice. But in the supplement to that number in which the table is given, there is a description of a cast-iron bridge across the river Wharne, on the York and Midland Railway, where it is stated that the depth of the girders varies from four feet eight inches to three feet three inches. On seeing this, the author became impressed with the belief that by extending the table to a depth of five feet, and adapting it to sixteenths of an inch instead of tenths, its value as an instrument of calculation would be greatly enhanced, not only on account of its embracing a more extensive range, but because the common foot-rules are more generally divided *octogesimally*, than either *decimally* or *duodecimally*; and consequently, under this impression, he has with great labour computed the table which he now lays before the readers of the BUILDER, in the hopes that it will be found useful.

The principles and data on which the numbers depend are the same as those adopted for the table at page 499: and their accuracy has been ensured by the method of computation employed; they have been deduced from one another by the continued summation of the first and second order of differences, and a check was had at every eighth and sixteenth number by means of the previous table, which was computed and checked in a similar way; and in order that the checks should be rendered efficient, the decimals were maintained at their full extent throughout the operation, although they are tabulated only to four places.

The table is used in precisely the same manner as we have exemplified at pages 499 and 513, and need not therefore be again explained, but the application to other forms of sections now much approved of, will be the subject of another communication. T.

WESTMINSTER COURT OF SEWERS.

A VERY numerous meeting of the commissioners took place on Friday, the 7th instant. The cash at the bankers was reported to be 16,624*l.* 0*s.* 5*d.*

On an application for warrants of distress against certain inhabitants of the western division, the chairman said, "not to-day." Mr. Leslie called upon the chairman to say why he would not sign the warrants of distress or to let the Court be informed of the reason? and then proceeded to say that the inhabitants of the western division had been made to pay upwards of 16,000*l.* since February last, while the whole amount of the contractors' bills from Nov. 1844 to Michaelmas 1845, for the western division, amounted only to 1,288*l.* 7*s.* 11*d.* that 1360 of the inhabitants of the western division had been summoned to the Court to shew cause why warrants of distress should not be issued against their goods, and 245 warrants of distress had actually been signed by the commissioners. There being no reply, the matter dropped.

Nearly 4,500 feet of sewers of the new forms were granted to various applicants.

The clerk then read a letter he had received from the Under Secretary of State, of which the following is a copy.

Whitehall, 1st November, 1845.

SIR,—I am directed by Secretary Sir James Graham to call your attention to my Letter of the 13th August last, and to request that you will move the Commissioners of Sewers for Westminster and part of Middlesex to favour Sir James Graham, at their earliest convenience, with their observations on the allegations contained in the Pamphlet of Mr. John Leslie.—I am, Sir, &c.

(Signed) H. MANNERS SUTTON.

The chairman said the Court had appointed a committee in September to draw up observations on the pamphlet, in compliance with the request of Sir James Graham. That in consequence of the long period over which the pamphlet ranged, the committee had required many returns from their own officers, and returns also from the Holborn and Finsbury commissioners, and it took some time to prepare these returns; and one from the Holborn and Finsbury commission had only recently been received. At the last meeting of the committee, it had adjourned, that a draft report might be prepared; the draft report was prepared, and the committee would meet on Wednesday next (the 12th inst.) to settle it, and bring their laborious investigations to a close. He would therefore suggest that their answer to the letter of the Secretary of State be, that the committee had closed their investigation, and were preparing their report.

Captain Bague, and afterwards, Mr. William Donaldson, complained that Mr. Hertslet, the clerk, had printed and circulated the letter from Mr. Manners Sutton without having consulted the chairman. The chairman also intimated his disapprobation of the course pursued; all former chairmen had been consulted as to the printing of any paper, and also as to the business paper of the day, and it looked invidious that he, their present chairman, was to be the exception to the law and the practice. Mr. Leslie defended the course adopted. The clerk had received an important communication from the Secretary of State, requiring him to "move the commissioners," and he thought that the best way to move the commissioners, was to let them individually know that the Secretary of State wished them to move. What did the commissioners know about the proceedings of the committee? That committee had voted itself a secret committee; their minutes were closed to the eye of every commissioner: this was a power the committee itself had assumed, without asking the Court. He thought it a dangerous proceeding: he begged in the observation he now made on that secret committee, to be understood as feeling no anxiety about what the committee might report; he was so surrounded by facts, that he considered himself invulnerable. The chairman was anxious that the officers should have no will of their own, but this was not the law. The general statutes authorised the commissioners to elect a chairman at every meeting of the Court, and during the non-sitting of the commissioners, the clerk was the only legally known authority to communicate with. The practice in this Court had been otherwise: here the chairman had been supreme. Many years ago a bricklayer of the name of Gray, had obtained a nomination as a commissioner; he eventually became the chairman of the Court; he contrived to get two nephews of his of the name of Saunders nominated as commissioners; one of these nephews, George Saunders, an architect, subsequently became chairman of this Court, and for 28 years did almost as he liked. The officers had been the mere servants of the various chairmen; he felt satisfied that the commissioners generally would approve of the course Mr. Hertslet had adopted in apprising every commissioner of the letter from the Secretary of State. Mr. Gunter also defended the course pursued.

Mr. W. Donaldson handed in the following notice of motion for the next Court: "That the clerk do not issue any printed circular to the commissioners without the express order of the Court, or the sanction of the chairman."

Mr. Farlar stated that what had been said about the extraordinary powers exercised by the chairman of the Court was perfectly true. When he, Mr. Farlar, was first made a commissioner there was no business paper at all, sent to the commissioners; the chairman brought forward any subject just as he liked, or saw by the parties present that he could carry. The former chairman, Mr. Saunders, used to say when attacked by him, if you had known the Court, Mr. Farlar, when Mr. White was chairman, when his relatives where doing the work, then indeed you might have said it was corrupt. He thought Mr. Hertslet had taken the wise course to print and circulate the letter from the Secretary of State.

The Court then proceeded, "To consider the steps necessary to be taken in consequence of the resignation of Mr. George Hawkins, assistant surveyor. Mr. Leslie to move, that the vacancy in the office of assistant-surveyor be filled up by the appointment of Mr. John Phillips, now second clerk of the works."

Mr. Leslie called upon the Court to support the motion, and he thought they would do so without a dissentient voice, when they considered the course the several recent Courts had adopted. The forms of sewers which Mr. Phillips had made, and which had been so strongly urged upon the Court by the eminent testimonials in their favour, were now the forms adopted by the Court: so large a number as nearly 4,500 feet of sewers of these forms had been applied for and granted this day: who, then, so likely to see them carried out properly as the author of them? Mr. Leslie thought it right to put Mr. Phillips' abilities to the test as to his powers of surveying, levelling, and laying down a section: he had asked Mr. Dowley to allow Mr. Phillips the use of the necessary instruments and labourer for the purpose, which Mr. Dowley readily complied with, and on Monday the 3rd inst. the task set Mr. Phillips was performed. The survey selected was from the outlet of the sewer at the bottom of Northumberland-street, up that street along the Strand, Cockspur-street, Pall-mall, Cleveland-row, and diagonally across the Green-park to the Man-hole, opposite White Horse-street, where nearly all the northern drainage of the metropolis descended. The distance between the two points was about 5,400 feet, the fall was about 3½ inches per 100 feet. But the bottom of the outlet at Northumberland-street might be lowered to low water-mark, whereby an increased fall of 8 feet might be gained. The result of the task selected for Mr. Phillips was the drawing he then held in his hand, and which he would pass round the Court, that every commissioner might judge the sort of man he wished, for the public interest, to see placed in a situation of increased usefulness, and to be enabled to aid in carrying out those great improvements which the votes of recent Courts had made their own.

Captain Bague, R. N., had the greatest possible pleasure in seconding Mr. Leslie's motion. He thought Mr. Phillips had exhibited so much talent, that the Court would act most wisely in securing his services.

Mr. Gunter very warmly supported the mo tion. He had not the pleasure of knowin Mr. Phillips, but, from what he had seen o his abilities as a clerk of the works, he fel confident the appointment would be one mos beneficial to the public. He understood Mr Phillips was almost a self-educated man, wit considerable talents, which he assiduously cul tivated. It would be impossible, after seein the admirable manner in which the task Mr Leslie had set Mr. Phillips had been accom plished, to deny his ability. There was on circumstance connected with Mr. Phillips' his tory which gave him (Mr. Gunter) great plea sure, and it was, that Mr. Phillips, in thos hours which many gave to pleasure, idle re creation, or the public-house, had devote himself to the instruction of others; he had large class, which he was teaching weekl practical geometry. Such a man deserve encouragement, and he would cheerfully vot for his appointment.

Mr. Le Breton rose to move an amendment "That the office of assistant-surveyor, no vacant by the resignation of Mr. George Haw kins, be not filled up until the whole questio of the efficiency of the surveyors' departmen and the expediency of making a change therei be considered at a special meeting, to be hel to consider the same."

Mr. Allason very briefly seconded the amend ment, which was supported by Mr. Hawke and Mr. Harrison, who avowed, that if th amendment was not carried, he would vote fo Mr. Phillips. A division being called for, th numbers were, for the amendment, 10; agains it, 10. The casting vote was given by th chairman in favour of the amendment. Th names of the commissioners voting were, fo the amendment—Messrs. Allason, Boodle, jun Beachcroft, Cantwell, Crace, W. Donaldson W. B. France, Harrison, Hawkes, Le Bre ton, and Willoughby; against the amend ment—Hon. F. Byng, Capt. Bague, Messrs Branscombe, Cumberlege, Farlar, Fuller Gunter, Leslie, Moss, and Wood.

The Court then ordered a Special Court o Friday, Nov. 14th, at one o'clock precisely "To consider as to the efficiency of the sur veyors' department, and as to the expediency of making a change therein."

TOWER HAMLETS COMMISSION.

TENDERS for sewer in Green Street, Bethna Green: length, 980 feet; 4 feet by 2 feet 6 in average depth of digging, 11 feet 6 inches.

Blackburn	£690
Crook	640
Curtis	634
Edwards	625
Stewart	620
Munday	617
Smith	600
Hill and Son	587
Jay	579
Livermore	543

Correspondence.

THE EGG SHAPED SEWER.

SIR,—I feel much gratified with my fello rate-payers, at the result of the decision of th commissioners of sewers for this division; th sixteen against five will, I hope, settle the poi in dispute, as to the mud-holding sewer wit perpendicular sides, and the egg-shaped sewe One half the sum collected for rates withi the last twenty years would, if it had bee expended upon the new plan, have made th drainage perfect. I am sure the public wi feel indebted to THE BUILDER for the assistanc it has afforded in the good cause.

I am not looking at this as a local questio only; the subject of proper drainage is no mooted throughout the nation, and we ma hope to see the egg-shaped sewer introduce universally. As the egg-shape now in use i the Finsbury division will, I have no doub in time come into general use, it would be wel if THE BUILDER could ascertain, who was th inventor of this shape, as I consider it im portant as an historical fact. Probably Mr Roe, if applied to, would state whether it wa his invention, or whether he received the ide from any other person.—I am, Sir, &c.

Westminster. E. E. E.

CONVEYANCE OF WATER.

SIR,—Your correspondent who inquires on this head, may obtain at small cost, terro-metallic pipes for "conveyance of water," at Mr. Peake's, Whitefriars.

These pipes do not injure pure water; they are exceedingly durable; socket pipes have been used to convey water long distances over undulating ground, terminating in one instance in a perpendicular rise of 40 or 50 feet to the tops of buildings. For such purposes each pipe is proved by hydraulic pressure. The plain or dead joints will do for your correspondent's purpose provided the soil is clayey. † †

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For building a new church at Tetbury, Gloucestershire.

For repairing or new paving the footways and carriage ways of certain streets and places in the parish of St. John the Evangelist, Westminster.

For the supply of 40 fathoms of yellow Deal ends to the Guardians of the Kensington Workhouse.

For the execution of the work forming the second division of the Dundalk and Enniskillen Railway, being a distance of 10 miles.

For the supply of 1,027, of 15-inch cast-iron socket pipes, measuring 3,080 yards, to the Commercial Gas-light Company, Stepney.

For the execution of the works forming the Burnley contract of the East Lancashire Railway. (Extension of time.)

COMPETITIONS.

Plans for the enlargement of the Suffolk General Hospital, and tenders for the execution of the work, are required by the Hospital Committee.

Plans, specifications, and estimates are required by the committee for the erection of the South Staffordshire General Hospital, Wolverhampton. The sum of 100*l.* will be given for the one selected.

The Provisional Committee of the National Glass Company of Ireland require plans and specifications, &c., for the erection of all the necessary Buildings, comprising an extensive manufactory for making crown (window) glass; also plans for an extensive manufactory of plate glass. 25*l.* will be given for each plan selected, or 50*l.* for both if to the same individual.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At the Railway Tavern, Wallingford-road station: 2,000 clean Beech trees, of good growth; also a few lots of Ash and Cherry-tree timber, all now standing in Unhill-wood, four miles from Wallingford.

At Haselgrove, Queen Camel, Somerset: Upwards of 1,000 maiden Oak, Elm, and Ash timber trees, now standing.

At Garraway's Coffee-house, Cornhill: 628 logs and curls of St. Domingo Mahogany, being the entire cargo of the *Diadem*, just landed.

At Great Barton, near Bury, St. Edmunds: between 300 and 400 excellent spruce and larch Firs.

At Wainford's farm, Little Burdfield, Essex: 150 capital Elm timber trees; 50 ditto Ash ditto, and 10 ditto Oak ditto, now lying near the road side.

On the premises, Mortimer-street, Cavendish-square: A large and well-seasoned stock of Mahogany Wainscot, Rosewood, Pencil-Cedar, Lime tree and Fir timber.

TO CORRESPONDENTS.

"J. F."—*Our correspondent's proposed central terminus would not be sufficiently extensive. The communication is left for him at the publisher's, with thanks.*

"Young Beginner."—*We do not know a good book on drawing and colouring architectural plans and elevations." Gwilt's Encyclopædia contains a course of mathematics.*

"Y. X. A."—*Articled pupils, under 21 years of age, are eligible as students of the Institute of Architects. They must submit specimens of their drawing, and be recommended by a Fellow. If the specimens are satisfactory, a subject is given them, which they are required to execute at the Institute; and if that also is satisfactory, they are admitted, on payment of one guinea per annum.*

"Polished Slate Chimney-pieces."—*A correspondent wishes to know where these can be seen.*

"Surveyor" and "J. G." *arrived too late for present week.*

"Complaint against a District Surveyor."—*We learn on inquiry, that the surveyor did not of himself lodge an information against the houses in question, but made the survey under higher authority; this seems materially to alter the question.*

"Chelsea Improvements."—*A correspondent directs our attention to what is being done in Chelsea under their new Act. We are fully aware of the works going on, and shall take an opportunity to allude to them.*

"T. L." (Improvement of Operatives) *next week.*

*** Correspondents are requested to address all communications to the EDITOR.

ADVERTISEMENTS.

CAUTION,—FRAUD.—BERDOE'S WATERPROOF OVER COATS and SHOOTING JACKETS.—It having come to the knowledge of W. B. that certain parties are offering for sale, as the above, garments which, although having attached to them W. B.'s name, and a fac-simile of his label, have not been manufactured by him; also various other attempts, similarly and fraudulently to mislead; intimation thereof is (to prevent disappointment and vexation) thus publicly given. The above really waterproof garments have been in extensive use seven years, and are now too well known to need description; and by those who have tried them they are regarded as sine qua non. A large stock of first-rate garments for the Winter, in Llamas and other new materials, manufactured expressly for W. B. now ready. They are made and sold in London only, at 69, Cornhill (north side), and by W. B.'s Agents in various towns throughout the Kingdom.

Waterproof Cloaks, Capes, &c. for Ladies.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

T. SMITH AND SON'S

IMPROVED PATENT WATER-CLOSET,

HAS, after three years' experience, been pronounced by all who have introduced it, to be the most perfect machine of the kind ever brought under their notice, and fully supplying all requisites indispensible to the complete success of an apparatus of such acknowledged utility. Upwards of 2,000 of the improved water-closets have been fixed in various parts of the country since the first introduction, in every case with the most satisfactory results, as the numerous testimonials from influential parties will abundantly testify.

The desiderata of a perfect water-closet—a simplicity, cleanliness, and durability which are attained by the IMPROVED PATENT, with the additional recommendation of GREAT ECONOMY, since the machine, from the simplicity of its construction, cannot become impaired by any of those accidents which so materially affect the value of closets of the common construction.

The Patent Trap can be furnished to the ordinary pan-closets; but to obtain the full advantage of the invention, the Improved patent should be used in its complete form.

T. SMITH and SON are still engaged in appointing agents throughout the kingdom, to whom every information necessary for making and fixing are provided, as well as the various testimonials with which they have been furnished.

List of Agents already appointed.

Bridges, T. 18, Old Quebec-street. London.
Stocker and Curtis, 121, St. John-street, do.
Burgess, ——, More-street, Birmingham.
Lythall and Adney, Temple-street, do.
Newbold, B. G. do.
Stokes, J. C. do.
Barge, John, 88, London-road, Manchester.
Howard and Atkison, Deansgate, do.
Ward and Leech, 36, Brook-street, Davis-street, do.
Harrison and Son, 41, Chapel-street, Salford.
Fletcher, Chas. More-lane, Bolton.
Travers, John, Church-bank, do.
Holt, James, Hanover-street, Liverpool.
Knight and Nimmo, Renshaw-street, do.
Porter, Thos. and Co. Mercey-street, do.
Rigby, John, York-street, do.
Bailiff Stainton. Birkenhead.
Crump, Thos. Derby.
Goold, Thos. Leamington.
Johnson, Timothy, Coventry.
Hickman, C. R. Oxford.
Kirk, S. Sleaford, Lincolnshire.
Adams, George, Market-place, Margate.
Marshall, Chas. Lincoln.
Norman, Thos. Leicester.
Rhodes, Samuel, Nottingham.
Totley, William, Wolverhampton.
Wood, Benjamin, Brighton, Sussex.
Gore, William, Stratford, Essex.
Morley, J. Greenwich.
Broomhead, John, Bakewell, Derbyshire.
Daniel, Robert, Chesterfield, do.
Rouse, Josh. Ashbourn, do.
Smith, J. Belper, do.
Parker, John, Cromford, do.
Hunt, Henry, Banbury, do.
Brown, William, Horncastle, Lincolnshire.
Bellamy, N. P. Louth, do.
Driffell, Thomas, Spalding, do.
King, W. Gainsborough, do.
Melton, Edward, Market-Ravin, do.
Barnes, Henry, Stamford, do.
Marriott, Christopher, Southwell, Nottinghamshire.
Pawsor, P. C. Newark, do.
Buswell, H. Luthworth, Leicestershire.

PROFESSOR KELLER'S POSES PLASTIQUES.

ROYAL ADELAIDE GALLERY.—This day, and during the week, Professor Keller will exhibit at the Adelaide Gallery his Grand Tableau Vivans from the Ancient Masters, which have received so largely the encomiums of the press. Every morning at half-past three, and in the evening at nine o'clock. Great efforts have been made to add to the effects of this exhibition. A variety of new subjects have been added to those already presented to the public. The Concerts as usual. Also Pilbrow's Atmospheric Railway model, with explanatory lecture.

SASHES, SHOP FRONTS, &c.

JOHNSON and PASK thank the public in general for the very liberal support they have received since they commenced manufacturing for the trade, and beg to state that they continue to manufacture sashes, glazed complete, at 11*d.* per foot, shop-fronts with the best British plate-glass. All kinds of joiners' work cheaper than any other house in the trade.

1, Amwell-street, Clerkenwell.

WINDOW BLINDS,

ORNAMENTAL WIRE-WORK, FLOWER-POT STANDS, &c.

To Architects, Builders, Contractors, Upholders, and others.

M. H. BUSBY, NEW VENETIAN HOUSE, 7 and 8, Anderson's Buildings, City Road, London,

Manufacturer of every Description of Window Blinds on the most approved principles, namely, the Spanish, Oriental, Florentine, Louvre, and Venetian Sun Shades, for the exterior; and Venetian Dwarf, Metallic Gauze, Perforated Zinc Blinds, Transparent, Landscape, and Holland Blinds on Springs, Patent and Common Rollers for the Interior; Blinds for Shop Fronts, Plain and Ornamental, on the most improved plans. Old Blinds Altered, Ironed, and Refixed. A variety of Flower-pot Stands always Ready. Rustic, Portable, and other Garden Seats and Stools; Wire-work for every purpose useful and ornamental.

VENETIAN BLINDS FOR EXPORTATION.

COMPOSITION FOR WRITING WITH STEEL PENS.

STEPHEN'S WRITING FLUIDS.—These Compositions, which have so remarkably extended the use of the STEEL PEN, are brought to very great perfection, being more easy to write with, more durable, and in every respect preferable to the ordinary ink. In warm climates they have become essential. They consist of—A BLUE FLUID, changing into an intense Black colour.—A PATENT UNCHANGEABLE BLUE FLUID, remaining a deep Blue colour.—A SUPERIOR BLACK INK, of the common character, but more fluid.—A BRILLANT CARMINE RED, for Contrast Writing.—A CARBONACEOUS RECORD INK, which writes instantly black, and being proof against Chemical agents, is most valuable in the prevention of fraud.—Also a new kind of MARKING INK for Linen, and inkholders adapted for preserving ink from evaporation and dust.—Sold in Bottles, of various sizes, by all Stationers and Booksellers.—Be sure to ask for Stephens' Writing Fluid.

N.B.—These unchangeable Blue Fluids are Patent articles. The public are therefore cautioned against imitations, which are infringements; to sell or use which is illegal.

STEPHENS' SELECT STEEL PENS.

The utmost possible care having been bestowed upon the manufacture of these articles so as to procure the highest finish they can be confidently recommended both for flexibility and durability. Also

STEPHENS' RULING and MECHANICAL DRAWING INK, for Engineers, Artists, and Designers.

This article will be found superior to the best Indian Ink for the above purposes. It does not smear with Indian-rubber or wash off with water. It flows freely from the drawing pen, and never corrodes or encrusts it. It may be used on a plate or slab, with a camel's hair brush, deluting it with water, or thickening it by drying, as required. It has the advantage of being ready for immediate use. Sold in conical-shaped Bottles, convenient for using from, without any Stand, at 6*d.* each.

All the above articles are prepared by HENRY STEPHENS, the Inventor, 54, Stamford-street, Blackfriars-road, London, and sold by Stationers and Booksellers.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. (chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, or public way, or in any part intended to become a street, lane, or public way, or to carry or drain off water from any house, building, yard, or ground, into any sewer under their management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewer or sewers shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, upon application being made at this office previously to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, whenever the lower floors or pavements of buildings shall have been laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings must in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners will be cut off, and the parties making the same will subject themselves to a fine.

The provisions of the Metropolitan Buildings Act (7 and 8 Victoria, c. 84) do not supersede the authority of the Commissioners of Sewers in the above respects, but their powers are expressly reserved, and their regulations made subservient to the purposes of that Act. The execution of such works, under the superintendence of the district surveyor alone, cannot therefore warrant the making of any sewers or drains within this commission, nor relieve the parties making them from the penalties above mentioned.

By order of the Court,
LEWIS C. HERTSLET, Clerk.

POLONCEAU'S BITUMEN PAVEMENT for paving Foot walks, Terraces, Garden walks, Stables, Coach Houses, Granaries, Corn Stores, and Salt Warehouses. For the exclusion of Damp and Vermin in Basements it is particularly adapted, and for Roofing Dwelling Houses, Porticos, Balconies, and Sheds.

Price 3s. 6d. per square yard.

BITUMEN for covering the Arches of Bridges, Culverts, &c. &c. on Railways and other places (with instructions for laying it down), may be had at the rate of 45s. per ton, by applying to JOHN PILKINGTON, 15, Wharf-road, City-road.

TO ARCHITECTS.

IN consequence of many complaints having been made to the Company, by Architects, of a spurious material having been used in the execution of Works where the SEYSSEL ASPHALTE had been specified for, the Directors, with a view to ensure the fulfilment of any such specification, have authorized CERTIFICATES to be granted to Builders where the

SEYSSEL ASPHALTE

has been used. For the purpose of securing the use of the Genuine Article, Architects and others are recommended to insert in their specifications the "Seyssel Alphalte, Claridge's Patent," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used, gas-tar and other worthless and offensive compositions have been introduced. I. FARRELL, Secretary.

Stangate, near Westminster Bridge, Jan., 1845. Seyssel Asphalte Company,

Books of Instructions for Use may be had at the Office of "The Builder," and of all Booksellers in Town and Country, price 1s.

*** In proof of the necessity of the above advertisement, it may be mentioned, that it has come to the knowledge of the Directors, that in certain works which have been executed by Messrs. CURTIS, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

Also in the case of a work at Lewisham executed by Messrs. ROBERT and DANIEL YOUNG, of 10, Crown-row, Walworth-road, where Seyssel Asphalte was specified for, a spurious article was nevertheless laid down by them.

GAS LAMPS, FITTINGS, &c.

A NEW ASSORTMENT of HYDRAULIC GAS PENDANTS, new pattern Opal Gas Brackets, &c.—C. DEBAUFER and SON have on view a new assortment of hydraulic Gas Sliding Pendants, opal and brass handsome Gas Brackets, Gas Pillars, newest patterns, and Chandeliers, at their Manufactory and Showroom, 10 and 11, Creed-lane, St. Paul's; adapted for public buildings, shops, and private houses. — N.B. Architects, Builders, &c., wishing to fit up at shops, houses, &c., are requested to take an early opportunity of inspecting their stock. —Estimates given from 5 lights to 1,000 at wholesale prices.

MOREWOOD AND ROGERS' PATENT GALVANIZED TINNED IRON.

T. W. BEALE begs to acquaint the public that he is prepared to lay roofing, plain or corrugated, fix pipes, gutters, &c. Also chimney-tops and ventilating cowls of every description; also water and oil cisterns, of this incorrodible and fireproof metal. He manufactures all kinds of baths, as hip, shower, Roman, open, slipper, sponging, foot, children's, and self-bearing baths; also toilet-cans and pails, slop-pails, coal-scuttles, cash and deed-boxes, and fire-proof safes of every description, 10 per cent. cheaper than any house in London.

The PATENT GALVANIZED TINNED IRON is applicable to the following uses:—The Lining of Ships' Store Rooms, Ships' Water Buckets, Water Jugs and Receivers, and for almost every purpose to which zinc, tin, copper, brass, or any other metal is now applied; is more durable, and manufactured at much less expense. An experienced workman sent to any part of the kingdom. All orders punctually attended to. For particulars, apply to T. W. BEALE, 45, Bridge House-place, Newington Causeway.

By Her Majesty's Royal Letters Patent.

MOREWOOD and ROGER'S PATENT GALVANIZED TINNED METAL. — This article was at first sold under the name of Galvanised Tin Plates, but the Patentees finding that the public, in some instances, overlooking the word Tin, confounded the article with Galvanised Iron, and that the character of their metal has thereby sustained injury, are desirous of giving it a name so distinctive as to prevent such mistakes, and consequent disappointment to purchasers in future. They therefore respectfully request purchasers to inquire for MOREWOOD and ROGER'S PATENT GALVANIZED TINNED IRON. In order to enable the public readily and at first sight to distinguish between the two metals, it may be well to inform them, that Galvanised Iron has a plain zinc-like appearance, while M. and R.'s Patent Galvanized Tinned Iron has a smooth crystalline surface.

MOREWOOD and ROGER'S PATENT GALVANIZED TINNED IRON, Patronized by the Admiralty and the Honourable Board of Ordnance, being extensively used in her Majesty's Dock-yards, at the Tower, and elsewhere, for every variety of Roofing, and other purposes, where a strong, light, cheap, and durable material is required.

It has been found by experience that this article is beyond all comparison superior to zinc; possessing, as it does, all the advantages arising from the strength and firmness of iron, combined with perfect immunity from rust; whilst it is free from the very serious objection which applies to zinc, viz. its contraction and expansion, consequent upon every change of temperature, and from which circumstance leakage must of course result.

This material is not likely to be destroyed by fire, as is the case with zinc and lead, which melt and run down, thus freely admitting fresh air to the fire, and causing it to burn more fiercely. It is, therefore, obviously well adapted for all the purposes above-named, and most importantly so, when there is the possibility of fire. It is also peculiarly suitable for chimney-tops, gutters, spouting, and out-door work generally, possessing the strength of iron, without its liability to corrosion. It is by far the most economical metal roofing that can be obtained, in consequence of its strength, as it may be laid without boards, and upon the lightest rafters.

This mode of preserving metal from rust does not only apply to sheet-iron, but also to manufactured iron in any form, as bolts, nuts, hinges, nails, &c. &c.

For full Particulars apply to S. HOLLAND, 34, Grace-church-street.

RAIN WATER PIPES, Heads, Shoes, and Elbows, Half-round and O G Gutters, Sash Weights, Railing Bars, Sink and Stable Traps and Gratings, Air Bricks, Coal Plates, &c.; Gas and Water Pipes from 1½ in. to 12 in. in diameter, with Bends, Branches, Syphons, and Lamp Columns; also Hot-water Pipes, with all the usual connections. A large Stock of the above Castings at JONES'S Iron Bridge Wharf, and No. 6, Bankside, Southwark.

HENDRY and GLOVER, IRON-FOUNDERS, beg to inform their customers that they have removed their Foundry (from Smart's-buildings) to CHARLES-STREET and 16s, DRURY-LANE, where they have adopted every improvement to enable them to compete successfully in quality, price, and punctuality. They have also an extensive and well-arranged stock of patterns for every description of Castings.

R. W. PIPES.

Messrs. NEILSON and MITCHELL beg to inform Builders that they have always on hand, at their premises, 15, Wharf-road, City-road, a large assortment of R. W. Pipes, Guttering, Sash-weights, &c., which they are disposing of at very low prices.

Castings of every description done to order.

BALLUSTERS.

REDUCTION IN THE PRICE OF

BUNNETT AND CORPE'S

PATENT REVOLVING IRON SHUTTERS.

THE validity of this Patent being completely established, the Patentees have much pleasure in stating that the very extensive demand, and the employment of improved machinery in the manufacture, have given them an opportunity (of which they gratefully avail themselves) of making a considerable reduction in the price of this well-knownand tried invention, thereby rendering them the cheapest as well as the best iron shutters in use. Every improvement suggested by practical skill and most extensive application has been adopted, and no effective REVOLVING IRON SHUTTER can be constructed without infringing B. and C.'s patent. These shutters can be applied horizontally, either above or below the window, or vertically, as introduced by BUNNETT and CORPE, in some of the largest establishments: they are made with bent or corrugated laths, if required.

BUNNETT and CORPE also manufacture

REVOLVING WOOD SHUTTERS,

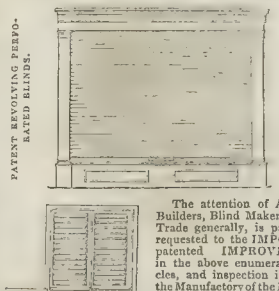
with their patent raising machinery, or with counterbalance weights, and with proper metallic hinges, without which no shutters can be safe or durable.

BUNNETT and CORPE are likewise Patentees and Manufacturers of METALLIC SASH-BARS, MOULDINGS, &c., IN BRASS, COPPER, OR ZINC, FOR SHOP FRONTS, WINDOWS, SKYLIGHTS, AND VARIOUS OTHER PURPOSES.

Shop Fronts fitted in a superior manner with Iron Shutters, Patent Brass or Zinc Sashes, Moulded Engraved Stall Board Plates, best Plate Glass, and internal Brass Fittings of all kinds, on the most advantageous terms. Estimates given and contracts taken in Town or Country.—All kinds of metal works executed to any design. Metal Drawing, Rolling, and Stamping for the Trade. OFFICE, 26, LOMBARD-STREET, LONDON. WORKS, at DEPTFORD, KENT.

IMPROVED PATENT CONVEX IRON REVOLVING SAFETY SHUTTERS.

PATENT SAFETY IRON SLIDING SHUTTERS.





The attention of Architects, Builders, Blind Makers, and the Trade generally, is particularly requested to the IMPORTANT patented IMPROVEMENTS in the above enumerated Articles, and inspection invited, at the Manufactory of the Patentees, R. HOWARD and Co., 115, Old Street, London; and at PATRICK CLARK and Co.'s Engineers and Machinists, Tunnel Iron Works, 238, Wapping.

Engravings and Prospectuses may be had at either address, or will be forwarded on application.

The great importance of stength and stiffness in the Laths of Revolving Iron Shutters, when required for security, is so obvious, that it is only necessary to point out the fact that, the Patent Convex Laths are 12 times stronger than the ordinary flat Laths (as shewn by the engravings and prospectus), to ensure their general adoption. Revolving Iron Shutters made of the common flat laths, at a very considerable reduction of price.

CAUTION.—The Patentees beg to caution all persons against Making or Using Bent Laths for REVOLVING IRON SAFETY SHUTTERS, so as to obtain increased strength or stiffness; as they thereby render themselves liable to legal proceedings for infringing this patent.

Licenses Granted

TO BUILDERS AND CARPENTERS.

A Considerable saving will be effected in the purchase of IRONMONGERY, by applying at F. R. WILLIAMSON'S Wholesale Warehouse, No. 35, Chiswell-street, Finsbury-square, near Whitbread's Brewery.

Best Patent Cut Clasp.

3d.	4d.	6d.	8d.	10d.	20d.
5d.	6½d.	7½d.	11d.	1s. 4d.	2s. per 1000.

Best Sheet Floor Brads 14s. 6d. per cwt.

Best Town Glue 44s. per cwt. Do. Scotch 54s. per cwt.

Best Patent Sash Line.

1	2	3	4	5	6
4s. 3d.	5s.	6s. 6d.	7s. 6d.	10s.	12s. per gross.

Elliptic Stoves, 3d. per inch. Registers, 6d., 7d., 8d. per inch. Self-acting Kitchen Ranges with Oven and Back Boiler.

Wrought Bars and Bright Fittings.

3 ft., 3l. 3s. 3 ft. 6 in., 3l. 12s. 6d. 4 ft., 4l.

Lists of Prices had on application at the Warehouse; if by letter prepaid, inclosing postage stamp.

R. HENLY & Co., WHOLESALE IRONMONGERS, and MANUFACTURERS of KITCHEN-RANGES, STOVES, &c., 196, Blackfriars-road, and 117, Union-street, Borough.

Strong Self-acting Kitchen-Ranges, with back Boiler and Oven, and Wrought Bars:—

3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
3l. 5s.	3l. 13s.	3l. 15s.	4l.	4l. 10s.

Henly's Patent Improved, with back Boiler and Wrought Iron Oven:—

3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
5l.	5l. 15s.	6l. 5s.	6l. 10s.	7l.

Best Register Stoves, at 7d., 8d., and 9d. per inch.

Do. Elliptic do., at 3½d., and 4d. do.

Manufacturer of WOLFASTON'S PATENT REGISTER STOVES, a certain cure for SMOKY CHIMNEYS, and effecting a great saving in fuel. To be seen in use daily.

Orders from the Country, accompanied with a remittance or reference, will meet with prompt attention.

GOOD AND CHEAP IRONMONGERY.

CARPENTERS, BUILDERS, CABINET MAKERS, SMITHS, &c., are invited to call at G. WARBURTON and Co.'s Ironmongery warehouse, 146, Tottenham Court-road, and they will by so doing effect a considerable saving in all articles of good general ironmongery.

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Cast Butt Hinges.

1½ in.	1¾ in.	2 in.	2½ in.	2¾ in.	3 in.
7½d.	9½d.	1s.	1s. 2d.	1s. 4d.	2s. 1d. per dozen pair.

1½ in. Best Frame Pullies, 1s. per dozen.

Best White Sash Line, 6d. per dozen knots.

Best Patent Sash Line.

No. 1	2	3	4	5	6
4s. 3d.	5s.	6s. 6d.	7s. 6d.	10s.	12s. per gross.

G. W. and Co. beg also to intimate that they are just adding Tools from the first manufacturer in Sheffield to their present stock.

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PUMPS of Superior CONSTRUCTION, bored perfectly true by improved machinery, in various plain and ornamental patterns for Conservatories, Squares, Market Places, Roads, Gardens, and for Liquid Manure. BRICKMAKERS' PUMPS, in Wrought and Cast Iron, HYDRAULIC LIFT PUMPS, and ENGINES for Wells of any depth. SINGLE and DOUBLE PUMPS up to 12-inch bore, kept for Hire.

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By Her Majesty's Royal Letters Patent

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WITH SECRET AND SECURE FIXINGS.

THIS CHEAP and USEFUL ARTICLE, obviating the unsightly appearance and insecurity of the common rim lock, can be obtained of any respectable ironmonger in town or country, or from the sole manufacturer, Mr. EDWARD WRIGHT, Wolverhampton.

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DOOR SPRINGS AND HINGES.—GERISH'S PATENT DOOR SPRINGS, for CLOSING every description of DOOR, consists of Single and DOUBLE-ACTION BUTT HINGES in Brass and Iron for Doors to open one or both ways, and Rising Hinges for the convenience of Doors opening on uneven Floors. Likewise Swing Centres, which consist of a combination of power uncqualled by any made at present. Manufactured by F. W. Gerish, East-road, City-road; and sold by all respectable Ironmongers in the United Kingdom.

TO ARCHITECTS AND BUILDERS.

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TO ARCHITECTS AND BUILDERS.

The PATENT ALBERT WEATHER-BAR for simplicity and effect supersedes any thing of the kind yet offered to the public. The expense varies from 18s. to 28s. Invented and manufactured by T. WILKINSON and Co., Ironmongers, 77, Regent-quadrant. T. W. also executes all kinds of Iron-works, Staircases, Warming by Hot-water, Fitting up Stoves and Ranges of all kinds; also Bell-hanging extensively executed. Estimates given.

The Builder.

No. CXLVI.

SATURDAY, NOVEMBER 22, 1845.

PARLIAMENTARY standing orders require that plans of railways, with books of reference, must be deposited with the various clerks of the peace, on or before Saturday next. Without this step, a project can have no *status* this session; moreover, to maintain this *status*, and get an opportunity to *try* to prove the preamble of the Bill, the plan and Book of Reference *must be correct, and in accordance with certain regulations*. Ponder this, ye pseudo-surveyors at seven guineas per day! reflect on it, ye unwise hirers of such,—ye men of much haste and little speed. The flock of rising barristers, recent products of the railway system,—hatched and bred in the ovens, 'yclept committee-rooms, already look forward to the easy triumph which your expected errors, omissions, and impracticabilities, will yield them; knowing, well as they do, that the slightest grounds for declaring "standing orders not complied with," will be eagerly seized by the committee, in their anxiety to lessen the number of schemes before the House.

Scores of the parties employed in surveying, levelling, and mapping, are utterly incompetent, and yet are paid immense salaries for their *services*. We know youngsters, hardly able to tell the right end of a theodolite from the wrong, who are receiving two, three, and four guineas a day and their expenses. The supposed necessity for going to Parliament immediately, and the insufficient number of surveyors, as compared with the number of projects, have induced an expenditure so lavish and reckless, as to prove that the parties making it, are wholly unfit to direct the schemes of which they are the heads, and dispense money belonging to others. A non-professional acquaintance of ours, who has a tolerable knowledge of surveying and levelling (in theory), was called on by a solicitor who had heard of his attainments in these respects, to know on what terms he would undertake to map a certain portion of a line. "I am not disposed to do it at all," said our friend. "We will give you three guineas a day," urged the solicitor. "That would not induce me," was the reply. "Well, four then,—nay, five, if four won't do; a map we must have within four weeks from this time." Our friend still shook his head; but ultimately said, simply with the view of getting rid of the applicant, that he would make the attempt, if they would pay him twelve guineas a day for two months certain. The proposal was immediately accepted; and, before he left town, he received intimation that they should not object to pay for the seventh day of the week; and he is now positively at work on these terms.

None of our readers will consider us opposed in any degree to railways: every line properly carried out will improve trade, call labour into employment, and advance both the intellectual and commercial power of the nation. To the extent of our ability we have encouraged and will encourage, the investment of capital in their construction, satisfied further, that it will tend not only to the good of the community, but the pecuniary advantage of the individuals so employing it. We do, however, object to, and reprobate severely, the lavish and useless expenditure of the subscribers' money, which prevents the possibility of any return being made for a long period of time, and has the effect of checking real improvements, by driving away prudent capitalists (the most important class), who are seeking investments, and who, if they took shares, would do so to hold.

The money spent on the old lines was enormous, very much more than was necessary. But the proposed lines, if from the foot we may judge the statue, are to surpass them far in imprudence and reckless extravagance. Engineers are to be paid any sum, no matter how preposterous the amount may be, that will induce them to undertake the matter; landowners any sum that will secure their consent; and when we add to this the enormous expense to which, after all, in nine cases out of ten, they will be put, most unwisely, by the opposition of existing companies and others, to say nothing of the cost of construction, directors' fees, &c., the possibility of the line paying, even should the application be successful, is seen to be postponed for many years.

Moreover, with all this cost, the actual work (supposing preliminary errors to be got over), will not be well done. When an engineer rides once over the ground, and then settles the line in his library, either with or without a few maps, and some suggestions from local men, he may by *possibility*, hit on the best and most economical course; the chances, however, are wholly against it. Thousands of pounds will be spent, through the engineer being ignorant of the nature of the land over or through which the road is to pass, and thousands more, because he had not time to ascend a neighbouring eminence, which would have shewn him how, by a trifling *detour*, costly works might have been avoided.

"We are perfectly aware of all this," provisional committees may say,—"but what is to be done? The time is coming on, and to Parliament we must go at once." To Parliament you must go, gentlemen, doubtless; but why at once? Take advice; and unless your line has been thoroughly digested and canvassed; carefully surveyed and planned; and you are perfectly satisfied that you can meet all the requirements of the Legislature, delay your application till the following session. True, the temporary value of your scrip will fall, but your permanent interests, and those of the subscribers generally, always supposing that your project be a sound one, will unquestionably be advanced. Your scheme might lose its position as an instrument of gambling, but would gain the consideration of those who are seeking to invest their money in reasonable projects, directed by honourable and enlightened men.

MUSEUM OF NATIONAL ANTIQUITIES.

THE report, to which we referred some time ago, that Lord Prudhoe, through the Archæological Institute, had offered his collection of national antiquities to the British Museum, on condition that they would set apart a proper place for the reception of other collections bearing on the same subject, is confirmed; and, better still, the trustees have accepted the terms, and appear, at last, disposed to take up this most important matter with earnestness. In a leading article on the subject in April last,* wherein we argued the advantages that would follow such a collection, we alluded to an application made to the trustees of the Museum two years before, praying them to provide accommodation in their new building for British architectural antiquities. The trustees returned for answer that they were *not prepared to recommend her Majesty's Government to do so.*

Since then, it appears, their eyes have been opened to its importance by the Archæological Institute, to whom all who are interested in the subject must therefore feel grateful. At the last meeting of the Institute of Architects (a report of which will be found on the next page), the following communication addressed by Mr. Edward Hawkins to Mr. Poynter, the honorary secretary, was read:—

"British Museum, Nov. 17, 1845.

MY DEAR SIR,—As the formation of an extensive collection of national antiquities is contemplated at the British Museum, and as a room for their reception will shortly be opened in that establishment, I am most anxious as the keeper of the department of antiquities, to take every step for the furtherance of this object. The committee of the Archæological Institute, kindly co-operating with the Museum in the desire to form such a collection, have already taken active measures towards the awakening public interest in the matter. Much will, I am sure, be accomplished by their exertions, but they feel as I do, the necessity of seeking the aid of those who, by the experience and opportunities of their profession, are best able to carry out some general scheme for the record and preservation of antiquities found in this country. A great part of such objects are discovered in works conducted under the control and inspection of architects, and it is to the professional knowledge of the architect that we are generally indebted for an authentic account of such discoveries, and by his influence, that antiquities thus found can be best protected. I therefore venture to address myself on this subject through you, their secretary, to the Fellows of the Royal Institute of British Architects, hoping that by their authority and example, an active interest in the preservation of antiquities may be created in the whole body of their profession, and may thus be gradually communicated to their clerks, and to the foremen and others more immediately set over workmen employed in labours of excavation and demolition.

The claims of archæology once publicly recognized, antiquities when discovered would no longer be ignorantly destroyed or dispersed, but would be scrupulously collected together into one place; the circumstances of their discovery would be registered with far greater accuracy, and the result in a few years would be a most interesting collection of monuments of national art, and the development of the history of successive races, as far as it can be gathered from the evidences of archæology, and as it is exhibited in the museums of other countries.

I need hardly here remind you, that if to the archæologist hardly any comparison seems too extensive or too minute, if he seek to bring together every fragment of the works of former races, and studies not only the nobler specimens of their art, but every variety of type in the fashion of their costume, and the implements of their daily life, he does so with the deep conviction, that in all these relics there is meaning and value, not merely because they may singly corroborate or by chance supply history, but because when put together and viewed in connection, they exhibit with peculiar reality, the character of an age or race as it has unconsciously revealed itself in its art and handicraft.

I trust that the truly national character of the object set forth in this letter, may serve as my apology for having ventured to make this appeal to the Fellows of the Institute of Architects; if in these remarks is found no definite request or proposition as to the mode of recording or guarding discoveries of antiquities, it is because I would rather invite the suggestions of others, best qualified by professional experience, to decide what measures are practicable for such a purpose.

I remain, my dear Sir, yours truly,

EDWARD HAWKINS."

We cordially echo Mr. Hawkins' wish, that by the authority and example of the Institute, an active interest in the preservation of antiquities may be excited in the whole body of the profession, and may be communicated to workmen and others, employed in excavations. We shall return to the subject forthwith.

* See page 181, *ante*.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The most agreeable and instructive evenings spent at the Institute, are those when, two or three short *suggestive* papers being read, the members are led into conversation and discussion. This was the case on Monday evening last. Mr. Kendall was in the chair, and the meeting was numerous. Amongst the donations was a check for 20*l.* from General Pasley, for the purposes of the Institute. We trust the council will immediately apply it to the improvement of the library, to which, by the way, their attention ought constantly to be directed. A good architectural library, easily accessible, is much required, and if formed by the Institute, will be found a sheet anchor on which to depend hereafter, should the wind at any time be less favourable than it is now.

The foreign secretary announced that the council had voted the Institute medal to the Chevalier Beuth, lately the chief director of the Government works in Prussia, on his retirement from office. Mr. Poynter, hon. sec., read a catalogue drawn up by himself and Mr. Donaldson, of drawings by Palladio, now in the possession of the Duke of Devonshire, at Chiswick,—a very extraordinary collection, 250 in number, which is little known. Strange to say, although they are all by the master's own hand, not one is signed. The list was made in consequence of an application on the subject from Vicenza, where a life of Palladio is about to be published. The drawings, properly mounted, are in seventeen portfolios, and are preserved most carefully by the duke, who prizes them highly. They were probably collected by the great earl of Burlington. As we shall take an early opportunity to print the list entire, we shall say no more of it now than that the collection is of great curiosity, and includes some designs by Palladio never published. Mr. Donaldson remarked that the collection gave evidence rather of thought than of attention to good drawing; they were bold and slight, and those which were from ancient examples shewed that he entered thoroughly into the spirit and genius of the antique. Drawings of one of the temples represented colonnades that did not now exist. It was greatly to be regretted that they were not given to the world: this might be done inexpensively, and would be regarded with interest universally. Mr. Tite said enough was not done for the elucidation of classic architecture. Even of St. Paul's Cathedral, there were no sufficient illustrations. In connection with the Duke of Devonshire's collection, the speaker alluded to Inigo Jones' sketch-book, in the duke's possession, of which he had caused to be made a small number of fac-simile copies for friends and public libraries. Some specimens of Dr. Arnott's valves were exhibited and described: and led to a conversation on smoky chimneys, which shewed what very different opinions are entertained on apparently simple points.

The honorary secretary read a letter from Mr. Hawkins (on the proposed collection of national antiquities at the British Museum), given on the preceding page, and called on Mr. Newton, one of the officers of the Museum, who was in the room, to give further explanation. Mr. Newton said, the trustees of the Museum had always been most anxious to establish a Museum of National Antiquities, but had not felt themselves in a position to do so till now. It was most desirable that a spirit of preservation should be induced, and that relics, when found, should be transmitted to a public repository, rather than be placed in private hands.

Mr. Tite was glad of the opportunity which then offered itself, to set the public right on a particular point, in connection with antiquities in the city. A general impression prevailed, that matters of this sort were little cared for in the city, and that they looked after nothing but turtle and railway shares. In reality, however, this was not the case. There were many there who were most anxious to keep together such ancient remains as were found. These views were greatly interfered with by those gentlemen, who singly, were running after all the antiquities which were brought to light, and endeavoured to buy them. Such a course necessarily led to their dispersion. When they were excavating for the Exchange, foreseeing that many relics would probably be discovered, and most anxious that they should all be kept together, the contractor was bound, under heavy penalties, to place every thing that was discovered, in the hands of the committee, and arrangements were made to remove any temptation to sell on the part of the workmen. At the commencement of the works, he was applied to by Mr. Roach Smith, for leave to watch the excavation, and this he readily gave, but told him at the same time, that he would not be permitted on any account to purchase. In the first instance, nothing was discovered of earlier date than the twelfth or thirteenth centuries, but at the western end, in a part where the ground was bad, piles were found. These being drawn, a bed of concrete was discovered, and under it a hole filled with soft peaty earth. In this was an extraordinary collection of Roman remains,—remnants of Roman London; shoes, sandals, amphoræ, bodkins, and numerous coins; such a collection as was never seen before. It required the greatest efforts to prevent it from being dissipated, and Mr. Roach Smith had given much trouble by his efforts to elude the regulations, and purchase for his own collection. What he had to complain of, however, was, that Mr. S. had afterwards accused them in the *Archæologia*, and elsewhere, of the interruption they caused to his investigations. The charge had been made publicly, and he therefore felt no delicacy in mentioning the name. The collection, he was happy to say, was under his care in the London Institution; and the only question was, whether it should be placed in the City Library or the British Museum; in one way or the other, it would speedily be made public.

Mr. G. Godwin, reverting to Mr. Hawkins' gratifying communication, reminded the meeting of an application made to the Museum some time ago, to the effect that they should establish a Museum of Architecture, which was refused, and further pointed to the manner in which Mr. Wyse's motion in the House of Commons, to the same effect, had been received.* He hailed with great satisfaction the present determination of the trustees, and feeling that they would probably, be glad to have their hands strengthened, by an expression of opinion from a body like the Institute, suggested that the council should take into consideration how they could best convey this,—a suggestion which appeared to be concurred in by the whole meeting.

Mr. Donaldson alluded to what the French had done for the preservation of antiquities. He was of opinion it was not desirable to bring all remains that were discovered, to London, but that separate provincial museums should be established. He alluded to the good which had been done by Mr. Britton's works (as Mr. Tite had remarked previously), and praised him for his continued efforts to induce the preservation of monuments.

Mr. Britton said it gave him sincere gratification to hear what the trustees of the British Museum were about to do. He had advocated the establishment of such a museum as far back as 1800; when he advised Sir Richard Colt Hoare to deposit his wonderful collection in the rooms of the Society of Antiquaries. He brought the matter before the society at that time, but they shewed no desire to interfere, and the matter dropped. When Waltham Cross, and other national antiquities, were about to be destroyed, he renewed the question, but both the British Museum and the Society of Antiquaries were careless. Now that the former was about to stir in it, the provinces would doubtless follow the example. At Bath a great deal had been discovered, but more had been destroyed. Architectural remains were of the utmost importance to British History; the rectification of which, depended more on antiquarian relics than written records. Hoare's museum was now kept in a small apartment, with little attention; and there was a probability, that before many years elapsed it might be distributed. In conclusion, he said it was gratifying to him to find, that he should probably yet see a museum of national antiquities, before he passed off the scene.

Penrith Castle.—A number of workmen are at present engaged in excavating and levelling the castle garth, near the ruins of Penrith Castle, which is the intended site of a railway station at that place.

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* See page 313 *ante*.

DECORATIVE ART SOCIETY.

On Nov. 11th, a conversazione was held: Theme—The style of Louis 14th. Mr. Fildes, V. P., described the rise of the *renaissance* style in France, and its progress from the time of Francis 1st, and its gradual modifications, resulting in the establishment of that of Louis 14th, adding a brief account of many celebrated artists and architects, who flourished under the munificent patronage of the court during the long reign of that monarch.

Numerous engravings were exhibited from the works of Le Brun, Watteau, the Le Pautres, Berain, Mariette, Johnson, Chippendale and others, to which constant reference was made in illustration of the observations which followed. There were also produced some copies by Mr. Seddon, of original sketches for the decorations at Versailles, now preserved in the Bibliotheque at Paris. It was remarked, that erroneous conceptions of the style are very prevalent in the minds of many employed upon decorations, and that the more sumptuous and magnificent works of the period are neglected or imperfectly understood, whilst their place is usurped by the exuberance of fantastic scroll work, which appeared only at the latter end of this reign, and was prevalent during those of Louis 15th and 16th, but which has in common estimation been considered as the genuine productions of Louis Quatorze style.

The general characteristics of the style in its best period were described as "Florid Roman," and the interior decorations as being, in design, subordinate to the principal architectural lines. The works of Mansart, Le Brun, and Jean Le Pautres, were referred to as examples. It was observed that the productions of Watteau, Berain, Mariette and Dekker, displayed the lighter grotesque fancies in ornament, which attended a departure from classic taste, and also that the facility with which eastern forms of ornament were blended with them had served to sustain them in the public estimation. It was said that Sir C. Wren made the nearest approach to the style of Louis 14th recognizable in the architecture of this country, and that the decorations of some rooms in Wilton House, Stafford House, and a few others were in accordance with this style. After some observations upon tapestried and mirrored panels, and the adulatory heroic ceilings, by Le Brun, peculiar to the royal palaces of France at that period, the meeting was adjourned to Nov. 26th.

COMPLAINT AGAINST A DISTRICT SURVEYOR.

Sir,—With the difficulties created by the variety of unintelligible clauses of the "Metropolitan Buildings Act," it is to be regretted that the appointed officers, either through ignorance or caprice, should increase the vexation of those who are compelled to submit to its enactments. A case that has caused much excitement in this neighbourhood has recently come under my notice, the particulars of which I will endeavour to state as concisely as the ramifications of the matter will permit.

A party had commenced four fourth-rate houses before 1st January last, and regularly proceeded with them, nearly to completion, until 4th of August, when, to his great surprise, (without any *previous intimation* of objection), an official notice from the overseers of Camberwell was served upon him, requiring him, "within fourteen days next ensuing the date hereof, to pull down or cause to be pulled down four messuages, tenements, or dwelling-houses, lately erected by you, in Upper Queen-street, &c.; described in the report of William Crawford Stow, the district surveyor, as being in a ruinous and dangerous condition. A copy of which report, together with copies of the 40th and 112th sections of the said Act, are affixed thereto.

And we hereby further give you notice, that in the event of your *disobeying this notice, the powers* and provisions given to us by and contained in the said Act of Parliament will be strictly enforced."—Signed by the overseers.

The allegations in the report I will set out presently, with the statement of actual facts. The report of Mr. Stow concluded thus: "I do hereby, agreeably to the provisions of the above Act, certify my opinion, that the said party walls or party partitions, and the front walls of the

said four small houses, are in so ruinous a condition, that passengers are endangered thereby.

(Signed) Wm. Crawford Stow,
District Surveyor."

The overseers proceeded to shore up the houses (certainly very unscientifically), and thus the matter stood when placed in my hands. Several practical men had viewed the premises, and I called in three professional brethren of standing, who all completely confirmed me in the statement I then made in writing to Mr. Stow, that there was not the slightest appearance of crack, rent, or departure from original construction, that the walls were unusually upright, that all his allegations were untrue: and I complained that he had permitted us to proceed thus far without any comment, although he asserted he had watched the buildings during the whole of their progress. I also drew his attention to what had probably mislead him in imagining that there was a bulging. The work was perfectly upright to within about 4 feet of the eaves, when it receded inwards 1¾ inch, the party being bound by written agreement thus to conform his front to such previous irregularity in the front walls of the houses on each side. Mr. Stow, in place of seeking a conference or satisfying himself of his error, acknowledged the receipt of my letter, stating it was merely a difference of professional opinion. Notices of action were then served for trespass upon the overseers, who upon this, instead of pursuing *their intention of strictly enforcing the "powers and provisions"* of the Act, appealed to the referees for their advice, we having, previously to any appointment being made, served all parties with notice of our intention on a certain day, to direct the shores to be struck. We were met by one of the overseers, their solicitor, the sergeant, and a posse comitatus of the police, the solicitor strongly and somewhat offensively urging me not to act, and to abide the opinion of the referees, and not to hang upon them to the police-office, as I should not be heard, being no lawyer. The sergeant very properly stated he had no authority to act upon a question of civil rights unless a specific charge was given for an act he saw done. I then (feeling strong in the position), directed the shores to be struck, when my employer (most illegally) was instantly collared by the police, and we were all paraded to the station-house, where the charge was entered as an offence under the "Metropolitan Buildings Act" and thence proceeded to the Lambeth police-office, where the solicitor, finding he had no locus-standi under the Act quoted in the information, fell back upon the police Act, attempting to shew the shoring was an appendage, the property of the overseer. In despite of an attempt to prevent my being heard, the hon. Mr. Norton very courteously and attentively listened to my reasoning, that we complained of a trespass by the shores being placed on our property (hence no ground for asserting they were on the highway) and if an appendage, must be taken as part of that we were in undisturbed possession of, viz. the houses. Mr. Norton, taking the same view of the case, stated he could afford no relief, remarking that, with the exception of one other, it was the most unintelligible Act he had ever met with. I will now set out the grounds of complaint in Mr. Stow's report, and the facts in juxta position.

Charges alleged.	*Facts as they exist.*
1st. Admission of commencement before Jan. 1.	
2nd. That foundations consisted of an ill-constructed footing of Kentish rag, or rubble stone, in two courses all round (as footings), about 13 inches in height, from 10 to 12 in thickness, for which it did not appear any trenches had been dug or prepared.	Being in low ground, without any means of drainage, the prudent course had been adopted of merely levelling the ground, and using hard blocks of Kent rag, the lower course 1 foot 7 inches, by 6 inches deep, and another course 14 inches by 6 inches deep, on which the walls were constructed. In the presence of the referee, Mr. Stow admitted these were the dimensions all round the buildings.
3rd. That the external walls are built in one brick (Flemish bond), partly of new and partly of old bricks.	
4th. That the party-walls or party-partitions are built entirely of old materials, the greater portion being of place-bats and knobs of old bricks of inferior quality; chimney-breasts, jambs, and withs of somewhat better material; the pocket-pieces filled up with rubbish; chimney openings have no chimney-bars; one side of the party-wall has been carried up fair, and the other very rough,—both sides are now being rendered in cement, with a view to strengthen them.	In the presence of the referee, Mr. Stow was challenged to point out, and failed to do so, that the walls were built of bats and knobs; and it was offered, for the sake of argument, to assume they were entirely so,—he had no authority over construction. The pocket pieces, if the jambs and withs are sound, the openings being only 18 inches, required no chimney-bars, nor had the district-surveyor any authority.
5th. That the floors being composed of joists, in scantlings 6 inches by 2, in two lengths, one end having a bearing on front walls, and the other on the head of a slight quarter partition, the rafters, 4 by 2½, are no tie, the rafter having a bearing at one foot on the front walls, and at the other on the head of a slight quarter partition (more particularly shewn by a sketch subjoined), form but an imperfect tie to connect and secure the said walls.	The houses being of a very usual construction, the back rooms lower than the front, the joists had plates under the ends of each, with head and cill to well-framed 4-inch partition; the referee found each end of joists was spiked to plate, the front roof being a span roof, with rafters' feet notched and spiked to plate, with a ceiling joist spiked at each end to rafters; the referee asking for an admission of the correctness of the sketch alluded to, shewing the rafters' feet projecting some inches before the face of the wall, and having no connection with the plate, instructions were given to knock down the ceiling; the referee very carefully investigating it, found it to be as above described, and not the least similar to sketch.
6th. That the drainage of the said houses is confined to two large cesspools, steined dry in half a brick, and having no outlet or drain therefrom.	The attention of the referee was drawn to the fact, that in this locality (as it most disgracefully is in all others in this neighbourhood), there was no means of drainage except into filthy open ditches, without any fall towards them.
7th, and lastly. That by reason of the party-walls or party-partitions of the said houses being so insufficient of thickness as regards either security against accidents by fire or their own stability (being imperfectly connected with, and supported by, the front and back walls), and the said external walls being so improperly constructed as regards the tying and bonding together of the said walls with the party-walls, and with each other respectively,— Then follows the certificate previously quoted.	The referee having appointed a meeting, took an infinity of pains to plumb all the walls, which were evidenced as perfectly perpendicular (except the depression before alluded to), also to test the bonding of the party and external walls, and failed in his efforts to insert the point of a trowel at any point of junction. And the answer to every allegation was distinctly proved as above set out.

After setting out the recital, and what had passed, the referees awarded:—"That the said buildings are not in so ruinous and dangerous a condition that passengers are endangered thereby, and that the aforesaid certificate of the said William Crawford Stow be reversed accordingly. And with regard to the costs and expenses attending the proceeding, we, the said official referees, defer the making any direction or appointment in respect thereof.—18th Sept. 1845." I am, Sir, &c.

Peckham. Greenway Robins.

FOREIGN ARCHITECTURAL AND COLLATERAL INTELLIGENCE.

The Dome of Cologne Building-Association-Committees' Address to H. M. Queen Victoria.—(Berlin, 1st November.)—The following is an extract from this document:—"This grand structure, which progresses under the especial patronage of our well-beloved King, and under the auspices of influential men from all ranks of the people, requires, on account of its gigantic size, the co-operation of all available forces—especially that of the King and other princes, which it has obtained up to this day. We feel very happy, that your Majesty, the sovereign of an empire where all grand enterprises are conceived and prosper, has been pleased to place yourself amongst the royal protectors of our work, and we beg to express to your Majesty our respectful acknowledgment for this act of generosity."

Proceedings of the "Académie des Sciences" (R.S.) *of Paris.*—(21st Oct.—3rd Nov.)—Mr. Arago spoke on the project of establishing another artesian well in the *Jardin des Plants*, whose tepid waters could be used for the hot-houses and other purposes. The expense of boring that of Grenelle has been nearly one million of francs, its depth being 546 metres. Allusion was made to the well of Mondorf (in Germany), whose depth is 671 metres, and which has been made at an expense of merely 75,000 francs. The temperature of the water issued from the latter is 34° Celsius.*—A newly-elected corresponding member, chemist Mr. Laurent, at Bourdeaux, has communicated a memoir, by which he endeavours to prove the utter fallacy of chemical science (!). He says: "There *is* a science, which is reckoned amongst the *exact* ones, whose object, however, is to examine bodies which do *not exist* at all—and this is chemistry. I shall prove this to be the case; nay, even, that chemistry attempts to teach the nature and qualities of bodies, whose existence is quite *impossible*."—Mr. Bourgois laid before the Academy his experiments to propel boats by (Archimedian) screws, moved by manual force, and stated the formula according to which they are to be constructed.—Mr. Morse laid before the Academy one of his new electro-telegraphic apparatus, which has been in operation for more than a year on the line between Washington and Baltimore. It is known, that the hitherto-used system of Mr. Wheatstone has this inconvenience, that the different signs which compose the communication *disappear*, after they have been read, which subjects them to misconstruction and mistake. The plan of Mr. Morse is to arm the moveable piece of iron with a pen or a *style*, placed above a slip of paper, which passes with uniform celerity between the cylinders of a *flutter*, brought into motion by the mechanism of a *jack*. By a procedure, the description of which does not fall within our scope, durable signs are deposited on the paper, which, under the form of points and lines differently combined, represent all possible chiffers and letters.—Observations, made by Messrs. Delarive, Erman, and Van Breda, on the nature of electric currents were then read, very near resembling the *important discovery* lately proclaimed by Professor Faraday in this metropolis.—Mr. Biot entertained the society with some details on the third volume of the new edition of his work on astronomy. Its novel features are a complete theoretical and practical analysis of the methods for determining the shape of the globe, and to solve great *geodesic* questions. Mr. Biot has, especially, much simplified the method for determining the levels for extensive geodesic operations, by reciprocal zenith distances.—Mr. Goudot, the Peruvian traveller, mentions a plant called *Arracucha*, growing under the same circumstances as the potato, and of equal nutritive character, likely by its acclimatisation to afford additional sustenance to our labouring classes.

Encaustic paintings in the hall of the Royal Palace of Munich.—These pictures, which we mentioned in a former number of The Builder (p. 423), as being executed in a peculiar method of mural painting, have become now the more important, as this method has been just published by its discoverer, in a German work, entitled: "Encaustic Painting, dis-

* Our authorities should be reminded, that artesian wells would furnish all the warm water required for our new bathing and washing establishments, free of expense.

covered and described by F. T. Fernbach, R. Conservator, Munich" (gr. 8vo. 10s). He states that he has devoted *a life* to this improvement of monumental decorative art, whose merits are, certainly, no more theoretical, having been carried into execution in the above gorgeous spaces, by not less a personage than Professor Schnorr. [The present works carried on in the new Houses of Parliament, make every thing connected with mural painting of importance.]

The Great Industrial Exhibitions on the Continent. — The only work of public *utility* which the National Convention ever established in France, was the *Museum of Arts and Manufactures*—the germ and prototype of all similar subsequent endeavours. Since that, time grand exhibitions have taken place in Paris, Berlin, Vienna, and Dresden, where everything connected with the *material industry* of the country, has been displayed for the instruction and boast of the nation. The many works published on that score abroad, we have laid before our readers in other parts of our periodical, and a detailed *exposé* of what is proposed to be done here, has been given previously by another hand. But as England has been late in following in the wake of foreign enterprise—we should think, that her Industrial Exhibitions could still assume a novel and original character, by combining our *Colonial Industry* with that of the mother country. That many objects novel, in every part of human industry—*exist* in the British *Colonies*, is a very plausible assumption, as they comprise the whole extent of the world! To speak merely of objects falling within our province, we would remind our readers of the many *structural* models, which could be brought from India and China, in which countries buildings exist, which in their boldness or extent, are beyond the views of European artists and artisans. Tools and implements of endless variety, may be expected from countries, where strange mechanical skill, certainly, must be possessed, when we come to know, that the Chinese can unite (solder?) cast-iron—a performance beyond the reach of all our practical chemistry. Many things of the kind *would* be bought and sent to England by merchants and others, if it were known, that they *were to be exhibited.* It is not only the admission fees, which might pay for the conveyance and other current expenses of such objects—but in Berlin an *auction* was held, subsequent to the exhibition, of articles selected or pointed at by the public. And why should it not be so here as well? A nation can never be ashamed of, or shrink from buying, or selling, or doing anything, in fact—for the public good.

Peat as a Combustible for Locomotives on Railways.—The Paris *Journal des Travaux Publics* contains the following:—"On the railway from Milan to Monza an experiment of great importance has been made of late, which may much facilitate the means of communication in countries deficient in coal. In substituting peat for mineral coal, it has been found that the economy in using the former was from thirty to forty per cent. As it is known that the expense for the burning material is about one-fourth of the whole expense of the working of a railroad, one-twelfth of the entire expense would be saved. It is Sardinia especially who can avail herself of the great advantage which the using of peat may afford, as she is deficient in both coal and timber, but very rich in peat." The above may be a useful hint to railway undertakers in Ireland, Canada, Nova Scotia, &c.

Stupendous Railway Activity in Italy.—The social condition of that country is undergoing a greater change than has happened since the time of the Crusades. The two lines from Milan to Monza, and from Venice to Padua (in operation for several years past) are kept up with good success, and on the former the increase of passengers in 1844 over those of 1843 was 68,769. The line from Livorno to Pisa, opened on the 14th of March, 1844, has conveyed, during the nine months of that year, 327,992 passengers.—The line from Naples to Castellamare and Nocera has conveyed during the months of September, October, and November, 1844, 327,992 passengers. The line from Naples to Capua shews, during the same period, 225,708 passengers.—In February last the King of Sardinia ordered the construction of a railway from Turin to Genoa, passing through Novi, Alessendria, and the valley of the Tanaro, with several side branches, one towards the Lago Maggiore, passing the Po at Valenca.—In Tuscany, government has authorized the planning of three new lines; one from Pistoja to the frontiers of Lucca, passing through the valley of Nievole; the others from Livorno to the Romish frontiers, passing through the Tuscan downs (maremm); the third from Pistoja to the frontiers of the Bolognese.—In the principality of Lucca a national company has been at work for some time, and has pushed its operations so far as the Tuscan frontiers. The Ferdinand line in Austrian Italy is in a forward state on its whole extent, and arches, bridges, viaducts, tunnels, and termini-buildings are either finished or on the point of being so.—*Journal des Travaux Publics.*

James Millingen.—This renowned archæologist was born at London in 1775, and made his first studies at the Westminster school, of whose then management, however, he entertained no high opinion. A small collection of curiosities belonging to his father first directed his attention towards similar pursuits—and the acquaintance with men like Townley and Cracherode, decided him for the study of antiquities. When his father went in 1790, to reside at Paris, young Millingen formed the acquaintance of Barthelemy, Mongez, and such men. The subsequent horrors of the French revolution deprived his father of great part of a considerable fortune. Such circumstances, as well as a feeble state of health, obliged him to visit Italy in 1803, where he again returned in 1806, after the death of his parents. In 1812, he published his first work on ancient numismatics, which was followed in the subsequent year by his great work on ancient vases, with sixty plates, exquisitely selected, and drawn under the author's superintendence. He was the first, who employed a sound and comprehensive criticism in the explaining of the designs of these remains of antiquity. In 1817, Mr. Millingen published his work on the Coghil vase collection, of which, however, merely the text belongs to him. But his chief works are the two volumes, entitled "Unedited Monuments," by which he intended to convey to his countrymen a means of comprehending the choicest of ancient relics of art. With the second volume, however, this work ceased in 1826. Millingen felt the neglect of art on the part of his fellow-citizens, and expatiated thereon in a very judicious pamphlet "On the State of Learning and the Fine Arts in Great Britain." London, 1831. His industry and labours were unrelaxed, and his last work "Coins of Ancient Italy," was published as late as 1841. He contemplated other works, when death surprised him in the middle of this year, afar from his native land; still, in a land replete with objects of his constant predilection—ancient monuments of every kind.

The Secretary of State for Public Works in France—has just sent the following order to the *préfets* (lord lieutenants), in reference to the laying out of public roads on their passing through towns, boroughs, or villages. The following are some of the chief points of this regulation:—"It is not always required to adhere to a strict parallelism in the laying out of public roads and thoroughfares.—It is necessary to obviate, as much as possible, the advancing of buildings on the public roads, which would needlessly encroach upon the actual width—and if a narrowing be indispensable, to combine the *alignement* so, that the free circulation can never suffer by the partial carrying out of any plans.—To make widenings on that side where the damage would be least to adjoining property; to preserve all fronts which differ little from the proposed laying out; to choose fixed and well-defined *marks*, and to avoid breaking the front of any building.—Never to propose curvilinear *alignments*, but to substitute parts of rectilinear polygons, whose form is more favourable for construction. — *Le National.* (This regulation shews the attention paid to such matters by our neighbours—while, at the same time, it contains some useful hints for the laying out of railroads, especially on their passing towns, &c.)

Centralizing of Paris Railways. — Count Rambuteau, préfet of the Seine department, (Paris), has appointed a commission for examining the project of a *subterraneous* communication of all the different railroads centering in the French metropolis. Several plans have been sent in, which, however, differ very little from each other. (As the distance is short, this plan seems to us preferable to the great bustle and *unquiet*, which open-light railways would entail on already over-noised cities).

Artesian Wells in the Deserts of Africa.—The French surveyor, Mr. Fournel, is on the point of starting for Africa with a large stock of boring apparatus, by the working of which he contemplates forming artificial *oases* in the desert. The idea is great. Mr. Fournel further proposes to erect a lighthouse at each oasis, so that the travelling through the desert could be accomplished at night, and repose taken during the day. Mr. F. is no mere theoretician, having conceived his plan during a former residence in the Sàhara of Algiers. J. L——y.

STIR IN THE WESTMINSTER COURT OF SEWERS.

The great degree of interest with which the proceedings of the Westminster Court of Sewers at this moment, are regarded by a large body of our readers, induces us to report them at some length.

On Friday, the 14th instant, a special court was held "to consider as to the efficiency of the surveyor's department, and as to the expediency of making a change therein."

Mr. Le Breton rose and said, that when he had moved the amendment at the last court, which was carried by so narrow a majority, he hardly anticipated holding the position he was now occupying; he had hoped some more experienced commissioner would have taken up the subject, and brought forward a plan, but as that was not the case, he should at once explain his humble views to the court. It was not his intention to call the surveyors before the court, and many of the statements he should make would at once be accepted by the commissioners present. First, as to Mr. Dowley: it would give him (Mr. Le B.) great regret to see him dismissed at once, because although he was not so efficient an officer as was required, still he possessed valuable information about the sewers. From the way in which he answered the court about the failure of the sewer in the Gloucester-road, Paddington, it satisfied him that he was not an efficient officer, and proved that there was a want of power in the surveyors' department. The honourable commissioner then proceeded to call the attention of the court to the staff of the Holborn and Finsbury Commission, the particulars of which he had received from Mr. Wigg, vice-chairman of that commission. From this statement it appeared that there was only one surveyor, Mr. Roe, whose salary was 450*l.*, and there was a retiring salary of 100*l.* a year to Mr. Page, a former surveyor. The result of the comparison in the two divisions of the expense of surveyors, was 690*l.* a year against 1,050*l.* in the Westminster, a difference in the two departments of which he thought the public had no right to complain. Mr. Le Breton proceeded to state, that in moving the amendment to Mr. Leslie's motion for the appointment of Mr. Phillips, he had no hostility to Mr. P.; on the contrary, it would give him great pleasure to vote for him, for he saw no reason to doubt the abilities of that gentleman; but the fact was, he thought it irregular, and that it looked like smuggling in an officer. The resolutions he was about to submit would bring the whole matter before them, and he hoped that the court would cordially concur with him. He thought it of no use to go back in inquiring into certain alleged abuses that might have occurred in the year 1829; he was satisfied no practical good could result from such an inquiry, and much valuable time would be wasted. He would now read his resolutions:—"That the present surveyors' department is inefficient, and entails an unnecessary expense on the rate-payers; that from Lady-day next the services of Mr. Doull be dispensed with, and the office abolished; that from Lady-day the services of Mr. Papworth, the drawing clerk, be abolished; that a surveyor be appointed as joint surveyor with Mr. Dowley, at 250*l.* per annum; that in the event of any vacancy hereafter, by the death or resignation of Mr. Dowley, then there to be only one surveyor; that as to the accounts, they be examined by the joint surveyors, and handed over to the clerk."

The chief point in his scheme was, depriving

Mr. Doull of the office he held, but the court would recollect that they had determined, that all works above 50*l.* were to be done by special contract, consequently the services of Mr. Doull would not be required. The period which he would propose for the change was at Lady-day next.

The court then proceeded with the resolutions; the first moved by Mr. Le Breton, and seconded by Mr. Wood, was, "that the present surveyors' department is inefficient, and entails an unnecessary expense upon the rate-payers."

Mr. Donaldson said he did not understand the connection of the two questions in the proposition. Mr. Le Breton thought it was very intelligible. The department was not efficient, and more expensive than necessary. He complained of the very unsatisfactory manner in which the answers from the surveyors to the court were given, and he thought it obvious to every commissioner, that both Mr. Dowley and Mr. Doull, were inefficient officers. Besides the failure in the large sewer in the Gloucester-road, there were other failures, the sewer in the Harrow-road for example, and he thought it perfectly disgraceful to see the quantity of cart loads of soil, brought up from a sewer close to the office in Church-street, St. Ann's.

After a considerable discussion, Mr. Le Breton and Mr. Wood, agreed to strike out the words "and entails an unnecessary expense upon the rate-payers."

The chairman said he entertained very strongly the opinion, that the surveyors department was very inefficient, but not on the same grounds as Mr. Le Breton. As to Mr. Dowley, he saw the progress of age, and how frequently he was subject to fits of indisposition brought on and aggravated by exposure and accidents on the works. Until an able, energetic, active officer was placed at the head of the works, who should be a properly educated engineer, they would be in an unsatisfactory position, and he was satisfied that the court ought no longer to allow their works to be in the hands of a decayed functionary, but to be at once placed in the hands of a vigorous man. At the present time, the court had no reports of works required, and without disparaging the clerk, his opinion was, that the chief officer ought to be the surveyor, and when that office was properly filled, the court would no longer be involved in so much error and expense. He thought the court was much indebted to Mr. Le Breton for stepping forward and stopping the court. It was always desirable, in his opinion, to promote a skilful officer, but never to make the inferior officer to be entitled, as of course, to that promotion. He thought that as the court had not the power to grant Mr. Dowley a superannuation allowance, they might still retain him as consulting surveyor.

The motion as amended was then carried *nem con.* Mr. Leslie moved that the names be taken down of the commissioners who had voted. The chairman ruled, that as there were no dissentients, the bye-law did not operate. Mr. Leslie stated, that he had taken down the names of the few commissioners of the number present who had voted.

Mr. Le Breton (seconded by Mr. Knight) then moved his second resolution. "That after Lady-day the services of Mr. Doull be dispensed with, and his office abolished." This was ultimately turned into a notice of motion for another court.

Mr. Le Breton then moved, "That a surveyor be appointed at an early day, to be fixed by the court, to be associated with the present surveyor Mr. Dowley," and Mr. Cumberlege seconded the motion.

Mr. T. L. Donaldson wished to know how the court was to proceed to construct a new staff until the present officers were disposed of. Capt. Bague said it was impossible after what the chairman had said of Mr. Dowley for the court to continue him; relative to his inefficiency, a variety of observations had been made. The court must therefore strike at the head of the department. If Mr. Dowley heard what has been said of him at this court, he could not stand his ground; why not give him a pension, and allow him to retire into the bosom of his family? He did not see how it was possible for the court to continue Mr. Dowley in his office.

Mr. R. Gunter wished to know whether the court had or had not the power to grant pensions.

Mr. Donaldson thought that Mr. Dowley might be retained by the court as a consulting surveyor at 200*l.* a year. The court would not require the whole of his services. That would be a legal mode of rendering him some assistance. Considerations of justice to the individual must have their weight, but justice due to the public must also be taken into account; he thought the court should appoint a chief engineer, and that Mr. Dowley should be the consulting officer. They ought not to forget that his best days had been devoted to the service of the commissioners.

Mr. Donaldson then moved an amendment, seconded by Mr. Allason, to the effect "that a new chief surveyor should be appointed, but that Mr. Dowley should be retained as consulting surveyor, at a salary of 200*l.* per annum." Carried by 13 to 1. Mr. Le Breton then moved, and Mr. Donaldson seconded, "that there be no other than the consulting surveyor in addition to the chief surveyor, to be hereafter appointed." Carried *nem. con.*

Mr. Leslie now hoped the court would determine how the business of the commission was to go on. He had refused to take a part in these extraordinary proceedings; he wanted to know what was to be done. The court as a Court of Record had passed orders, declaring that the surveyors' department was inefficient, and had virtually dismissed Mr. Dowley as head surveyor at 400*l.* per annum, and made him only a consulting surveyor, whose occasional services when required were to be had for 200*l.* a year. The court had also passed another order, that there should be no other than a chief and a consulting surveyor; they had thus summarily dismissed Mr. Doull, the assistant surveyor. He wished to know what these two surveyors, Messrs. Dowley and Doull, had been doing to meet with such a punishment; what new light had so suddenly broken in upon the court? Had they said too much or too little to the secret committee, whose laborious investigations into the allegations against the commissioners contained in his pamphlet, were to have closed last Wednesday, the whole documents having been previously furnished from the surveyors' department by Messrs. Dowley and Doull, and having, as reported, been in the possession of the secret committee for some time past. What would the Secretary of State think of the proceedings? (having been informed in reply to his communication, that all the documents were received, and the report was being prepared) if he should hear that both the surveyors were now dismissed?

The chairman said he hoped it would go forth to the public that he said, that the object of the special court was to take the whole scope and bearing of the subject into its consideration, but that the result of the resolutions they might come to, should be brought before the court a second time for its sanction. Mr. Leslie said that that might be the opinion of the chairman, but it was not law. Who ever heard of a court of record passing its orders in such a manner. The orders passed this day were absolute. They were not mere notices of motion, and the only way the court could now get rid of them was by a notice of motion to rescind them. Mr. Donaldson then rose to move "that the resolutions now come to be not acted upon until sanctioned at the next ordinary meeting of the court," and in so doing complained of Mr. Leslie, who had refused to take any responsibility or vote in the matter. It reminded him of a fairy tale, which used to amuse him very much in his youth, of a fairy sprite, who patted two parties on the back and excited them on until he got them all into confusion, and then sat laughing at them.

Mr. Robert Gunter seconded Mr. Donaldson's amendment; he thought they were only this day considering the subject, and that the proceedings did not authorize them to go to the whole extent of dismissing the officers, but that the next court should sanction them. Captain Bague said, although the ex-chairman of the court and also the ex-chairman of a Board of Guardians were against his views and a dozen other commissioners might be so too, he considered if the Court adopted the present motion it would stultify all its proceedings, and render them ridiculous. The Hon. F. Byng said if that were to be the course of the solemn orders of the court all their proceedings would become ephemeral and farcical, another body of commissioners might come in without hearing one word of the previous arguments, and overturn the decisions. Mr. Donaldson said he stood there as a public man, for the public good. He did not think that the officers should be affected by what occurred in the committee that day. What was it they said at starting? why, that it was to be a merely deliberative meeting, still it was not to be without results. The motion was carried by 10 to 5. Mr. Donaldson then moved, and Mr. Le Breton seconded. "that the court at its ordinary meeting do revise such bye-laws and standing orders as may so require, in order to carry into effect the said resolutions." Carried *nem. con.* Mr. Le Breton then gave notice that at the next meeting of the court he should move "that from and after Lady-day next the services of the present assistant-surveyor, Mr. Doull, be dispensed with, and the office abolished."

A passage in Mr. Farlar's speech, reported in our notice of proceedings on the 7th inst., has given considerable offence to Mr. John White, and that gentlemen calls upon us, with an unwise threat, to make some public *amende*. That Mr. White should be angry with Mr. Farlar is perfectly natural; but to be angry with us for simply reporting, in discharge of our duty, what the latter said, is quite incomprehensible. Mr. White should rather be obliged to us, as being the means of informing him faithfully what was said in his absence, and so enabling him to reply, should he think fit to do so,—which by the way, we should not. Personally, we have all due respect for Mr. White (his reputation, we have pleasure in saying it, is far above reach); the *tradition* of a charge brought against some of his relatives, something that applied to somebody, some long time ago,—belongs to Mr. Farlar, not to us, who were the mere chroniclers of what was said.

THE IMPROVEMENT OF OPERATIVES.

Sir,—I am one of that class, whose intellectual improvement you have frequently brought before the public in your valuable journal. The importance of this is ably advocated by your correspondent, Mr. Lewis, in the last number of The Builder, who suggests what seems the most direct method of instruction to attain that most desirable object, and if the funds necessary for carrying out his plan could be raised, the system would be of infinite advantage to the young artisan and mechanic. But unfortunately, the interest evinced by you and your correspondents on the subject, is, I fear, confined to a very small section of those, who have the power and the means, to assist in the advancement in the intellectual and social scale, of the class from whose labours they derive wealth and influence, with all their concomitant enjoyments. If employers, on the ground of their own interest (and they do not all lack selfishness), would consider the advantages which would accrue to them from a more general intelligence amongst workmen they might be induced to lend a helping hand in the good work—but it is the bones and sinews of the operative to which they appeal, without dreaming of his brain; they value more his possession of superior *brute force* than his mental and intellectual attainments.

It is to be regretted that there is so little mutual good feeling existing between masters and their workmen, but true it is, that the spirit of that type of what an employer ought to be (Monsieur Hardy) is very rarely exhibited amongst us. Consequently we have little hope of assistance from that quarter. What is to be done, must be done at the cost of the working classes themselves, and your paper is doing much towards improving the knowledge of the operative in the styles of ancient and modern architecture, and creating a taste for improvement in the several trades we follow, and the arts generally. I am, Sir, &c.,

Nov. 11th, 1845. L.

Improvements on Tower Hill.—The commissioners of Woods and Forests intend introducing a bill next session to empower them to widen and improve George Street, Tower Hill and to make a carriage thoroughfare from Great Tower Hill, and Trinity Square, to Little Tower Hill.

CHURCH AT EAST SUTTON.



EAST SUTTON CHURCH, KENT.

The subject of the plate is one of those beautiful old country churches so plentifully scattered over the surface of Great Britain, and which affords an exhaustless fund of study and employment, to the architect and antiquary.

It was said not long since by one of our most eminent reviewers, that every nook of our island had been completely ransacked and described by our tourists and topographers; that it would be difficult to name any structure of the olden time, sketches of which had not been transmitted into the portfolio or the library. This was said in 1821. What an immense mass of valuable architectural and topographical matter has since been published. Every succeeding age appears to examine and study more closely the works of the olden time. In the old Popish ages every village church was a small temple, splendidly enriched with gilded carvings, paintings, and sculptures, adorned with velvet hangings and embroidery, and containing stores of plate and reliquaries. Each was so filled with these treasures of art, that it has been too difficult a task for even the eagerness of fanaticism wholly to destroy them. At present the village church is visited by all sorts of seekers after the remains; one goes merely to take rubbings off the brasses; another to sketch or measure the windows, or to inspect the plan; another visits it to take notes of inscriptions on tombs or other archæological matters, and every one finds something to his particular taste; very little indeed sometimes remains, but still there is always something to interest in an old English church.

In point of fact, the building cannot be too carefully inspected,—one never knows how much it will yield; the temptation is strong to strip the whitewash and yellow ochre from the font, or off the walls, in search of distemper paintings, almost sure to be found underneath, or to strip off the plaster itself, in search of old Norman arches, Easter sepulchres, piscinæ, sedilia, or aumbries, frequently visible behind it. Nearly the whole of the sketches made by our grandpapas, those accurate south-east views, where the skull and cross-bones were so carefully depicted on the tombstones, and the weathercock so prominently made out on the stumped tower, while the tracery of the windows was indicated by a nondescript convolution of lines, that it was difficult to tell whether the arches were intended to be pointed, circular, or elliptic,—all such representations are now considered very crude and unsatisfactory, even by a superficial reader.

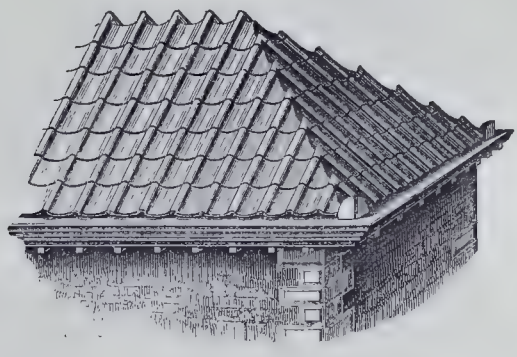
To the architect, the village church may be considered as an English antique, a remnant of the beautiful style of building practised by his forefathers,—it belongs to his country, speaks home to his feelings, and so beautiful is it, that the more it is studied, the more it is admired—but why should he consent in his own buildings to be a servile copyist, or to puzzle his brains with symbolism? Is it necessary when sketching beautiful examples of piscinæ, sedilia, and such like remnants of the building, deeply to study their ancient usages, and engender a superstitious veneration for them? Certainly not; beautiful as the Gothic style may be, it has not a whit more to do with the pure principles of Christianity, than the ancient styles of Greece or Rome; in fact, scarcely so much, for after all, the Roman basilica is the true original of the Christian church.

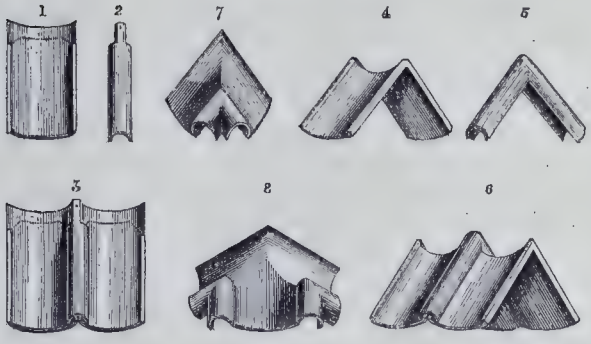
East Sutton is a small hamlet attached to the village of Sutton Vallance, near Maidstone, in Kent; it consists of only a few scattered farm-houses, the church dedicated to St. Peter and Paul, of which a view is now given; and the old manor-house, a venerable building of the reigns of Henry VIII. and Elizabeth, the property and residence of Sir Edmund Filmer, Bart., M.P. for West Kent. At a small distance from the manor-house, in the adjoining parish, is a mansion called Little Charlton, one of the most valuable and picturesque structures of the reign of Elizabeth; it was erected by Sir Robert Filmer, who was for twenty years prothonotary of the Common Pleas in Queen Elizabeth's reign. At a place called Great Charlton, close by, are the remains of an old building, apparently the hall of an hostelry, but they are so small, serving only for the habitation of a cottager, that it is impossible to hazard much conjecture concerning them. The church at East Sutton is a remarkably well-planned edifice, the interior is at once elegant and picturesque. It consists of a nave and aisles, a chancel with north and south chapels, which opening into the chancel by two arches on each side, form as it were aisles to it; there is a porch and tower, the lower portion of the latter is opened into the nave by a noble arch, reaching the full height of the interior; every portion of the building is of different date and style, the nave, the most ancient part, being of the time of Henry III.; it is quite perfect, even the tie-beams of the roof, which are of very good design, remain. The part of the building most deserving notice is the north chapel; this contains two extraordinarily fine windows, representations of which will appear in the following number. The date of this portion is probably between 1350 and 1400; the small window appears even later.

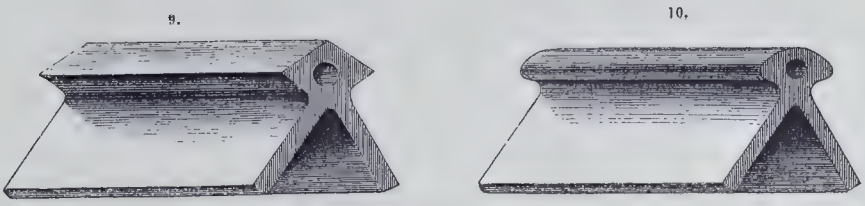
The building contains numerous memorials of the Filmer family; among them is a fine brass (lately published by Mr. Waller), in which are represented in the superb costume of the reign of James I., Sir Edward Filmer and his lady, with their nine sons and nine daughters. Admirers of old church architecture will find several other remains at East Sutton, besides those noticed in this paper, which is merely one by an architect, that would well repay a visit to the spot; railway communication offers easy access, and in the immediate neighbourhood of Sutton Vallance, are Hollingbourne manor-house, Boughton Malherbe, Leeds Castle, Godfrey-house, and many others of equal interest. C. J. R.

Gas.—Application will be made during the approaching session of Parliament, to incorporate a company whose object is to supply gas to the whole of the metropolis and other parts of Middlesex, together with parts of Kent, Surrey, Essex, Hereford, Bedford, Bucks, Northampton, Leicester, and Derby. The company have adopted the name of "National Gas Association," and they contemplate purchasing the entire rights and interests of all the existing metropolitan gas companies!

BROWN'S ITALIAN TILES.







GOTHIC RIDGE TILES.

BROWN'S ITALIAN TILES.

A few years since, Mr. Brown paid much attention to the manufacture of Italian tiles, under the direction of Mr. Barry, the architect. Considerable loss and difficulty attended the making of them, from the tiles being made flat, as was the practice of all tile makers; in fact, the expense almost precluded their use; he had consequently for some years abandoned making them. At last it occurred to him, that if the lower tile were *curved*, like a common pantile, they might be easily dried in blocks in a similar manner. After considerable attention in carrying out the details, the result has been eminently successful, as will appear from the tiles now submitted. Their appearance on a building is far superior to the flat ones.

In Italian tiling, the vertical roll passes at right angles from the eaves over the ridge and hips: this forms the peculiar and interesting feature in the new tiles: much attention has been paid to obtain it. Exclusive of their forming an appropriate covering for buildings in the Italian style, they have the merit, in common with all tiles, of being in summer a cooler, and in winter a warmer covering than that of slates or metal. These tiles were first used by Mr. G. Wathen, architect, on a building at Juniper Hall, near Dorking. In June, 1845, the Society of Arts and Sciences awarded Mr. Brown a medal for his invention of the curved Italian tiles.

The smaller cuts, 1 to 8, shew the parts of which the tiling is composed, and may be readily understood; figures 9 and 10 are not connected with the foregoing, but represent two varieties of ridge tiles for Gothic buildings, also invented and made by Mr. Brown. His ornamental plain tiles for Gothic buildings are well known, and deserve recommendation.

INTERMENT IN CROWDED QUARTERS.

We were horrified last week, on passing the Roman Catholic nunnery at Bermondsey, to perceive that the small plot of ground in front of it, and next the street, is being rapidly filled with dead bodies! How much longer is this suicidal practice to last? Will no amount of experience teach,—no accumulation of facts convince? Health of Towns Commissions are a farce, and their reports waste paper, or some steps would be taken to prevent the continuance of a practice, admitted on all hands to be dangerous and culpable. It is to be hoped that some business-like and *resolute* man in Parliament, will take up the matter in earnest next session, and induce the House to give effect to the principle they have already admitted.

THE IMPROVEMENT OF FULHAM.

Sir,—In *The Times* of the 12th inst., I see it stated, that the authorities of the parish of Chelsea, having applied for, obtained a local Act of Parliament, in the course of the last session, enabling them to "borrow a sum of money for the purpose of carrying out certain improvements in the parish, laying a local tax of a very trifling amount on the householders and inhabitants, until such loan be repaid;" and it being also stated, "that the benefit arising to the parish in consequence, is now beginning to shew itself," I would suggest that so desirable an object as the above, *be not limited* to Chelsea, but that other neighbouring parishes imitate so good an example, and that Fulham, as a near relation of the parish of Chelsea, and much needing improvement, should lose no time in bestirring herself in the matter.

There is much to be done here, and which, to be *done well*, must not be left to the exertion or the means of individuals, but be intrusted (as in Chelsea), to a number of gentlemen, nominated and elected by the inhabitants, into a body of commissioners for this special purpose, under an Act of Parliament.

In exposing deformities of position, in improving ventilation, and in pointing out the

best localities for public buildings your columns are peculiarly suitable, and your remarks on such matters are received and read with attention, as emanating from one whose peculiar study it is. May I therefore express a hope that you will call attention to this subject in the next number of THE BUILDER, and perhaps it may induce the inhabitants of Fulham to consider their recent position with reference to this matter.—I remain, Sir, &c.,

Fulham, Nov. 15. OBSERVATOR.

*** We regard this suggestion, which proceeds from one of the most influential inhabitants of Fulham, with much interest, and trust it will be responded to by those who are interested. We shall take an early opportunity to address ourselves to the subject.

RAILWAY JOTTINGS.

SIR ROBERT PEEL raised the first sod of the Trent Valley Railway on the 13th inst. The spot selected was a piece of ground called Caunt's Close, about half a mile from Tamworth. A wheelbarrow and spade were prepared for the occasion, which are worthy of description. The former was made of the finest mahogany curiously carved and polished. The body was 15 inches long, 18 inches wide, and 8 inches deep. On each side were displayed the arms of the Right Hon. Baronet. It had looped handles, and was designed by Mr. Holmes, architect of Liverpool. The spade was made of electro silver plate by Messrs. Elkington and Co., of Birmingham. Its form was that of an heraldic shield. The shaft or tree was of old English oak, the upper part dividing into two branches forming the handle, was carved with oak leaves, acorns, &c., and highly polished.——On the 6th inst. Lord Massareene raised the first sod of the Belfast and Ballymena line, at Whitehouse, near Belfast.——The British Museum, through its principal librarian, Sir Henry Ellis, has solicited the various projected railways to send a copy of their prospectus, engraved plans, &c., in order that a collection may be formed and deposited in the library. ——Operations have been commenced by the contractors of the Manchester and Leeds railway for the extension of the Oldham Branch Railway to Greenacres Moor. The line is to be railed off forthwith, and the borings for the first tunnel have been commenced in the Lee plantations.——Mr. Peto has begun the works on the Lowestoft and Reedham line, for which an Act was passed in the last session.——The works on the Brighton and Hastings are rapidly hastening towards completion; an early day is mentioned as likely to witness the opening of this line.——The Brighton and Chichester will be opened in a few days as far as Worthing.——The Tevilla viaduct is far advanced, and the rails are laid down to within half a mile of Chichester.——The new iron bridge, erected from a design of Mr. Bidder, below Carrow, near Yarmouth, was swung across the river with the greatest ease for the first time on the 7th inst. The weight is nearly 130 tons. It is expected that the trains will pass over it in a fortnight. It is in contemplation to make a basin close to the bridge for the landing of goods.——We learn from the *Leeds Mercury*, that the construction of the Leeds and Thirsk line, which will open a communication from the town of Leeds to the northern part of the county of York, and finally to Hartlepool, Stockton, and Middlesborough, has now fairly commenced. The works were begun on Monday, the 20th of October.—— The number of railway locomotives ordered of the different engineers in Prussia is 237, of which number 78 have been ordered from Messrs. Rosig, Brothers, and Co., whose workshops are near Liegnitz. From 900 to 1,000 men are continually employed on these machines. In Prussia, the price of a steam-engine, with its tender, is now about 13,000 thalers.——A trial of the Rev. Mr. Maberley's railway break took place last week in Lincoln's-Inn Fields, and caused considerable attraction. It was attached to a common tilbury, and consisted merely of a lever working in a joint on the axletree just inside the wheel; at the end of this lever is a hook about 2 inches in breadth, which fits closely on to the tire of the wheel, and the lever is of such length that, on falling, it grips the circumference about 6 inches above a level with the centre of the nave, instantaneously checking the speed, or of arresting the velocity when descending hills. This lever has a chain attached, which allows it to descend only to a certain distance on the wheel, and when not used, is turned over towards the back of the vehicle, where it is completely out of the way.——An engine-driver on the York and Scarborough railway was fined last week 10*l.* for neglect of duty, and in default of payment was committed to Northalterton House of Correction for two months.

NEW CHURCH AT LEEDS.

LAST week, we alluded briefly to the new church at Leeds, consecrated on the 4th inst., which has excited much comment, and has long been an object of interest to many persons. We avail ourselves of an account of it in the *Leeds Intelligencer* for the following particulars. It is called St. Saviour's: the foundation was laid on the 14th of September, 1842. The style is decorated; plan cruciform. The chancel is 42 feet long by 16 wide. The nave is 60 feet in length, by 20 feet in width. In the centre are four piers, from which will spring when the church is completed, a central tower surmounted by a spire, rising to the height of 280 feet. The transepts are short, in order to bring the whole of the congregation as much as possible within compass of the voice of the reader. There is a lofty porch on the north side, which contains the font. Besides this entrance, there is a western door, and a door to each of the transepts, and the small priest's door, giving access to the chancel. The chancel is separated from the rest of the church by a carved oak screen of elaborate workmanship. There is an ascent of one step from the body of the church into the chancel, and the altar is reached by three more steps. On the elevated part, are inserted, in the wall on the south side, the *sedilia and piscina*, of carved stone of most chaste and elegant workmanship. The details of the former are principally chosen from the Percy shrine, in Beverley Minster. The piers of the nave, dividing it into five bays or compartments, are plain, but exceedingly light. Above them is a clerestory, with five triple windows. The roof is of plaister coved—and consists of five compartments. The whole of the internal carving is not finished. The stone blocks are left, which will allow the church to receive the subsequent enrichment. The same may be said of the exterior, which presents at present rather a naked appearance, from the absence of pinnacles, and the long corbel tables left in plain blocks. On the gables of the chancel and transepts, are three beautiful floriated crosses; and the western end is surmounted by a bell gable, with elaborate details, which has been finished as a specimen of what the whole of this kind of work throughout the church will be when the design is completed. The object of the founder, it is understood, was, as far as the limited means allowed, to do well what was able to be done, leaving the work purposely unfinished, to be completed either by himself, if God should give him the means, or perhaps by another generation. The doors are of massive oak. The pulpit is of the same material, and the prayers and lessons are read from a lectern, bearing upon it the emblems of the Four Evangelists. The seats are of deal, stained and varnished, and are all in the form of moveable open benches. They are secured in their places by large pieces of cork let into the feet of the bench, which by friction prevents any pushing of the bench from its position without the application of considerable force. It is intended that all the windows shall be filled with stained glass of the richest discription. At present the whole is not executed. The east window is a representation of our Lord's Ascension. In the centre is a figure of our Lord, surrounded with a halo of glory, and raising his hand in the act of blessing the Apostles, who are represented in the lower part of the window, gazing with earnest attention on the figure of their Master, about to vanish from their sight. On each side of our Lord, in the side lights, are seen the figures of attendant angels in attitudes of adoration. Of a different conception, is the western window. The subject of this is the Crucifixion. At the foot of the cross, clasping it in her hands, is the figure of Magdalene. On either side are seen the three Marys, St. Joseph of Arimathea, and the Centurion; and on either side of our Lord are the figures of Angels, hiding the face at the sight. The south transept window is at present incomplete: it contains in the centre the figure of our Lord, as the King of Martyrs, bearing his Cross, and surrounded by the figures of those saints who have borne testimony to the doctrine of the Cross by sealing it with their blood. The north transept window is also incomplete; it is intended to represent the various scenes in the history of the Passion. Mr. Derick, of Oxford, is the architect. The painted glass was executed by Mr. O'Connor, late of Bristol, now of London; and the screen is the work of Mr. Vincent, of London.

CHARLEY WOOD CHURCH, HERTS.

THE consecration of this new district church took place on Thursday, the 13th inst., by the Lord Bishop of London, and was witnessed by a large number of the local clergy and gentry, by whose kindness and the special munificence of one or two, this great benefit has been conferred upon the district.

The church is a small structure, built in the style of the thirteenth century, to accommodate 300 persons. It consists of a nave and chancel, the former of which is completely filled with open benches; the effect of the latter, although devoid of ornament, is artistical. Over the communion table is a three-light window, the head formed with three circles filled in with painted glass; on scrolls are the following texts:—In the beginning was the Word; and the Word was with God; and the Word was God. The lower portion has a border of vine leaves round each light. The tower is at the west end of the nave, through which is an entrance to the church; over this is a small gallery. There is another entrance with a plain porch on the south side of the nave; on the opposite side is the vestry room. The pulpit, reading desk, and communion rail are of good workmanship, in foreign cedar, the wood having been presented to the building by a gentleman residing in India. The font is of good design, in keeping with the building.

The church is constructed of faced flint, with stone dressings. The windows, with the exception of those looking east and west, are of two lights, lancet headed. The tower is finished with a pyramidal roof, covered with slate, as are the other roofs of the building.

OPPOSITION TO RAILWAY SURVEYING.

WE learn from a gentleman who has lately been surveying in Lincolnshire, that so determined is Lord Harborough to prevent surveying on his estates, and if possible even in his neighbourhood, that two of his tenants, acting either in accordance with instructions, or from a knowledge that their misdeeds would be favourably viewed, last Saturday completely destroyed the theodolite and level of an assistant surveyor, who at the time was neither making use of his instruments nor trespassing. The Duke of Buckingham also forbids and stops by main force all surveys on his estates near Haddesden. Mr. Ashton Smith, of fox-hunting celebrity, at South Tedworth, opposes in like manner the surveyors of the Manchester and Southampton line. He threatened to summon the Andover yeomanry to protect his covers.

Towards the close of last week a serious disturbance took place at Bicester, which lead to the shedding of blood and the reading of the Riot Act. A party of surveyors, engaged on the Bletchley and Oxford line, were, with their assistants, forbidden by a farmer named Dodwell from surveying across his land; notwithstanding the opposition the surveyors continued their labours. Dodwell and his men endeavoured to prevent them by force, hence the disturbance. This affair will most probably lead to indictments on both sides.

A report is gaining currency that ministers purpose introducing a short Bill early in the next session, to legalize the entry of lands at certain times and on certain conditions, for the purposes of railway surveying. This power is already possessed by the ordnance department engaged on the trigonometrical survey.

A QUESTION IN ASSESSING DILAPIDATIONS.

Sir,—If during a lease of seven years, through neglect on the part of the tenant, *permissive* dilapidations have been suffered to accrue, and at the expiration of the said lease the repairs consequent thereon remain unperformed, is it competent in me, as surveyor for the landlord, to make a charge for occupancy during the time necessary to complete those repairs?

If such a charge is not customary, but at the same time you consider it just, will you inform me and your readers generally, by what rule of right or wrong such a custom as the present obtains.

The liberal use that you allow to be made of your valuable publication for the purpose of correcting abuses of whatever kind, and the important decisions that occasionally appear, have induced me to submit this for your consideration, and I think that one word from you and the publication of a precedent on the subject, will have the effect of setting this questioned point at rest.—I am, Sir, &c.,

Nov. 12th. Surveyor.

*** It is not customary to make a charge for occupancy under such circumstances, and we are disposed to think such a claim, if made, would not be recoverable. The lessor is usually empowered by the covenants of the lease to enter and survey the premises, and a course to be pursued in the event of finding repairs not done, is pointed out.

The law would inquire if the lessor had availed himself of the remedy he had himself stipulated in the lease, and would consider that by permitting the repairs to remain undone, he had tacitly assented to receive the cost of them in lieu.

Still there are cases in which the refusal or neglect of the tenant to repair during his tenancy, might press severely and unjustly on the lessor.

We should like to have the opinion of some of our legal friends on the point.

RULES FOR CHURCHWARDENS. A.D. 1810.

We find in the *Ecclesiologist* for the present month the following satirical admonitions:—

1. Never let the roof of your church be too high, for it looks old fashioned; nor covered with lead, for red tiles are decidely cheaper, and the price of the lead will cover the churchrates for half-a-dozen years; nor open in the interior, for a neat whitewashed ceiling looks more clean and snug, and hides from view the decay of the timbers, which might otherwise be rather alarming.

2. Never allow too many windows to remain, for the congregation might catch cold. Straw mixed with mud is an excellent material for stuffing the tracery; but bricks and mortar are better for the lower part. It is advisable to knock out the mullions, lest some foolish churchwarden should wish to open them again. The east window should be boarded up, to display the altar screen to advantage. For the latter, the Corinthian style is of course the best; but Ionic will do. The interior of Llandaff Cathedral affords the best model of appropriate wood-work in general.

3. Fonts and stone coffins should be placed in the churchyard to hold rain-water. They also form convenient troughs for cattle. Their size renders them extremely inconvenient within the church.

4. If your church has any screen, it may be sawn up to mend the old seats of the poor people in the aisles, if any remain, or to make scrapers for their feet. But it is to be hoped that all the principal inhabitants are accommodated with convenient and spacious pues, in the best part of the church.

5. The communion-table should be of deal, not too costly. Carving or other ornament is decidedly objectionable. A piece of old green baize should be thrown over it on Sundays. Three legs and a prop are sufficient to support it.

6. The village school should be held in the chancel, which should be well supplied with straw and deal forms. The teacher's chair may stand within the communion rails.

7. Disused chantries and chapels should be used for storing coals, or for dust, ropes, spades, old lumber, &c., &c. They may also be boarded off for vestries.

8. The chancel and belfry-arches should be filled up with deal boards covered with canvas. This will give abundant scope for perspective paintings of classical buildings, or other appropriate devices. The commandments should be large but decidely plain.

9. Venetian windows should be substituted for the old Gothic, where it is possible. And remains of superstitious paintings or glass may be sold to the glazier, or (if considerable) to private collectors.

10. The pulpit must be lofty, and should stand near the west end, so that the people in the galleries may hear and see the preacher conveniently. The pues may turn any or every way, or no way at all; but the more nearly to the pulpit the better.

11. Chimneys may be built across windows and doorways, or small portable furnaces may be erected in different parts of the interior. The flues should be as long as possible, because they emit more warmth, and as black, because they attract less attention, owing to their uniformity with the rows of hats on the pegs round the galleries.

12. All improvements done to the church should be duly recorded on large wooden tablets, the names of the incumbent, churchwardens, clerk, sexton, and the principal contributors, being picked out in capital gold letters.

13. Monuments are best seen when stuck against the pillars of the nave. But any portion of the walls will do, if sufficiently elevated. A broad border of lamp-black will be found to set off the white marble in a very picturesque and efficient manner. The design should be invariably classical. An urn and inverted torches are indispensable; indeed, no monument is correct without them.

14. All brasses, fresco-paintings, carvings, crosses, and other rubbish, should be cleared away from the interior of the church. Recumbent effigies should have the heads, hands, and feet broken off, and sold for cattle medicine. The little boys may carve their names upon them, an amusement which will keep them very quiet during long sermons. All sepulchral recesses in the wall should be boarded up.

THE SPREAD OF KNOWLEDGE.

Douglas Jerrold, in his speech at the Manchester Athenæum *Soirée*, a few weeks ago, beautifully illustrated the change which has taken place in public opinion, as regards the diffusion of information,—reprobating those who had condemned knowledge, for the like reason that the owl flees the sun. "The lady-knowledge," said he, "too long pent up in her tower, guarded not only by giants, but, more provoking still, by dwarfs—and we have only to look back a few years, a very few years, to own there have been dwarfs as mischievous as any in fairy tale,—the lady-knowledge, I say, is no longer a prisoner. We have killed the giants, we have slain the dwarfs. And how have we killed them? Why, as Luther rebuked the devils by throwing inkstands at them. Her music is no longer made the idle luxury of the few, but acknowledged in the daily want of the many. It is a proud thing for you, people of Manchester, that you have erected a temple to her—a temple, wherein the humblest of your fellow-townsmen may come and listen to her, and find his nature at once softened and elevated by the magic of her voice. To say that it offered to such the sweetest solace after the day of toil—to say that it imparted to him a keener consciousness of the dignity of his nature—to say, that whilst teaching them their own rightful position in the world, it makes them respect the rightful position of others, is only to translate into the merest common-place the oft-repeated eloquence of gifted man. These things are now truisms. But human nature is apt to be ungrateful to truisms; for, let us not forget how fortunate it is for us that we live in an age when they are truisms. For truths, like oaks, are of slow growth; and it is with the early truth as with the acorn—shew it to merest ignorance, and it cannot conceive how that little germ should hold within it a latent power that, duly developed, shall breast the billow, and defy the thunder. And so has truth grown, but with this sad difference, that it has too often been watered with the blood of those who have dared to plant it. Happy, then, is it for us, and for the blessing ought we to render up most humble and hearty thanks, that we may to night be gathered together under its branches; for your institution is a great truth—a truth, it may be, planted amidst the fears of the timid, the sneers of the foolish, the misgivings of really well-meaning folks, who still thought that truth for the masses was the barley-sugar of children. They might have a little—just a little when very good—but to allow them to have their fill of it, was to risk a terrible derangement of the body social. With the success of your institution made as clear as the sun, it is amusing, it is more, it is instructive, to remember the prophecies of certain men, who predicted that the very light that would play about instruction such as yours, would only herald, what to them appeared, the total destruction of what they considered the best foundations of society." And then in conclusion:—"The tide that carries us on in knowledge, which is power, gives to us that best, that noblest element of power—gentleness; which, in the fullness of its teaching, will bear all men to that happy end, of which institutions like yours are the most hopeful beginning."

The *Times* has lately given a striking epitome of the great changes which have occurred during the last few years. "From lucifer matches, which twenty years ago were sold at 3s. 6d. a box, as philosophical toys, and have now driven the tinder-box even from the backwoods of North America, to the electric telegraph, which has all but literally annihilated time and space—in all our doings, in every circumstance affecting us, we can trace the finger of change;—and as regards our material condition, it is impossible to deny that, on the whole, the progress is one of improvement. A dozen years since, it was proved, upon oath, by mathematical calculations, to a committee of the House of Lords, that it was an absolute impossibility that a steamer could ever cross the Alantic; the impossibility is now a matter of weekly occurrence. Ten years ago we paid eighteen-pence for the postage of a letter in an envelope carried 80 miles; it is now carried 400 miles for one penny. Fifteen years ago railway locomotives accomplished 20 miles an hour; they can now do 75. We can go to China and back in less time than 20 years since, it occupied to get to Calcutta. Who is now daring enough to assert, that we are more than on the verge of our changes? Thirty years since, we spent scores of millions of pounds sterling in a single year, to bring the war to a successful termination; we are now proposing to spend about a couple of years' war expenditure in completing our system of railways. Fifteen years ago railways were treated as mere private speculations; but the government has already commenced the foundation for laying hands on them for national benefit."

On this same subject we find the following remarks in an introductory lecture lately delivered at the Mechanics' Institution of Ashford, in Kent, by the Rev. John Dufton, vicar of Warehorne:—"In our times experimental science is accessible to the many, and no longer the monopoly of the few; the hieroglyphics which perplexed their studies are blotted out, and it is the unfettered language of the honest and faithful treasurers of knowledge, that they will be happy to see those around them happy. Generally available, the literature of science is to be acquired in those important and useful schools of instruction, Mechanics' Institutes, where none need be ashamed to reap a laurel or cull a wreath, and which, methinks, if wisely governed, and with libraries carefully selected, all who can, are called upon to support. I ask you of what use is science, unless it be imparted to those to whom it may prove useful, and who are likely to use it? Will it injure the higher classes of society, that the artisan is taught to employ his implements to the best advantage, and see his way clearly? Can they experience loss if the operative manufacturer be taught principles, and is instructed in discoveries by which he may uphold his country's rank, bear away the palm of merit from the markets of Europe, and compete with continental nations? We *may* remain at rest, but the world will move around us. And, can it, let me ask, weaken the bonds of society, that the spells of ignorance and superstition should be broken? Will the miner cut our throats because he is instructed in his operations and taught the nature of the fire and choke-damps, and how

these that wage war against his life may be subdued? I think not. Will any one attempt to deny that if a carpenter, or a bricklayer, understands the principle of practical mathematics and mechanics, he will not execute his master's orders better than the perfectly ignorant and uninformed? will not the bleacher and dyer be better qualified to go through their work, with a little knowledge of chemistry; And will not the sailor be improved in his profession, who possesses some information in geography and astronomy? Nay, will not the man only having a pot to boil, be sure to learn from science a lesson which will enable him to cook his scanty pittance better, save his fuel, and both vary his dish and improve it."

Carrying out this view, Sir William Molesworth made the following remarks at the dinner recently given to him in Southwark:—"Every one that has studied the history of mankind must be convinced that, during the last century, especially during the latter half of it, the arts and the sciences have advanced more rapidly than in any other period of which history makes mention. In every department of human knowledge careful investigations have been carried on, and accurate observations have been recorded by patient and laborious men, who have watched, tested, and explored the operations of nature. By these means the old sciences have been extended, and the foundations of numerous new ones have been firmly laid. Thus, astronomy and mechanical science have attained to wonderful perfection. The laws of light, heat, electricity, magnetism and chemistry, have been discovered. The sciences of vegetable and animal philosophy have been created. From these sciences inconceivable arts have sprung, tending to increase the comfort and the well-being of the human race. To the progress of these arts and sciences each of the great European nations has contributed according to the special character of its people. Thus the Germans have been the boldest and most original thinkers. The French have surpassed all others in upholding the positive laws of the universe, and the English have excelled in the *practical application of science to the uses of daily life*.—We study nature, not so much with the great and noble object of discovering her laws, as of deriving benefit from those laws when discovered. We are pre-eminently a practical people. In every branch of human industry, in every occupation which requires mechanical skill and ingenuity, we are unrivalled. In proof of this, I point to the great practical discovery of modern times. I point to the application which we first made of the mechanical powers of *steam* in the production of motion and locomotion. I point to our *steam-engines*, to our factories, and especially to our *railways*. We are now in the act of covering England with railways. Though many of the schemes for that purpose may be hasty and ill judged—though some of them will fail, and the consequence will be pecuniary loss and a season of temporary distress, yet, at no distant period, railways will exist between every town of any importance, and will extend into every district possessing either mineral or agricultural wealth; then journies, which not many years ago required days to perform, will be accomplished in hours, and Great Britian will be like one vast city. The inhabitants of its remote districts will be brought into contact—they will become better acquainted with each others' feelings, opinions, and interests. Local prejudices, the narrow-minded offspring of ignorance and seclusion, will be swept away. Knowledge will be more equally diffused; and men will become more equal, not by being reduced to the same low level, but by being raised to the same degree in the scale of intellect."

WHAT TO DO AND HOW TO DO IT.—*Bradshaw's Railway Gazette* says:—"We have more than once stated that no good could possibly be effected until the Board of Trade was altogether relieved of its railway duties, and the standing orders annulled. The field thus made clear for active exertion, it would become the duty of Government to select some five or seven of our eminent engineers, and, clothing them with plenary powers, refer all railway matters to their consideration." The suggestion is well worthy of consideration.

CHURCH-BUILDING IN WILTSHIRE.

We have recently alluded to the number of new churches built in Wiltshire. The last report of the "Salisbury Diocesan Church Building Association" shews, that since the commencement of the association, the sum of nearly 11,000*l.* had been disposed of by it in grants, which had led to an expenditure on the part of the public, during the last nine years, of 100,000*l.* Among the events of the past year, the consecration of Wilton church was dwelt upon with a feeling of much satisfaction. That splendid structure was stated to far surpass all that had been done in modern times, and to stand in advantageous competition with the glorious works of former days. During the past year, ten new churches had been opened in the diocese. Since the first establishment of the association, twenty-one new churches had been built, nineteen rebuilt and enlarged, and additional room had been afforded in forty-four others.

THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

On Wednesday evening last this association held their first meeting for the season in the theatre of the Western Institution, Leicester Square. Lord Albert Conyngham was in the chair and addressed the meeting: about 200 persons were present, including a large number of well known active antiquaries.

A very interesting paper by Mr. Lower, was read on the recent discovery of Gundreda's remains at Lewis, and a letter from Mr. Corner questioning the fact that Gundreda *was* a daughter of William the Conqueror as asserted. Some discussion ensued, of which, and other matters brought forward, we may speak on another occasion.

LIST OF NEW PATENTS RELATING TO ARCHITECTURE, ENGINEERING, &c., GRANTED FOR ENGLAND.

Furnished by Mr. A. Prince, of the Office for Patents of Inventions, Lincoln's-inn Fields, London.

[SIX MONTHS FOR ENROLMENT.]

Alexander Bain, of Hanover-street, Edinburgh, engineer, for improvements in electric clocks and telegraphs, part of which improvements are applicable for other purposes. September 25.

Alfred V. Newton, of the Office for Patents, 66, Chancery-lane, mechanical draughtsman, for certain improvements in machinery for manufacturing screws. September 26.

John Reed Hill, of 28, Stamford-street, Lambeth, civil engineer, for certain improvements in atmospheric propulsion, applicable to water as well as land carriage. October 2.

Alfred Hall, of Coxsackie, America, brickmaker, for certain improvements in machinery or apparatus for making, moulding, or manufacturing bricks, tiles, and other articles, from earthy or plastic materials. October 2.

George Daniel Bishopp, of Edgbaston, in the county of Warwick, civil engineer, for improvements in certain engines or machines used for obtaining mechanical power, and for raising and impelling fluids. October 2.

John Simpson, of Langton Rectory, York, clerk, for certain improvements in obtaining and applying motive power. October 2.

Graziano Conte, of Regent-street, Middlesex, merchant, for improvements in machinery for cutting, carving, and sculpturing marble, stone, wood, and other like substances. October 3.

Moses Poole, of the Patent Bill Office, London, gent., for improvements in rails for railways. October 3.

Gabriel Hyppolyte Moreau, residing at No. 18, Boulevard Bonne Nouvelle, Paris, gent., for an improved steam carriage. October 6.

Thomas Russell Crampton, of Southwark-square, Surrey, engineer, for improvements in locomotive engines and railways. October 6.

Thomas Howard, of the King and Queen Iron Works, Rotherhithe, Surrey, iron manufacturer, for improvements in rolling iron bars for suspension bridges and other purposes. October 6.

Joseph Quick, of Sumner-street, Southwark, engineer, for improvements in steam engines. October 9.

John Lake, of Apsley, Herts, civil engineer, for certain improvements in propelling. October 9.

Edmund Morewood, of Thornbridge, Derby, merchant, and George Rogers, of Stearndale in the same county, gent., for improvements in the manufacture of iron into sheets, plates, or other forms; in coating iron, and in preparing iron for coating and other purposes. Oct. 9.

Thomas Wood Gray, of Workworth-terrace, Commercial-road, plumber, for improvements in ports, and apparatus for opening and closing ports of ships or other vessels; also applicable in opening and closing windows, and other instruments having the like movements. Oct. 9.

Henry Francis, of Wardour-street, civil engineer, for improvements in the manufacture of gas. October 9.

Edward Patrick Emerson, of the city of Dublin, doctor of medicine, for improvements in the manufacture of paints, pigments, cements, and other plastic compositions, and in the machinery or apparatus to be used in such manufacture; parts of which improvements are also applicable to the manufacture of artificial stone and marble. October 9.

David Wilkinson, of Potters' Pury, near Stoney Stratford, gent., for improvements in obtaining motive power. October 10.

Frederick Harlow, of Paradise-street, Rotherithe, carpenter, for improvements in atmospheric railways. October 10.

James Hardcastle, of Firwood, Bolton-le-Moors, Lancashire, esq., for certain improvements in the method of conveying water. October 10.

Edmund Barber, of Tring, decorative painter, for certain improvements in graining and decorating in oil, distemper, and other colours, and in imitating marbles, granites, fancy and other woods, and in the apparatus and instruments to be used therein. October 11.

Stephen Reed, of the town of Newcastle-upon-Tyne, gent., for certain improvements in railway rails and chairs. October 16.

Joseph Orsi, of Pimlico, gent., for improvements in sleepers or blocks for supporting railways. October 23.

Thomas Taylor, of Manchester, cabinet-maker, for certain improvements applicable to machinery or apparatus employed for sawing timber. October 23.

Thomas Worsdell, jun., of Stratford, railway carriage builder, for certain improvements in apparatus to be attached to, and employed in connection with, railway carriages. Oct. 23.

William Coles Fuller, of Brownlow-street, Holborn, for improvements in the construction of carriages for railways. October 23.

Thomas Forsyth, of Salford, in the county of Lancaster, engineer, for certain improvements in signals, or in the method of giving signals, which are applicable to the workings of railways, and which are also applicable to maritime purposes, and for certain other improvements in the working of railways. October 31.

Charles Henry Collins, of Lambeth, engineer, for improvements on atmospheric railways. October 31.

Robert William Brandling, of Low Gosforth, in the county of Northumberland, esq., for improvements in railways and railway carriages, for the security and convenience of the public. October 31.

Henry Waller, of Vauxhall-road, Surrey, engineer, for improvements in sluice cocks. October 31.

Dalrymple Crawford, of Birmingham, in the county of Warwick, gent., for certain improved means of, or machinery for arresting the progress of railway carriages and trains. October 31.

ARCHITECTS PUTTING THEIR "SIGNATURES" TO THEIR "DEEDS."—This very useful and pregnant suggestion, lately made in this paper on occasion of the royal opening of Lincoln's-inn Hall, has been almost constantly observed in the *old* buildings of the continent. Thus, in St. Stephen's Cathedral at Vienna, *Antony Pilgram*, who chiefly conducted the building of this huge structure, and completed it in 1433, not only placed his *monogram* in a very conspicuous place, but—in the *naive* and hearty way of these times,—a half-length figure of him is placed under the preacher's pulpit, where he, with mediæval barrett on the head, is represented as if looking out of a window. He, certainly, was sure, that his name and memory could not be damaged by thus even more than *signing* his work.—J. L.

New Books.

Sir Edward Thomason's Memoirs during Half a Century. 2 vols. 8vo. 1845. Longman and Co.

"The *toy-shop*," as it was called by Burke, or rather, as it should be termed, the *manufacturing repository of Europe, Birmingham*, is much indebted to the enterprising, persevering, and talented author of the above work, for its present high character; and it may also be said that Great Britain and Europe have been largely benefited by the many and various works of art and science, which have been produced at his fine establishment, and dispersed throughout our own and foreign countries. For nearly half a century the name of Thomason has been celebrated throughout Europe and America, and his show-rooms have attracted and gratified nearly every stranger of note and taste who visited Birmingham during that period. Hence we find them to be subjects of comment and panegyric in many works published in Germany, Italy, France, and the United States. The writer of this brief notice went over the whole at two distinct times, the one remote from the other, and can never forget the impressions made on his mind, both at the first and second visit, by the interesting processes of manufacture exhibited, and also by the rich presents which had been bestowed on the proprietor by monarchs, nobles, and private individuals. Delineations and descriptions of some of these objects constitute the staple article of the volumes before us, which are certainly calculated, as the author observes, "to arouse the active emulation and ambition, of the young and rising manufacturers of the great commercial town of Birmingham."

The following passage from the preface will intimate to the reader the nature of the work, and some idea of its author:—"In the line of manufactures, in which the author was engaged for upwards of forty years, and which was confined to the highest class of the metallic arts, he is animated with the hope, that he has succeeded in many inventions calculated to reflect some credit on the inventor, and in which opinion he conceives himself borne out, by his having been honoured with the order of knighthood from his own sovereign, as well as having been honoured with more than thirty distinguished tokens of approbation from foreign potentates, of decorative orders of knighthood, gold medals of merit, diamond rings, diamond snuff-boxes, and other foreign specimens of art, for which gratifying compliments he begs to avail himself of a line here to express his everlasting gratitude. The author filled, for a period of twenty years, for eight foreign governments, the honourable appointment of vice-consul for the town of Birmingham, which regularly introduced him to foreigners of the highest distinction—to princes, nobles, ambassadors, professors, &c.; thereby laying a foundation for a correspondence somewhat unique, and which may be found useful and instructive to the rising manufactures of his native town."

The work contains copies of many of the letters from the illustrious individuals here referred to, and many other royal and noble personages, with fac-similes of their signatures. The two volumes embrace a narrative of the inventions and productions of the author; particularly his well known series of historical, scientific, and scriptural medals; and the events described extend from the year 1795, when he was apprenticed to Boulton and Co., of Soho, to the present year. His father appears to have retired from business before he came of age, and amassed a considerable fortune by the manufacture of buckles, then not only a fashionable, but universally-worn article. He states that his parent made, "one thousand" pairs of buckles per diem, when in full work." He invented one pattern, called "the silver penny" by which he cleared above 1,000*l.* Since that time, Birmingham has made rapid advances, not only in extent and population, but in the quality and variety of its vast manufactories. The improvements in science, the enterprise and the practical talent of its inhabitants, with the competition and rivalry which stimulated their exertion, have jointly combined to produce these effects, and to render the town justly famed throughout the world.

To Sir Edward Thomason, as we have already said, may be fairly ascribed no small portion of its fame. His active and ardent spirit led him to make many experiments, to invent and speculate on many novelties, and by arresting the attention of the most wealthy and influential personages of Europe, to induce them to visit his museum, and to purchase many of its costly and novel manufactured goods. The demand for the productions of Birmingham thus produced, gave them a high character and distinction in public marts; and these volumes will afford a lasting explanation of the fact, and of the author's share in producing it. Amongst the medals designed and struck by Sir Edward, were one of the Town Hall, and another of King Edward's School: by the latter it appears, that Mr. Barry intended to crown the centre with a lofty, perforated spire, in imitation of the splendid Town Halls of Belgium and Germany.

ARCHITECTURAL AND COLLATERAL FOREIGN WORKS, LATELY PUBLISHED.

FRENCH WORKS.

Botta, Découvertes.—Letters on the Discoverics at Khorsabad, near Ninive. Paris. 8vo. with 55 plates, 12s.

Batissier, L., Histoire.—History of Monumental Art in Antiquity and the Middle Ages. Paris. 8vo.

Annales.—Annals of Public Works in Belgium, concerning Art of Construction, Ways of Communication, and Mineral Industry. 3 vols. 8vo., with atlas in fol. Bruxelles, each vol. 12s. [This country is deficient in any work of the kind, although of the greatest importance.]

Audat, M., Termosyphon.—Termosyphon or the Water-oven, for Heating all sorts of Glass-houses, Churches, Theatres, &c. 4to.

Athemar, J., Traite.—Treatise on the Cutting of Stone. Paris. 8vo., atlas in 4to. Third Edition. 1*l.* 7s.

Boucharlat, J. L., Theorie.—Theory of Cubes and Surfaces of second order. Paris. 8vo., 9s. Third Edition.

Brogniart, Traité.—Treatise of Ceramic Art, or the Potteries considered theoretically and practically. Paris. 8vo., and atlas in 4to., 2 vols., 1*l.* 16s.

Chenavard, A., Album.—Album of the Ornamentist in all guises and styles. Paris. 72 plates, 3*l.*

Combes, Ch., Traité. — Treatise theoretic and practical, on the Wheels of Reaction, or the Tube-wheels, called *Turbines*. Paris. 4to., plates, 10s.

Coriolis, Traité.—Treatise of Mechanics of Solid Bodies, and the calcul on the force of Engines; considerations on the use of Motors and their Evolution. Paris. 4to., plates, 15s. Second Edition.

D'Harcourt, R., Eclairage. — Gas-lighting, the Making of Gas, the Building of Furnaces, Laying of Tubes, and the Phenomena of Light developed. Paris. 8vo., plates, 7s. 6d.

D'Arcet, *Payen*, *Brun*, *Dr. Ure*, Dictionnaire.—Dictionary of French and Foreign Industry. Paris. 8vo., 3 vols. Double columns.

Barat and *Challamel*, Exposition.—Exhibition of French Industry in 1844. Paris. 4to., 2 vols., plates, 3*l.* (An important work.)

Toussaint, C. J., Manuel.—Hand-book of the Cutting of stones. Paris. 18mo., atlas, 5s.

Poncelet, J.V., Traité.—Treatise of Industrial Mechanics, the different methods for determining and calculating Moving Forces, &c. Paris. 8vo., 18s. New Edition.

Reech, Rapport.—Report on the Engines of *Brandon*. Paris. 4to., 15s. [*Official.*]

Valerius, B., Traité.—Treatise on the Theory and Practice of the Fabrication of Iron, especially in Belgium. Paris. 8vo., atlas, fol., 1*l.* 10s.

Genaro-Perez, L'Espagne.—Spain in its Arts and Monuments. Paris. fol. In parts, each 16s.

Chenot, A., Chaudierces.—Boilers of Steam-engines to be Electric Apparatus, and means for generating steam without any danger. Paris. 8vo. 6s.

Claudel, J., Formulas.—Formulas, Tables, and Practical Hints—a memory-help for Architects, Engineers, &c. Paris. 8vo., 12s.

Colignon, Ch., Concours. — The Co-operation of Canals and Railways. Paris. 8vo., 6s. Second Edition.

Gouin and *Lechatellier*, Recherches.—Experimental Researches on Locomotive Engines. Paris. 8vo., 6s.

Idzkowski, A., Compositions. — Compositions of Architecture, containing Buildings of all kinds, such as Town-halls, Churches, Bridges, Garden-houses, Monuments, &c. Engraved by *Beaupre*, Dulos, &c. Paris. Fol. To form 20 parts, each 15s.

Schmit, Manuel.—The Architect's Handbook of Religious Monuments—or the Practical Application of Christian Archæology to the Construction, Decoration, Conservation, and Restoration of Churches. Paris. 8vo., 7s.

Lacroix and *Hogard*, Manuel. — New complete Handbook of Surveying, containing instructions in that art, and a Treatise on the Art of Fixing Boundaries. Paris. 18mo., plates, 2s. 6d. New Edition.

Schmitz, *Jullien*, and *Lorentz*, Manuel.—Handbook of the Civil Engineer. Paris. 18mo., and atlas of plates. 2 vols., 10s. 6d.

Gayffier, Manuel.—Handbook of Bridges and Roads, Aqueducts, &c. Paris. 18mo., 2 vols., New Edition, 7s.

Paulin, G., Manuel.—Handbook for Fire Erigades, or Theory of the Extinction of Fires. Paris. 18mo., atlas of plates, 7s. 6d. New Edition.*

Morin, A., Aide-mémoire.—Memory-help of Practical Mechanics, for the Use of Civil Engineers, &c. Brussels. 8vo., 7s. Fourth Edition.

Normand, Paris.—Modern Paris, third part, the Country Seats and Rural Buildings of the Environs of Paris. Paris. 4to., each livraison 2s.

Clenault, S. Ch., Traite.—Treatise on Dangerous Insalubrious, or Disagreeable Establishments. Paris 8vo., 7s.

Champollion, Monuments.—Monuments of Egypt and Nubia. Paris. Fol. text, each part 12s. 6d. [*Official.*]

Bulletin.—Annals of Society of the History of France, a Review of National Antiquities. Years 1834 to 1836. Paris. 4to., 4 vols., 1*l.* 5s. (Most of the other years out of print.)

Gavard, Ch., Galleries.—The Historical Galleries of Versailles. Paris. Fol., 9 vols., plates comprising about 1,800 subjects of sculpture, &c. 35*l.*

Isabelle, C. E., Edifices. — Circular Edifices and Domes arranged in Chronological Order, their Construction and Ornaments. Paris. Fol., 20 parts, each 10s. Published under the auspices of Government (!!)

Lasterie, F., Histoire.—History of Glass Painting from its Monuments in France. Paris. Fol., coloured plates. Each part, 10s.

Bedarride, M., Maçonnerie.— On the Order of Freemasons of Israim, from its Creation to the Present Time. Paris. 8vo., 2 vols., 1*l.*

Jourdain and *Duval*, Stalles.—The Stalls of the Cathedral of Amiens. Amiens. 8vo., 14s,

Correspondence.

THE EGG-SHAPED SEWER.

SIR,—I beg to inform your correspondent, "E. E. E.," that the egg-shaped sewer has been adopted by the City of London Commission for some years. The large sewer in Walbrook was built in that manner some twenty-five years since.—I am, Sir, &c.,

City. A. B. C.

Miscellanea.

COST OF RAILWAY VIADUCTS.—From an account of a viaduct over the Union Canal, on the Edinburgh and Glasgow line, which appeared in a recent number of the *Railway Chronicle*, we obtain the following particulars. This viaduct was erected under difficult conditions; and a canal, at all times an obstacle of troublesome nature to railways, was made particularly so in this case, on account of the small rise the engineer had to work upon for a base span. The viaduct consists of four arches, and is in length 305 feet. The average height is somewhere about 41 feet. The larger arch has a span of 130 feet, with a rise of 24 feet 6 inches, being about one-fifth of the span. The thickness of the arch stones at the spring is 5 feet, diminishing to 3½ feet at the crown. The next large arch is 63 feet in span, with a rise also of 24 feet 6 inches, being nearly one-third of the spring; the thickness of the arch stones at spring being 3 feet, and at the crown 2 feet 6 inches. The two small intervening arches are 20 feet in span, and semicircular; the arch stones of the central one being 2 feet 6 inches thick, while those of the outer one are 1 foot 6 inches. The whole of the viaduct was made of ashlar, except the backing of the wing walls, and cost 61*l.* per lineal foot forward. This large arch has stood well: a splinter or two at the face of the stones in the spring, are merely superficial defects, which have not affected the stability of the structure.

OXFORD ARCHITECTURAL SOCIETY.—A meeting was held at the society's rooms on Wednesday, when a paper was read by E. A. Freeman, B.A., secretary, on "The Development of Roman and Gothic Architecture, with their moral and symbolical teaching." In the latter part Mr. Freeman contended that there were only two real divisions of Gothic architecture—the *early*, including the geometrical decorated, and the *continuous*, including flowing—decorated, and the perpendicular. Mr. F. concluded by a high eulogium on the latter style, which he contended was the nearest approach to perfection. Mr. Patterson and Mr. Parkins protested against the opinions advocated by Mr. Freeman being taken as those of a majority of the members of the society.

PAPIER MACHE.—This material is being used for the purpose of pancling first class railway carriages.

* The above handbooks form, what is called in France the sterling collection of *Manuels-Roberts*.

THE ROYAL SOCIETY.—The first meeting of the Royal Society, held on Thursday night last, was one of stirring interest, comprising the black-balling of *three* candidates in succession; a remarkable paper by Mr. Farraday on the connection between light and galvanism, and an announcement by Lord Northampton that in future discussions on papers read would be encouraged.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the supply of 200 Coal Waggons to the Sheffield and Manchester Railway Company.

For the excavation of about 120,000 cubic yards of land at Edge Hill, for the Grand Junction Railway Company.

For the erection of a first-rate House at Islington.

For paving with wood the Carriage ways of a newly-formed street in Southwark.

For the supply of ten tons weight of cast-iron lamp-posts to the trustees for lighting the parish of Hackney.

For supplying the Richmond Railway Company with about 35,000 oak keys.

For repairing and keeping in repair the Harnham, Blandford, and Dorchester Turnpike-roads.

COMPETITION.

Designs for a Gothic Church, to be erected at Llandilo, are required. 50*l.* will be awarded for the one selected, and 20*l.* for the next best.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At the Half-Moon Inn, Taunton, 283 prime maiden Elm trees, 35 maiden Oaks, 38 maiden Ash, 84 pollard Elms, and 21 pollard Ash trees, now growing.

At Hartshill, near Atherstone, Warwickshire: 345 Elms, 41 Ash, and 26 Oak trees, of large dimensions, now standing.

In Mortimer-street, Cavendish-square: 60,000 feet of dry panel boards, several hundred squares of prepared floor boards, Spanish and Honduras mahogany, 6,000 pine planks and deals, 600 white and spruce deals, &c.

TO CORRESPONDENTS.

"A Subscriber."—*Hutton's is the only course of mathematics that has obtained a standing in this country, and some of the later editions, such as those of Romnay and Rutherford, contain as much of the modern analysis as is necessary for every purpose. We would prefer Woolwich to Sandhurst on account of the eminence of its professors, and the excellence of its regulations. Sandhurst, nevertheless, is a very respectable establishment.*

"A Young Architect" *asks to be told the best materials for building and roofing a church. The locality must be considered. Kentish rag-stone is much used for walls, and is a good material. Good encaustic tiles may be obtained at the Worcester porcelain warehouse (New Bond-street), or Copeland and Garrett's, Lincoln's-inn-fields.*

"T. P." (Manchester).—*We consider* 120=12 *feet deals, a standard hundred.*

"C. N."—*If the house be not completed by the 1st of January, it will rest with the official referees to say, on application, what alterations must be made in it.*

"J. F. I."—*We are unable to point out a good book on "Lines"; such a work is a desideratum. We will print a letter next week from one who has given much attention to the subject.*

"Polished Slate Chimneys.—*Our correspondent is informed he may see such at Bow Bridge Slate Works, Stratford.*

"R. G."—*Knowing the material, we will take an opportunity to mention it.*

"A Young Beginner."—*The best way to learn drawing is, to get a good master.*

"G. C."—*Apply to Weale, 59, Holborn.*

"J. L."—*At Bell's, Fleet Street.*

"L. O."— *We might mislead by giving an opinion without fuller information. We advise* "L. O." *to let a surveyor see the premises and give his opinion.*

Received; "A. Z.;" "W. T. T.;" "E. B.;" "Mr. Finney;" "A Mason;" "W. S. W.;" "A Surveyor;" "Church Admirer;" "First steps to Anatomy," by James L. Drummond, M.D. (John Van Voorst, Paternoster Row); "The Archæological Album, a museum of National Antiquities," edited by T. Wright, M.A., illustrated by F. W. Fairholt, F.S.A. (Chapman and Hall.)

ADVERTISEMENTS.

ROYAL POLYTECHNIC INSTITUTION.—A Lecture on the prevalent disease in Potatoes, and the means of extracting the starch as an article of food, will be delivered by Dr. Ryan, daily, at half-past Three, and on the Evenings of Mondays, Wednesdays, and Fridays, at Nine. Professor Bachhoffner's varied Lectures, with Experiments, in one of which he clearly explains the principle of the Atmospheric Railway, a Model of which is at work daily. Mr. Downe, the celebrated Flutist, accompanied by Dr. Wallis on the Pianoforte, will perform a Duet Concertante, and afterwards a favourite Fantasia, at Four o'clock, on Tuesdays, Thursdays, and Saturdays. Coleman's new American Locomotive Engine, for ascending and descending Inclined Planes. A magnificent collection of Models of tropical fruits. A new and very beautiful series of Dissolving Views. New Optical Instruments, &c. Experiments with the Diver and Diving Bell, &c. &c.—Admission, One Shilling. Schools, Half-price.

NOTICE. — INVENTORS desirous of obtaining LOANS ON or of SELLING their INVENTIONS, or Patents, should apply to Mr. M. JOSCELIN COOKE, at the OFFICE for PATENTS, Warwick chambers, Warwick-court, Gray's-inn, London, where English and Foreign Patents are obtained, and Designs registered. An INDEX is kept for inspection of all Patents granted for the last century; also copies of every Patent of importance. Instructions to Inventors and a list of charges gratis on application.

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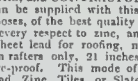
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T. W. BEALE begs to acquaint the public that he is prepared to lay roofing, plain or corrugated, fix pipes, gutters, &c. Also chimney-tops and ventilating cowls of every description; also water and oil cisterns, of this incorrodible and fireproof metal. He manufactures all kinds of baths, as hip, shower, Roman, open, slipper, sponging, foot, children's, and self-heating baths; also toilet-cans and pails, slop-pails, coal-scuttles, cash and deed-boxes, and fire-proof safes of every description, 10 per cent. cheaper than any house in London.

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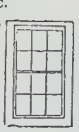
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TO THE BUILDING PUBLIC.



SASHES AND FRAMES, DOORS, &c.

Manufactured for the Trade
By C. W. WATERLOW,
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Best Materials.—Lowest Prices.
Terms: Cash.

Full lists of prices may be had on application at the counting-house; if by letter, pre-paid, inclosing postage-stamp.
A large stock of well-seasoned Doors always on hand.

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ORNAMENTAL WIRE-WORK, FLOWER-POT STANDS, &c.

To Architects, Builders, Contractors, Upholders, and others.

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Manufacturer of every Description of Window Blinds on the most approved principles, namely, the Spanish, Oriental, Florentine, Louvre, and Venetian Sun Shades, for the exterior; and Venetian Dwarf, Metallic Gauze, Perforated Zinc Blinds, Transparent, Landscape, and Holland Blinds on Springs, Patent and Common Rollers for the Interior; Blinds for Shop Fronts, Plain and Ornamental, on the most Improved plans. Old Blinds Altered, Renovated, and Refixed. A variety of Flower-pot Stands always Ready. Rustic, Portable, and other Garden Seats and Stools; Wire-work for every purpose useful and ornamental.

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BRITISH and FOREIGN SHEET GLASS, for Horticultural purposes, Sky-lights, &c. may be had at JAMES BROMLEY'S 315, Oxford-street, London, at the reduced prices, also Microscopial Glass, French Shades, Plate and Crown Window Glass. J. B. will be happy to furnish Lists of Prices, or any other particulars that may be required.

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CHARLES LONG begs to inform his Friends and the Public, that he can now supply Ornamental Glass from 1s. 3d. per foot superficial; and borders from 9d. per foot, run; and having just built two of the largest Kilns in London, is enabled to execute extensive Orders with unprecedented dispatch, 1, King-street, Portman-square.—Terms, Cash only.

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87, Bishopsgate-street Without.

THOS. MILLINGTON begs to inform his Friends, that he still continues to manufacture the above in the same manner, and using only the best materials, that have given so much satisfaction for many years past. Every article will be made in the best manner, and the very lowest price charged. Lists may be had upon application. Drawings prepared.

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PLUMBER'S BRASS WORK, WATER-CLOSET PUMPS, &c.—These articles require the greatest attention and care in the manufacture, and will be found superior and cheaper than at any other manufactory. Best Pan Water Closets, 34s.; 2½ Lift Pumps and Planks, 4*l.* 10s. 0d.; 3-inch Pumps, 5*l.* 10s. 0d.; 3-inch Bill Ball and Stop Cocks, 30s. per dozen, and every article in this branch equally low. Every article warranted.—Address, THOS. MILLINGTON, 87, Bishopsgate-street.

VARNISH.

THOS. MILLINGTON begs to inform the Trade, Builders, Painters, and others, that this article can be had at his Manufactory, of the best quality and at the very lowest price. T. M. has long been a manufacturer, and has devoted much time and attention to it, using only the best of gums, and sparing no expense in the manufacture. Fine Pale Oak or Wainscoat Varnish, per imperial gallon, 10s.; Fine Carriage Varnish, 12s.; Copal, 18s.; Body Copal, 21s.; Gold Size, 10s; White Hard, 18s.; Brown Hard, 18s.; French Polish, 18s. per gallon. Paint, Dryers, Colours, ready and ground, and every article in the trade. If quality is taken into consideration, this will be found the cheapest house in London. Address, 87, Bishopsgate-street Without.

WALLIS'S PATENT LIQUID WOOD KNOTTING. — This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; a boy can use it as well and effectually as the best workmen: it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

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VARNISH.—It has long been a desideratum amongst the consumers of Varnish to obtain a good and genuine article; brilliancy, facility of drying, hardness, and durability are the qualifications necessary, but these are seldom if ever found united. The experience of a life-time devoted exclusively to the manufacture of this article, the great and important discoveries of modern chemistry, and the daily improvements in machinery, have enabled Messrs. George and Thomas Wallis to produce Varnishes (both oil and spirit) unrivalled in every respect, and they confidently recommend them to the trade, as deserving of notice both in price and quality.

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The Builder.

No. CXLVII.

SATURDAY, NOVEMBER 29, 1845.

KNOWLEDGE of the materials employed in building, and the natural laws which regulate their constitution, are essential, we may say indispensable, to orm a good architect. We earnestly recommend our younger readers at once to make the equirement of this knowledge, or rather the tting of themselves for *easily* acquiring it, one their recreations. It need be nothing ore; it will not increase their daily duties, it lighten them; and will be found hereafter constant source of gratification and enjoyent, independent of its value to them in a rofessional point of view.

"Those who possess the genuine spirit of ientific investigation," says Dr. Young, "and no have tasted the pure satisfaction arising om an advancement in intellectual acquireents, are contented to proceed in their reearches without inquiring at every step what ey gain by their newly-discovered lights, and what practical purposes they are applicable; ey receive a sufficient gratification from the largement of their views of the constitution the universe, and experience in the immeate pursuit of knowledge, that pleasure which hers wish to obtain more circuitously by its ans. And it is one of the principal advanges of a liberal education, that it creates a ceptibility of an enjoyment so elegant and rational."

Nor will the practical purposes to which eir "newly-discovered lights" are applicable, long unseen. Mechanics, statics, hydrauy, hydrostatics, the properties of heat, chestry, geology,—will all be found to bear atly and immediately on the object of their cial attention; and a knowledge of these nces *must* be acquired by the rising archits, if they wish to practise their profession sfactorily, and not see the body to which y belong, merge into one on either side of it closely and unceremoniously shouldering it. is latter is not an idle fear, but of serious port, demanding the thought of every archi. We shall proceed to its consideration another occasion; our object on the present o advise our student-readers to take such ourse as may tend to avert it.

Every one has read the long list of attainnts considered necessary for an architect, Vitruvius, but very few seem to think that same are as needful now as they were then: eed, we are strongly led to believe, that eral knowledge is less sought for or attended by architectural students at this time, than as ten years ago: their whole attention has n led by the fashion of the times to one icular point, to the neglect of many others, e it would have been impossible for a man cquire even a general knowledge of the nces alluded to,—natural philosophy, in t, without the devotion of years; but now a matter of no difficulty, and for a long has not been so. As a first step, let our ng reader take Dr. Arnott's delightful ements of Physics," and we will undertake ay, even if his attention has never been cted to the subject before, that by the time as mastered its contents he will regard all nature with increased interest; every object in his walks will present a different appearance from what it before took, and he will have a glimmering of truths in connection with the practice of building to which, until then, he had been blind.

The lecture-rooms of any of the popular literary institutions will give him, at little cost of time or money, an insight to all the sciences, and shew him how he may successfully increase his knowledge of them. What we have thus briefly recommended to the architectural student is applicable to the builder and the operative,—to whom such knowledge is of equal importance. The first, however, being supposed to have more time and means, would pursue his studies further, and so maintain legitimate authority over those he would be called on to direct. If he pause on the threshold, and allow others with fewer opportunities to pass into the temple, he may expect, and will deserve, to find himself (as he assuredly will) a follower instead of a leader. Those who do not keep in advance of the crowd must expect to have their heels trodden on; and if they had an advantage given them at starting, and failed to use it, will meet with no pity when they lose the race.

We commend these words, with all respect, to the consideration of some in the profession who have long ceased to be students.

DO THE CITIZENS REGARD THEIR ANTIQUITIES.

SIR,—At a meeting of the Royal Institute of British Architects on Monday last, a report of which appears in THE BUILDER of to-day, Mr. Tite complained of my having interfered, in the year 1841, with the "City-Authorities," or with the "Joint Committee of Gresham Affairs," and obstructed them in collecting antiquities discovered on the site of the Royal Exchange. I have before me, *a verbatim* and authenticated report of Mr. Tite's speech, which differs considerably from that published in your paper. Mr. Tite stated that I offered sums of money for coins, &c., that a great deal that ought to have belonged to a public collection had gone to enrich my private cabinet, and further, Mr. Tite refers to my papers in the *Archæologia* as conveying accusations against the "City Authorities" for interfering with me and my researches, when, in point of fact, he says, it was I who interfered with them and their researches! It is rather remarkable that Mr. Tite should have allowed so many years to elapse before he adventured to rebut my assertions and to advance counter charges, especially as, during the long course of my attempts to record discoveries of antiquities made in and about the city, I have never shrunk from openly denouncing, less the apathy of the corporation towards their ancient monuments, than the obstacles they throw in the way of those who sacrifice their time, in endeavouring to preserve or record those doomed to destruction. Mr. Tite does not venture upon the history of the discoveries made during the last fifteen or twenty years, but he refers to what he states took place in making excavations for the New Royal Exchange. To that brief period of operations upon a comparatively small spot of ground, I will, for the present, confine my remarks in reply to his accusations.

With the hope of being permitted to make free use of my eyes and pencil during the progess of the works, without liability to encounter such offensive hinderances as from time to time, when attempting to make sketches or elevations, I had long been subjected to, I called upon Mr. Tite at his office, and asked him to favour me with a written passport, for free ingress and egress to and from the works at such times as I could make it convenient to attend. This request he courteously granted, and at the same time said he trusted I should not interfere with the workmen to obtain possession of any objects that might be brought to light, as the Joint Gresham committee wished to preserve every thing for themselves. I replied, that I was delighted to hear there was an incipient disposition in the city to conserve its ancient monuments; that I should be quite satisfied in finding that such ancient remains as might be found would really be preserved, and moreover, that collecting antiquities for the mere sake of collecting, was a feeling unknown to me. I rigidly adhered to my promise, but, to my surprise, I soon ascertained that Mr. Tite's passport was totally useless to me, and that even in his presence, it did not protect me from abuse, and threatened personal violence from people under his authority, or that of the Joint Gresham Committee. The full particulars of the outrageous conduct I was subjected to almost upon my first visit to the Exchange, after receiving this order from Mr. Tite, are detailed in a letter addressed to the Joint Committee of Gresham affairs, and delivered into the hands of their clerk, Mr. James Barnes, on the 16th of February, 1841. To this letter I refer Mr. Tite, as it would be too long to insert on the present occasion in your columns, and I will content myself with briefly telling the result of the order.

The first time I visited the Exchange after receiving it, was on my return to London, after a sojourn of some days in the country. Upon no previous occasion did I ever encounter such gross and unprovoked abuse as upon the present, when under the *protection* of Mr. Tite's *order*. The foreman not only used the most violent language, but he also threatened to expel me by force if I delayed to leave the works. He laughed at Mr. Tite's order, and asserted that *he also had his orders*, and was prepared to execute them! Willing to ascertain if Mr. Tite's order would be enforced, I again presented myself, and in the presence of Mr. Tite, had to suffer a repetition of the previous outrage, Mr. Tite upon my appealing to him, coolly saying he could do no more!! This *order* then was perfectly useless to me; it was scouted by the menials, and Mr. Tite seemed to possess no control over them, or was himself under the influence of some superior power, for not a shadow of a pretext could with any reason be urged against me for infringement of rules and regulations; on the contrary, I had already been instrumental in reclaiming and securing some articles for the collection now deposited (I understand) in the London Institution. The power of architects in the city is not always so limited. Mr. Cockerell having granted me permission to visit the excavations made on the site of St. Bartholomew's Church, the same superintendent, who, on the other side of the street, within the jurisdiction of Mr. Tite, was permitted (if not instructed), to annoy me, attempted to obstruct my entrance to the premises. Mr. Cockerell, however, with manly consistency and decision, threatened to discharge any individual who, contrary to his orders, should dare to molest me, and, I need scarcely add, his commands were never disputed. The assistance afforded me by this gentleman was given, moreover, with such good nature and kindness, as to make me feel he was as much obliged in granting the privilege, as I in receiving it.

As I was not inclined to suffer bodily martyrdom on the site of the New Royal Exchange, I desisted from visiting it, until I perceived that hundreds of persons were daily indiscriminately admitted *without* orders, when I occasionally mixed in the crowd for a few minutes, or, after awhile, was tolerated by Mr. Russell, the clerk of the works (whose politeness I willingly acknowledge), and thus managed to make the few observations printed in the *Archæologia;* but which, scanty and imperfect as they are, comprise every thing that has yet been published relative to the discoveries made on this spot. During the entire period of the operations, I rigidly forbore even from speaking to the workmen, except in a few instances, when I made myself instrumental in inducing them to take objects of antiquity to Mr. Russell, to whom I also forwarded some coins which had passed into other hands from the excavators, and subsequently were offered to me. But I regret to say, that the regulations referred to by Mr. Tite, were the cause of many interesting matters being carried off by the workmen, and dispersed beyond the hope of ever being made available to science; and I much doubt if the chief mass of antiquities collected, ever reached the London Institution. I have understood that people who had access to the room in which they were at first deposited, could not refrain, in the

ardour of their newly-acquired taste, from carrying off occasionally a few specimens, although the abstracted fragments might render a beautiful vase less complete; and this silly propensity, I perfectly well remember, was the cause of my recommending, that a basket should be filled with worthless odds and ends, and placed in a convenient situation for the curiosity-seekers to purloin from to their hearts content, without the possibility of injuring the better portion of the collection. As for the pretty little episode (which appears in the MS. report presented to me), about my bearing off the bell, I leave it in the hands of those who fabricate and silently listen to scandal and falsehoods.

That the "City Authorities" have hitherto ever had the least regard for their ancient monuments is an absurd notion, disproved by the known fact of their never having attempted to preserve them, either in former times or during the last twenty years, when so many which were extant have been destroyed, and so many discoveries made to no useful purpose, as far as "City Authorities" were concerned. On the contrary, I can bear personal evidence, confirmed by dates and indisputable facts, that for a long series of years they have directly countenanced a wholesale and indiscriminate system of destruction. Had they ever possessed a feeling for the works of ancient art, which illustrate the history of old London, they would not in the year 1845 be talking and disputing, about fitting up *one room* for their reception; they would have possessed a mansion solely devoted to them, an entire building for such a museum as might have been formed, and such as the valuable monuments now irrevocably destroyed, demanded. No; let it be frankly and honestly owned, that the "City Authorities" have done nothing for, but much against their antiquities, and then charity may listen to a plea of ignorance on their behalf, and a promise of better behaviour for the future.

Whatever Mr. Tite may say about the wishes and intentions of the corporation and its committees, individuals (*collectors*, he terms them) have effected all that has been done, in spite of illiberal and narrow-minded opposition. And these *collectors*, not altogether unknown to the world, are Mr. George Gwilt, F.S.A., Mr. John Newman, F.S.A., Mr. Alfred J. Kempe, F.S.A., your humble servant, the writer of these remarks, Mr. W. Chaffers, Jun., Mr. E. B. Price, and, perhaps, one or two more. I believe it is no secret that the museums and collections of these individuals have not been formed upon selfish principles, that they have been, and are always, available to scientific inquirers, and open to the artist, to the antiquary, and to the public in general. But for the knowledge which guided them in their researches, these collections would have long since been carted away, with the dirt and rubbish from which they were rescued. Could the corporation have been inspired with a wish to preserve and to collect, judgment would still have been wanting, and the gatherings would have been, at the best, a heterogeneous mass, the chaos of a curiosity-shop, wanting that arrangement, chronological classification, and reference to local circumstances, which are indispensable to a useful collection.

In the discovery and conservation of our national antiquities, corporate bodies, if actuated by an enlightened and liberal spirit, could do much; but their interference to discourage and check individual enterprise and research, conducted without selfish motives, will only produce mischief and disappointment. Commercial companies are slow to move in matters which do not directly effect their worldly interest; neither their education nor their taste induces them to sacrifice time and money for what in their eyes is unprofitable and useless. Toleration for pursuits they cannot appreciate, is perhaps under present circumstances, as much as can be reasonably expected. Let them not oppose, through vulgar prejudice and ignorance, the few who are willing to devote their time and means to antiquarian investigation. The pursuit is not an enriching one, that they should be envied and molested by men whose sole end and aim is lucre and wordly power; on the contrary, it is too often impoverishing, if carried on in a right-minded and single-hearted spirit, and the too consequent result,—an exhaustion of pecuniary resources, should with more consistency be rejoiced in, rather than envied, by those who foolishly seem to fear the plodding antiquary may be getting rich by some method hidden from their eyes, and from sources apparently within their reach, but not divulged to their comprehension.

Private museums must precede public ones, and both, if properly collected, arranged, and directed, are of the highest value, and cannot be too numerous. But the mere getting together, with indiscriminate zeal and cupidity, loads of antiquities, dissociated from those often minute but important circumstances which serve to authenticate their parentage and aid their chronological arrangement, is an almost profitless labour, which to the scientific inquirer, generally yields only embarrassment and confusion. How often do we find collections rendered comparatively useless, by a want of information of facts connected with the discovery of their contents! And these facts are to be obtained only from the discoverers themselves, and will be the more or less complete in the ratio of their amount of intelligence and skill. Under a truly grand system for the conservation of our national monuments, such as ere long we may hope an enlightened Government will institute, private collections may in many ways be rendered more available than public ones, and local museums will be encouraged throughout the kingdom. From these, models and drawings may at a trifling expense be forwarded to the metropolitan collections, among which, it is trusted, may soon be reckoned the museum of the Society of Antiquaries of London, the nucleus for which already exists, and even the apartment, a little exertion among the Fellows, being all that is required to induce her Majesty's Government to consent to its appropriation for this purpose.

As for the "City Authorities," let them support individual research, and it will surely be turned to their advantage and honour. If the day has arrived for them to appreciate the value of monuments, which illustrate the history of the city they affect to venerate, let them shew their sincerity by engaging without more delay, scholars and literary men to decipher and arrange for them their municipal records, as yet comparatively unexamined. Let these valuable documents be indexed, and let abstracts be published, to direct the researches of those whose inclinations may lead them to seek information upon the customs, usages, manners, and social and political condition of the inhabitants in past ages. Money can easily be found for improving the physical condition of the citizens; let a portion of it be expended upon this neglected branch of their education, and the corporation may be assured, that as the outlay upon the one, eventually increases the civic funds, so will a corresponding liberality in providing for these intellectual necessities, be rewarded by an elevation of the moral standard and character of the rising and future generations.

I am, Sir, yours respectfully,
CHARLES ROACH SMITH.

5, Liverpool-street, City, Nov. 22.

PROGRESS OF TORQUAY, DEVON.

A CORRESPONDENT writes us that the demand for workmen here is beyond every thing ever known in this part of the country; "I mean," says he, "workmen of every description connected with building. Between 300 and 400 houses are decided upon to be built immediately, and the cry of want of hands is general; the men are very independent, and I assure you it is quite a favour to get any job of joinery, stone masoning, bricklaying, or ironwork done, even at an advanced price.

This place lately has nearly doubled in population, and visitors have been numerous; in fact, I believe there is scarcely a house to be had for love or money. Several families have been obliged to leave the place because they could not obtain houses to suit them. It is no doubt the loveliest spot in England for beautiful and varied scenery, and may justly be called the gem of our island."

ANCIENT CHURCH IN DOVER CASTLE.—It has been suggested that this interesting relic of early times should be restored as a chapel for the garrison. We sincerely hope something of the sort may be done. Its present condition is most disgraceful.

REVISION OF THE METROPOLITAN BUILDINGS ACT.

SIR,—As it is now well understood, that th new Building Act will undergo a revision i the next session of Parliament, at the sugges tion I believe of the official referees themselve who have issued circulars to the distric surveyors and other parties, requesting thei opinion upon its defects, and as you have you self invited strictures and been greatly instru mental, by the publication of the awards an other reports connected with the working the Act, in calling the attention of the pro fession and all persons engaged in building t the effects of its operation,—a few observation from one who has carefully watched its pro gress and results, and who has had many oppo tunities, in constant intercourse with profe sional brethren and practical men, to colle opinions, will perhaps not be deemed obtrusiv

As the Act is a public Act and a penal on and as unusual authority is given to the parti acting under the Act, it is only by a full an fearless public discussion of its merits an demerits, that a satisfactory result can be hop for, and in any observation which I may mak which may appear harsh, I beg, once for all, disdain all personal imputations; indeed, I ha none to make. I believe the parties appointe to execute the authority of the Act have di charged that authority with justice and impa tiality. No one who has found it necessary appear before their tribunal, but must ha been satisfied both in this respect, and in t patience and attention with which all stat ments have been listened to. And no high testimony could be adduced of the opinion the profession in general as to the effic ency of the board, than the universal regr which was expressed, when it was understo that one of the official referees had resigne and the difficulty which was found to appoi his successor. It is evident, therefore, th the failure of the Act (for that there is failure is shewn by the desire of revising even by the official referees) does not ar from any neglect on the part of those appoint to superintend it. What then is the cause this discontent and dissatisfaction regarding which the high reputation of the referees h not been able to avert? It arises, I thin from several causes,—from disappointment anticipated expectations of the working of t Act; from dissatisfaction with the constituti of the Court; from the arbitrary powers giv to the official referees; from the restrictio which the Act imposes respecting privi rights in building, and other sources, which shall explain in proceeding, independent the vexations which the numerous regulatio contained in the schedule have raised.

As regards the disappointment as to the a ticipated working of the Act, I would re to an observation reported to have been m by Mr. Donaldson, on the occasion of dinner given by the district surveyors ab this time last year to the official referees, w stated he should anticipate no difficulty carrying out the Act while he could apply the *office* in Trafalgar-square for advice. need not ask if this anticipation has b realized, or whether any advice or opinion been obtained from that office except by troublesome process of what may be terme law-suit? I am quite aware of the difficul attending a court of advice, and the unreas ableness to have expected it from the pres Act, but I refer to it as one of the causes the discontent which has been felt by parties engaged in building operations. certainly did expect that "Referees," paid a large public salary, should have the po of giving some sort of information as to w was or was not legal under the Act, with the expensive process of first executing wo and then running the risk of an informat Under the old Building Act, the district veyors, who were almost as uncontrolled the present referees always were read advise and inform, the parties as to the gality or illegality of any doubtful pa a building, before it was commenced. N however, the district surveyors are cautiou giving opinions, and in most cases refer to dicision of the Court, which I before st can only be obtained by a suit as it wer law. In public commissions, the poor commission for instance, the commissio have occasionally issued instructions to different local boards informing them of

legal authority and bearing of their Act. We have looked in vain for any thing of the sort here; if we examine the awards made by the Court, we find but few in which the principles of the Act are enumerated. Each one seems to rest upon its own particular case, appears, indeed, studiously worded to meet that particular case alone, and carefully guarded against its being drawn into a precedent. The awards seem framed rather with a view to prevent the hardships and inconvenience, which would arise on these cases from a strict observance of a doubtful enactment than to enumerate principles, though the referees have never I believe shewn any unwillingness to exercise their discretion, where an impracticable case has occurred. This however, only tends to shew the futility of legislative enactments on minute building points, and the difficulties with which a professional man under the present Act, which enters into so many minutiæ, has to contend in arranging his plans and designs, and knowing beforehand what is and what is not legal. It would not, I think, be difficult so to regulate the office as to obviate this difficulty, but it would previously be necessary to clear the Act of many of its enactments.

One of the great difficulties in obtaining legal decisions upon points connected with building, has always arisen from the vagueness with which legal persons comprehend the technicalities of our art; it was therefore with much satisfaction that the building interest observed in the Act, the clauses by which all matters relating thereto, should be determined by gentlemen not in the law, but educated in the architectural profession. I strongly believe that one of the main causes of the comparatively little opposition made to the bill, arose from the feeling that this clause, which was a novelty, and had not been introduced into any of the other previous schemes, would effectually remove all difficulties in carrying out the Act, and render the working of it acceptable to all. This expectation also has not been realized. We had hoped to have been relieved from all legal discussions and verbal hair splittings, by the business-like decisions of practical men, uncontrolled but by their own judgment of the facts. By the power given to the registrar, of refusing to affix his seal to official documents, the whole control of the regulations of buildings in the metropolis, is virtually in his hands. He is almost the sole judge of all questions brought to the Court, and takes his place at the head of the board accordingly. However clear the case may appear to the practical and well-versed eyes of the official referees, the registrar under the Act, is in duty bound to master all the technicalities of the case, and to require the necessary information relative thereto, to satisfy himself that the provisions of the Act are abided by before the referees can decide. The inevitable result is therefore, that a disputed point, upon however trifling a matter, now presents all the complication of a Chancery suit in miniature, with evidence, letters, rejoinders, plans, &c., accumulate rapidly, and discrepancies on points of practice, which it was anticipated would have been settled more quietly than under the old system, now require sheets of correspondence. As the Court is a Court of Record, Mr. Barry had better at once take into consideration the increased accommodation which the records of this Court will demand; that the important decisions on shop-fronts, flues, chimneys, &c., may be handed down to future inquisitive antiquaries.

The point, however, which I wish to notice is this, architects, surveyors, and builders, are not lawyers, and though Vitruvius orders they should acquire a *quantum suff.* of legal lore, to know when their buildings are according to law, I think he would have fretted and fumed at some of the legal building vexations of the present Act. A barrister, therefore, sitting as the head of a Court, becomes a formidable personage to a plaintiff or defendant, who has only his own professional knowledge to act upon. He could discuss the practical bearings of the case with the referees, but dreads the legal points which may unexpectedly be raised. The consequence is, that cases have been conducted by solicitors and even barristers, and hours consumed in arguing all the legal quirks and subtleties looked upon as points of law, when the real gist of the case, if left to the referees, would have been seen and decided at once. I think it would be better had the Court more of a professional than a legal character.

Another grievance connected with this legal character of the Court is the system which has been adopted of payment by fees. I am not about to characterize the charges as exorbitant or unjust, but certainly as unprofessional (architecturally speaking), and vexatious. The system of making a separate charge for each letter, interview, plan, &c., inevitably suggests the idea of *making* business. I am aware that these fees pay the office expenses of clerks and establishment, but many of the charges are so unusual (for instance, the charge for reading letters sent to the office, or for making an inquiry of a clerk), that it is much to be regretted that some other system had not been adopted. That it may not be thought I am exaggerating, and as it is to be hoped that these bills will be shortly only matter of history, perhaps you would like to preserve one as a relic in your journal. Your readers may smile at it, but the wry faces with which a circle of professional friends received it, would have been a study for Hogarth.

1845.		£. s. d.
July 18.	Mr. L. requesting the opinion of the official referees	0 1 6
,, 23.	Registrar, in reply	0 1 0
,, 25.	Minute of interview with clerk	0 1 0
,, 28.	Mr. L.'s letters, stating his application	0 2 6
Feb. 1.	Registrar, in reply	0 2 0
		0 8 0
	Postage	0 0 4
		0 8 4

The above needs no comment.

Another consideration which affects the constitution of the Court is the power which the registrar has, of allowing the duties of the office to be performed by only one of the referees, under the 82nd section. The unexpected wish of one of the referees to retire, and the delay which has occurred in appointing his successor, have of course made it absolutely necessary hitherto, in many cases, that one referee only should act; and it is possible that on many occasions this must be the case; still, throughout all the portions of the Act, the official referees are spoken of conjointly. In all cases of disputes or appeals, both referees should hear the statements, or if an option is to be given upon the subject, that option should be given to the parties litigant, and not to the registrar. It would be better, however, that there should be no option, as it might appear invidious to object. There are also many obvious reasons why these cases which are cases of appeal, should be discussed before both referees. Not the least, perhaps, is on account of the extraordinary judicial and executive powers which the board possesses under the Act at present, but which it is to be hoped will not be allowed to remain. The awards have all the power of an Order of Court of the Queen's Bench, there is, in fact, no appeal allowed to that Court, or any other Court, upon the subject, however aggrieved the party may conceive himself by the result of the award. By the production alone of this award before a magistrate of the district, the justice is required to issue his warrant to levy the amount upon the goods and chattels; or if the party awarded against be a poor man, and his goods and chattels are not sufficient, he is ordered to imprison him till the amount is paid, or the Insolvent Debtor Court discharge him. All this too may be done even in the absence or non-attendance of the party accused. One is at a loss to understand how such arbitrary and really unconstitutional powers, could have been given by a legislature of the present day to a board, without at the same time providing some security and restriction.

It has been stated, indeed, that there is no clause in the Act protecting the official referees from an action-at-law, for an injury which any person may think he incurs by the effect of an award. It would require more legal knowledge than I possess to reply to this, but it is evident the enacting clauses give the referees the great power which I have alluded to both over persons and things. I doubt if there is any other Court in the kingdom whose decrees are therefore so uncontrolled as this. If the Court is to be a Court of law, let us at least have all the protections of appeal, &c., which the old customs of the kingdom throw around the suitors.

I fear I have trespassed too much on your columns, but the subject of the new Act is daily increasing in interest to the public at large. I disclaim all intention of raising an indiscriminate outcry against it, and in the observations that I have made I have endeavoured to point out one cause, arising from the constitution of the Court, why it has failed to give satisfaction to the profession and to the public, with a view that those who undertake the revising of the Act may be aware that there are grounds of dissatisfaction, not merely with the scheduled enactments respecting buildings, but also with the constitution of the board. There are many other points which I have not yet mentioned, relating to the same subject. My objections may appear trifling and captious, but it is these galling trifles rubbing and fretting one, while they distract our attention from other professional occupations, that often cause more annoyance than the serious difficulties of ones life.—I am, Sir, &c.,

THOMAS LITTLE.

36, Northumberland-street, New-road.

THE TERRA-COTTA CHURCH AT PLATT, NEAR MANCHESTER.

SOME notice of the use of terra-cotta as a building material has already appeared in this journal.* Having lately had an opportunity of examining a church, now in progress, in which that material is employed, we are able to say something about its capabilities, as there apparent. The church at Platt is being erected from the designs of Mr. Sharp, who was the architect of a church at Lever-bridge, near Bolton-le-Moors, previously noticed, also built of terra-cotta. The plan consists of nave and aisles, chancel, a sacristy, south of the chancel and a tower at the south-west of the nave. The style is decorated. The architect has probably had many restrictions to contend with, to which we may attribute the slightness of the internal piers, and increase of distance between the buttresses. The tower is united to the aisle by a lofty arch, which is worthy of praise. The church has more than the usual amount of decoration, and ornament is introduced with good effect in capitals and buttresses. The windows have two lights with foliated heads, and are, in the aisles, of two varieties. The design is evidently the production of a clever man, but we are compelled to express an unfavourable opinion of its execution.—Each separate piece of the terra-cotta is cast to the required form, and is much about the same size as a corresponding block of stone. Every piece is hollow, being, as it appeared, afterwards filled or backed up with concrete. They are all nothing more than pots, and from the trial we made, seem to have less cohesive power than brick. Nevertheless, they are made to support great weights. The piers of the church, which, as we have said, appear remarkably slender, are entirely composed of these pots. The plan is the clustre of four shafts. There are the usual defects incidental to the burning; parts of the mullions are out of the perpendicular, and the lines of the window-sill undulate in a very unsatisfactory manner. Indeed, the whole building, though good in design, and not deficient in ornament, will not bear a near approach. The face of each piece is scored with lines to imitate the tooling; and the mortar joints are large, and obtruding.

In any building, however excellent some of its qualities may be, it is not sufficient that it have good outline, well-conceived details, and, as in this case, richness of colour. Unless every closer inspection brings forth fresh objects to admire, unless the skilful hand is apparent, the result is disappointment rather than delight, and regret that the mind of the artist should have conceived in vain. Every child is able to detect the difference between a wavy and a straight line; where it is obviously the intention to have the latter, it should be as nearly a mathematical line, as it is possible to make it, and for this masonry is best adapted. The stone arris may be chipped or corroded by the weather, but the *line* is only broken, it is still continued in the eye, and appears what it was intended. But in this church the failure is evident, and the dissatisfaction consequently immediate. Far better it is to build with less ornament, but with success, however small the

* Vide *ante*, pp. 202 and 214.

attempt. The more elaborate structure may please the traveller, from his post-chaise, but will not satisfy those, whose praise the architect is most desirous of receiving, that of his brother artists, of men of education and refinement of taste.

THE IMPROVEMENT OF FULHAM AND PUTNEY.

Sir,—The simple act of casting a stone into a pool, and watching the circling eddies and agitation its fall has caused in the otherwise stagnant water, is an universal and favourite amusement of children, and is also contemplated by the philosopher with considerable attention; but the moral effect produced by a well-directed blow at the supineness of parishes and other unwieldy stagnant bodies, is watched with much greater interest by bystanders, and its influence ranges far beyond the locality where the blow is first given.

I am induced to make these remarks from observing in The Builder of Nov. 22nd, a letter from "Observator," on the *improvement of Fulham*, which, it appears, had been written on his observing in *The Times* newspaper, an account of improvements that have been commenced in the parish of Chelsea, and are affecting parts far beyond that locality.

I perfectly agree with "Observator," that "*Fulham much needs improvement:*" from my residing at Putney I am obliged to pass daily through Fulham on my way to town, and am forced to notice the crooked, narrow, and dangerous lanes (they cannot be called roads) leading from Putney bridge to the other side of the town of Fulham. The authorities at Fulham have only one excuse to offer for their supineness, viz., "Habit is every thing," and they have been so long accustomed to twist and turn the tortuous windings of the present approach to the river, that they cannot now see any absurdity in it; but how the proprietors of Putney bridge can be so short-sighted and blind to their interests, as not to perceive the importance and advantages to them of a straight and easy access to their bridge, I cannot conceive. Nothing would improve the town of Fulham so much as a straight, wide, and easy access to the river; the town would become healthier and cleaner, property more valuable, and more on a par with the improving localities of Chelsea and Brompton. I hope, therefore, its inhabitants and the proprietors of Putney bridge, will take a hint from what has been done at Chelsea, immediately bestir themselves, and pull together to obtain a local Act for improvement, which will eventually tend to their mutual benefit.—I am, Sir, &c., H.

Putney, Nov. 24th, 1845.

STIR IN THE WESTMINSTER COURT OF SEWERS.

On Friday, the 21st inst., a very numerous assemblage of the commissioners took place. In the absence of Mr. Edward Willoughby the chair was occupied by Captain Bague. The balance at the bankers was declared to be 17,062*l.* 7*s.* 9*d.* After much routine business had been transacted, and an application from Mr. Pennethorne, calling upon the Court to carry out an implied understanding as to the St. Giles's improvements, granted, the important business of the day commenced,—to consider and sanction the resolutions passed at the Court on the 14th instant. (See page 561 *ante*.)

Mr. Doull, the assistant-surveyor, the gentleman most seriously affected by the proceedings of the Court on the 14th inst., had addressed a letter to the Court, which was read by the clerk, 31 commissioners voting that it should be read, and 6 against it.

It set forth that, about ten years ago, he was appointed chief surveyor, Mr. Dowley having ceased to retain that office; that Mr. Dowley re-entered the service as assistant-surveyor, and that afterwards, their appointments were reversed by the Court. That after this, he was harassed by motions for his dismissal, and resolved to tender his resignation. "Upon this," said the writer, "I was most strenuously urged not to think for a moment of resigning, and I received, particularly from the late chairman, Mr. T. L. Donaldson, the most high-sounding declarations of friendship and professional brotherhood and esteem; and was most positively assured by Mr. Allason in reiterated terms, that the committee were bound to support me, to make a most favourable report of my services, and most honourable mention of me, and that I ought by no means to think of resigning."

The letter terminated with the following:—"After having given up a beneficial and increasing practice and connection, not possible now to be regained, in which I had acquired, I presume I may say deservedly so, an unsullied reputation, both professional and private; and having spent the last and best ten years of the prime of my life in your service, in which, I can truly say, I have constantly used the most vigorous and unremitting exertions, in the faithful discharge of all the duties entrusted to me, it is now proposed to turn me adrift on the world, with an implied stigma on my character, and thereby perhaps cause me to be a ruined man, although not one single charge of misconduct or impropriety in any shape can be established, or has ever been attempted to be made against me."

Mr. T. L. Donaldson wished Mr. Doull might be called into court: when he arrived,—

Mr. Donaldson stated, that he had taken the liberty of suggesting that Mr. Doull should be present to hear what observations he had to make upon his letter, which contained serious accusations against him; and as the character of a public man was public property, he trusted the Court would pardon him for making a few observations on that letter. He took particular objection to the words "high-sounding declarations of friendship and professional brotherhood and esteem." He had every reason to respect the personal character of Mr. Doull: he was a man of the highest integrity, and of the most amiable manners; he and Mr. Doull had been for several years connected as officers of the Court, but in private matters never; and he thought it was injudicious in Mr. Doull to use the words "high-sounding declarations of friendship and esteem." More than the opinion that he entertained, as chairman of the Court, for the officers of the Court, he never professed. The officers had been in the habit of coming to his house to ask his opinion, and he considered that these meetings were private and confidential communications; not that he cared personally that they were to come before the world. At the period alluded to, Mr. Doull did come to him, and said the motion was of such a nature as to induce him to resign the appointment rather than be exposed to any further molestations. He (Mr. Donaldson) said that he naturally felt for him as an officer of the Court, for the position in which he was placed, and expressed an interest for him as a professional brother. Mr. Doull then replied that he had made up his mind, and would send in his resignation; to which he (Mr. Donaldson) urged, that that would be a recognition of the charge against him; for he did not know what might be the result of the inquiry, or what modification might be made in the appointment. Mr. Doull did not resign; the arguments he (Mr. Donaldson) had used to him had prevailed. But when he (Mr. Donaldson) knew the result of the investigation, he then told Mr. Doull that he thought he ought to resign. So that Mr. Doull was incorrect in saying that he had, in every case, been most strongly urged by him not to resign.

Mr. Allason, seeing that he also was implicated by Mr. Doull in his letter, said, that when Mr. Doull came to his house after the first meeting of the committee, it was impossible for him, Mr. A., to have used the words attributed to him. He was quite sure that it was the disposition of every member of the committee to do ample justice to him as a man, but although he was not present at the meeting, he fully concurred in their report; that as an assistant-surveyor, he, Mr. Doull, was incompetent, and that the committee was not to be found fault with for having so determined. He, Mr. Allason, was certain, that no individual could be found more fitting for the duties Mr. Doull had since that period been called upon to perform, but the resolutions of the Court, passed at the instance of Mr. Leslie, were evidently the cause of Mr. Doull's dismissal, and could not be imputed to him or any other member of that committee.

Mr. Leslie thought that in the attempt at exculpating himself and the committee from the charges Mr. Doull had brought against that body, Mr. Allason had no right to inculpate him, who was taking no part in the extraordinary proceedings going on. The resolutions he had carried in that Court were for the benefit and security of the public, but not at the expense of Mr. Doull or any other officer.

Mr. Doull being asked if he had any remarks to make, said he had very few words to offer to the Court, because very few were necessary. So far from there being any breach of confidence in the statements he had made, he felt justified in the course he had pursued. He saw little or nothing contradicted of those statements, and so far from the conversations being of a private or confidential nature, he felt that they had taken place under circumstances which left him at full liberty to make any use he pleased of them. He wished to allude to a conversation with the present chairman, Mr. Edward Willoughby, but the Court thought as Mr. Willoughby was not present, Mr. Doull could not do so. Mr. Doull then said he could only repeat his statements, and he challenged contradiction of a single word; he considered that not one fact in his letter had been contradicted, nor could he. It had been a matter of regret that he had been compelled to name the two gentlemen who had spoken, and many, no doubt, would consider it an act of temerity on his part; but the time had arrived when it will not do to mince matters.

On Mr. Le Breton, proceeding to move that the orders of Court be sanctioned, Mr. Hertslet being called upon, stated, that he never knew an order of Court to be sanctioned, and in reply to Mr. Donaldson, he said he could find no precedent. Mr. Leslie objected to an order of a Court of Record requiring a sanction, except in those cases where necessary for the public security as concerning outlays of the public money; but in those cases, there was a previous order of Court, compelling that safeguard to the public; but in this instance the order of Court for sanctioning came subsequently to the orders having been recorded.

Mr. T. L. Donaldson thought that Mr. Leslie was out of Court, he had not interferred in the discussion. The fact was, a string of resolutions were concatenated together in a hurried manner, and there was no idea that the votes of the previous Court were to be considered as a definite conclusion. He had no idea when he came to the previous Court, that he should have been called upon to take the part he did, and therefore he thought that appending those resolutions to the business paper of the present was a proper and wholesome regulation.

Mr. Fuller said that these proceedings were the first public acknowledgment that Mr. Leslie's statements in his pamphlet were accurate. The resolution of the last Court, now to be sanctioned, stated that the surveyors department was inefficient. Mr. Leslie, had declared over and over again in this Court that it was inefficient; inefficient in the digging, by means of which a much larger quantity of digging was paid for to the contractors than they had executed, and that warrants of distress had been signed in this Court to sell the beds from under the poor rate-payers to pay for this inefficiency. What would the Secretary of State say, when having sent for the answers to the allegations brought against this commission, he heard that they had dismissed their surveyors for inefficiency immediately after the promised answer was drawn up. Then, again, at the very moment when the Court was to appear in a trial at law, to determine whether the contractor or his sureties, or the rate-payers of the division were to pay for the failure of the sewer in the Gloucester-road, Paddington, that moment was selected to break up and discharge the surveyors, and a resolution come to (in order to get rid of Mr. Phillips), that there should be no assistant-surveyors at all.

Mr. Hawkes stated, that as he was absent from the preceding Court, the resolutions had come upon him with surprise. He should be glad to be informed what were the grounds upon which the Court determined the inefficiency of their surveyors. He would grant that if Mr. Dowley could not deny the truth of Mr. Phillips's entry in the Book of Informations, as to the abominably filthy condition of the sewers, there were good grounds for declaring the surveyors' department was inefficient

cient; but Mr. Leslie's pamphlet had nothing to do with the matter. As to the public thinking they had been robbed in the manner of taking the account of the digging, why the professional members of the Court thought it was the very best bargain that could be made for the public. Mr. Phillips's entry in the Book of Informations of the 3rd of October, declaring vast numbers of the sewers to be nothing better than elongated cesspools, was then read, and Mr. Hawkes called upon the Court to require Mr. Dowley to say whether the statement was true or not.

Capt. Bague agreed with Mr. Hawkes as to Mr. Dowley being called into Court to clear up the matter.

Mr. Donaldson objected. He thought it had nothing to do with the business before the Court. They were deficient of one surveyor by the resignation of Mr. Hawkins; Mr. Dowley was absent for many months in the year on account of illness; reports for several months had been delayed, and on these simple grounds he contended the surveyors' department was inefficient.

Mr. Bouverie said, he thought the Court was pursuing a very unaccountable course. Mr. Le Breton, the mover, gave them no statements as to acts of inefficiency in any charge that could be met. The late chairman, Mr. Donaldson, did not throw any light upon the subject, he merely informed them that Mr. Dowley had frequent attacks of gout, and was behind in his reports, and on these grounds the Court was called upon to sanction an order which had the effect of breaking up the whole of the surveyors' department. He considered the Court was placing itself in a very awkward position before the public.

Mr. Le Breton, as the mover of the resolution, wished to say a few words in explanation of not giving the reasons why they had arrived at the conclusion now cavilled at. At the former Court the late chairman, Mr. Donaldson, and his successor, Mr. Willoughby, had both declared the surveyors' department was inefficient, and it was carried *nem. con.* Now when the subject was to-day brought forward for confirmation, a mere matter of form, they hesitated, although they knew perfectly well the surveyors were inefficient. Since he had had the honour to be appointed a commissioner of sewers, he had discharged his duty. He thought it was useless to go back to inquire what had been done by their predecessors in that Court, in the year 1829; no good could arise from that inquiry, and he assured the Court that as long as he (Mr. Le Breton) belonged to their body, he would support that body (hear, hear,) and when he intended to make an attack upon them, he would go out from among them.

Mr. Leslie wished to ask Mr. Le Breton, as he had introduced the subject of his recent appointment by the Lord Chancellor as a commissioner of sewers, whether there was any truth in the report that he (Mr. Le Breton) had, as clerk to the Board of Guardians of St. Martin's parish, been sent by the parochial authorities with a list of twelve names, to the Lord Chancellor, for insertion in the commission; that ultimately not one of the twelve was inserted, but that his, Mr. Le Breton's, name was inserted by the commission.

Mr. Le Breton said it was not true.

Mr. Hawkes said it was not far from the truth.

The question as to the inefficiency of the surveyors' department was then sanctioned by thirteen votes: no one of the great number of commissioners present voted against the motion.

Mr. Le Breton and Mr. Donaldson moved, "That the Court do now sanction and conform the order of Court of the 14th inst.; that a new chief surveyor be appointed, but that Mr. Dowley should be retained as consulting surveyor, at a salary of 200*l.* per annum."

Mr. Harrison supported the motion. He assured the Court that the matter had nothing to do with Mr. Leslie's pamphlet, but arose entirely from the resignation of Mr. Hawkins. Carried by 14 to 1.

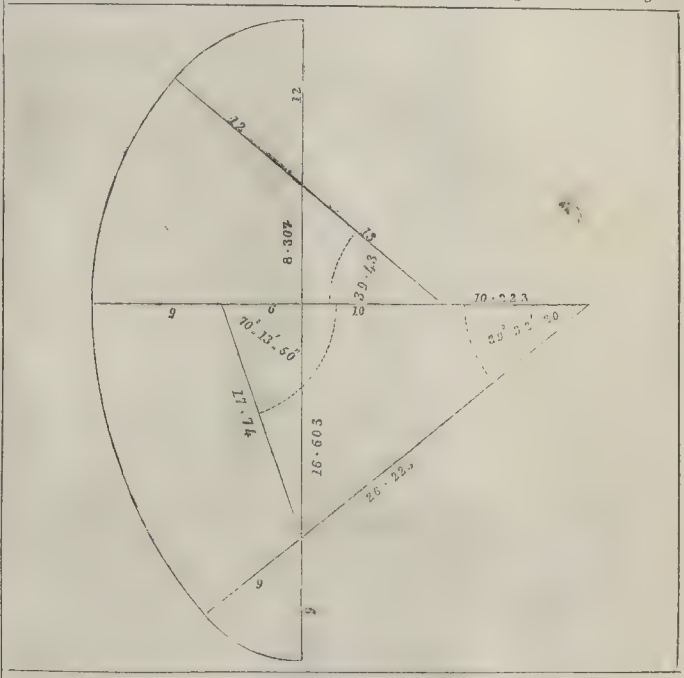
Mr. Le Breton then moved "That from and after Lady-day, the services of the present assistant-surveyor, Mr. Doull, be dispensed with, and the office abolished." Mr. Le Breton declared it did not arise from any thing personal to Mr. Doull, but it was a consequence of the recent alterations in the arrangements made by the Court. Mr. L. E. Wood seconded the motion, which was carried by 7 votes to 5. A great many commissioners present did not vote.

Mr. Le Breton then moved and Mr. Allason seconded, "That the Court do now sanction and confirm the order of Court of the 14th inst., viz., that there be no other than the consulting surveyor, in addition to the chief surveyor, hereafter to be appointed." Carried by 11 votes.

Mr. Le Breton gave the following notices of motion for the next Court, Friday, the 28th November, "That Mr. Dowley's present salary be continued till Lady-day;" "That the salary of the chief surveyor, to be appointed in pursuance of the order of Court of the 14th day of November, and confirmed this day, be 600*l.* per annum; and that measures be taken to invite candidates to apply for the office."

THE EGG-SHAPED SEWER.

Sir,—Will you allow me to offer you a correction of the figure given on page 503, as to the outline of the section of a culvert or sewer. The object is to construct a figure of two semi-ovals upon the same conjugate diameter, the length of the whole figure 46 inches, and its greatest breadth 30 inches, the radius of the curve at one extremity of the transverse diameter being 12 inches, of that at the other extremity 9 inches. For the upper half of the figure a second radius is taken, 13 inches, which gives a figure very closely resembling a semi-ellipse, the semi-transverse diameter of which I find by calculation to be 20·307 inches. Subtracting this result from the whole length of the figure, 46 inches, there remain 25·693 inches, for the semi-transverse diameter of the lower half of the figure: in which figure we have thus given



the two diameters and one radius. The other radius is therefore determinable, and I find it to be by calculation 35·223 inches, instead of 38 inches, as given in your correspondent's diagram. Five dimensions are all that are necessary to construct the figure, instead of six, as there given. I subjoin the construction with the dimensions attached. I confess I am not aware of the rule by which an oval may be constructed so as to approximate most nearly to an ellipse upon the same axis, and I should be grateful for information on that point.

I am, Sir, &c. Q.

Islington, October 30.

Sir, — In the latter part of "E. E. E.'s" letter in The Builder of the 15th inst., he says, "Probably Mr. Roe, if applied to, would state whether it was his invention (the egg-shaped drain), or whether he received the idea from any other person."

For the information of "E E. E." I beg to say, that a drain is now in existence through the principal street of Bridgwater (draining one of the greatest nuisances, as it once existed, into the river Perrot) of the egg shape; it was built by Mr. Hutchins, a mason (who is now living), upwards of twenty years since; is one of the most perfect construction, and does its office with but a trifling fall, to the immense advantage and comfort of the above town.—I am, Sir, &c., J. G.

Cannington, near Bridgwater, Nov. 20th.

The Guage Commission.—Mr. Hudson was examined last Saturday before this Commission. He is decidedly in favour of the narrow guage, on the pleas of safety, speed, economy, and convenience for traffic.

GREAVES'S BLUE LIAS LIME.

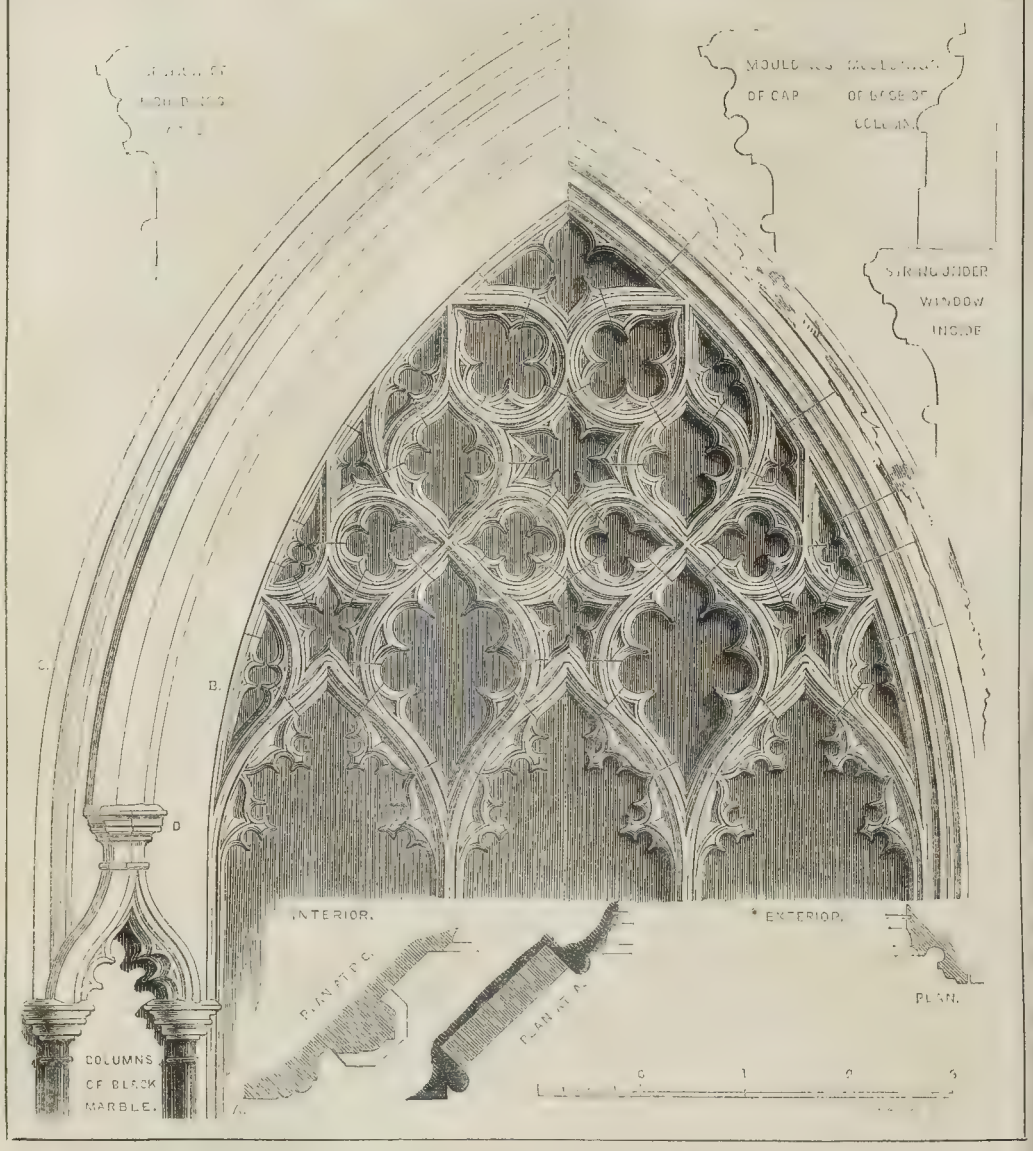
In connection with the subject of concrete, recently mooted in our pages, and the use of strong hydraulic ground lime, a correspondent has reminded us of the above material, and having used much of it, we gladly take the opportunity to mention it.

It is generally admitted that blue lias lime makes the best hydraulic mortar that can be obtained, and decidedly the best *concrete*. It is always stipulated for in the Holborn sewers, and has been lately used as a concrete bed for a reservoir at Kensington for the Grand Junction Water Works, with success. We have several times used the blue lias *cement* also, and have found it a good material; it is self-coloured.

Standard Hundred of Deals.—A timber merchant writes, in answer to a correspondent last week, as follows:—You name 120 12 feet deals as a standard hundred. The standard hundred as usually accepted, means the Petersburg standard, viz, 120—12 feet 1½ inch, by 11 inches. There is no standard trade hundred, except 120 of any lengths wanted; but your definition would well answer what in common parlance would be called a trade hundred. I presume your correspondent has bought deals by standard hundred, and has received at the rate of 120 12—feet 1½ inch by 11, expecting to receive at the rate of 120 12 feet, 3 inches by 9.

New Coal Exchange.—Application will be made next session for an Act to rebuild on an enlarged scale, the present Coal Exchange in Thames-street, and to improve the avenues leading thereto.

WINDOW FROM EAST SUTTON CHURCH.



EAST SUTTON CHURCH.

In continuation of our notice last week,* the windows at large are now given, with sections of the mouldings.

The side jambs of the great window in the inside have columns, the shafts of which are of the Kentish Bethersden marble; they are finished as shewn on the plan at A, the space between them being filled up with rubble walling: all the details are shewn on the print to a scale three times larger than that of the elevation.

The windows were, in ancient times, filled with painted glass; from the small portion which remains, the glass was of the same date as the window, and of a very superior character: it did not escape destruction during the troubles in the reigns of Charles 1st and 2nd; at that time the manor belonged to the celebrated Sir Robert Filmer, author of the well known work "Patriarcha; or, a Defence of the Natural Power of Kings against the unnatural Liberty of the People."—Sir Robert, as may be supposed, was a special mark for the visits of the roundheads and republicans; his house was several times plundered, and the church adjoining suffered severely from the same visits. Among the papers of Sir Robert (which are all carefully preserved at East Sutton), is one which gives the date of the destruction of the stained glass in the church. Through the kindness of Sir Edmund Filmer, the following account is extracted from a manuscript, supposed to be in the handwriting of Anne, daughter of Martin Hecton, Bishop of Ely, and wife of Sir Robert Filmer:—"July the 27th, 1643. Cornet May came to search East Sutton belfry for arms; there he tore the surplice with his own hands, took away a bible, a service book, and a book of homilies out of the church, and broke the glass window; then went into Sir Robert Filmer's house, where he would not suffer the servants to be in the rooms where he searched, so that the soldiers took divers things, what they pleased, and had the linen off every servant in the house except one."

The windows are at present in very bad repair; they are very much broken, and the tracery is nearly filled with whitewash.

C. J. R.

* See page 562 *ante*.

NOTES IN LONDON.

The association for the promotion of improved paving, cleansing, and drainage in towns, have obtained permission from the City Authorities to demonstrate, at their own expense, for a period of two months, to what state of perfection the streets may be kept clean by manual labour; the same authorities have granted a similar permission to the company for cleansing the streets by machinery. Operations are to commence on the 1st of December.—The nuisance to which we have so frequently drawn attention, viz., the poisonous effluvia allowed to escape through the gully-holes in our streets, is at length attract-

WINDOW FROM EAST SUTTON CHURCH.



g general notice. The daily press has during e past week opened their columns to several mplaints under this head, more particularly nnected with the city sewer. The cleansing the surface of our streets, at least so far as blic health is concerned, will prove of small e, while the atmosphere can be thoroughly d constantly infected by the subsoil.——Conderable alterations have just been effected St. Katherine's Wharf, principally for the nvenience of persons arriving from the conent. Over the old warehouse a room has en constructed exceeding 100 feet in length, d proportionally wide, lighted with gas, and ving a counter along the entire length of e place for the examination and delivery of e baggage and passengers arriving, and ere, on an emergency, four or even six nding-waiters of the revenue, with their oper complement of subordinates, can be nveniently employed, thus affording unualled despatch to the public in a matter of ch interest and importance.——On Saturly last, the workmen completed the removal the iron and wood railings which inclosed e gardens belonging to Earl Coventry, in Green Park, fronting Coventry-house, ccadilly, the whole of which are now thrown en to the public, being an addition of three es of land to the Green Park. The alterans of widening Piccadilly are proceeding idly, and will be completed in about a fortght.——The laying down of the mains from Artesian Wells, in Trafalgar-square to the rdcage-walk Barracks, and from thence to ckingham Palace, is deferred until after rch. It is a curious circumstance, that since first use of the wells the water has risen to additional height of 2½ feet, supposed to be ing to the expansion of the pores in the strata ough which the water percolates.——ce the spring some progress has been made he works connected with the Victoria Park. e whole of the wooden park paling and n railing have been placed up, an entrance ge on the banks of the Regent's canal in hop Bonner's fields has been erected, and bridge which is to lead from the principal oroaches into the park is nearly completed. the extensive site of Bishop Bonner's ds three leading main roads of wide dimens are laid out, connecting with the Hack-, Bethnal-green, and Cambridge roads, l on the empty spots are to be erected a ies of villas on a uniform plan, subject he approbation of the Commissioners of oods and Forest.——Gas has been recently laid on throughout the numerous and intricate passages of the Custom House, and also in some of the offices on the ground floor. They were all lighted a few days since for the first time in consequence of the dense fog and darkness which prevailed, and the improvement over the old system of lighting gave very great satisfaction both to the officials and to the parties having business to transact therein.——Great surprise and dissatisfaction have been felt at the omission of further improvements at the foot of Holborn Hill in the notices of the City Authorities for an intended application to Parliament for widening certain streets. The block of projecting houses leading from the west corner of New Farringdon Street to the entrance of Field Lane, is unsightly, injurious to the tradesmen in the neighbourhood, and the cause of daily accidents.——A site of Copyhold Lane, adjoining King Edward's Road, Hackney, has been purchased and taken possession of by Dr. Griffiths, the titular Bishop of Olena, for the erection of a Roman Catholic chapel and nunnery, the discipline of which is to be of the Order of the Sisters of Charity.

RAILWAY NEWS FROM FRANCE.

The last few weeks have been very prolific in railway events. Scarcely have four weeks elapsed since the adjudication of the Paris to Strasbourg and Tours to Nantes lines was announced, and already has another ministerial notification been published, that the Paris to Lyons and Creil to St. Quentin railways will be conceded on the 20th of the next month. The 5th of December is the last day allowed to companies for giving notice of their intentions to offer for the lease, to deposit lists of their subscribers, copies of their by-laws, &c. At a subsequent period, the companies will have to deposit by way of caution money 16,000,000 francs (640,000*l.*) for the Paris to Lyons line, and 3,000,000 francs (120,000*l.*) for the Creil to St. Quentin.

The announcement of the adjudication of these two important lines has caused general satisfaction in this city. It puts an end to the idle assertions, that the minister intended not to execute the existing law, but to demand its repeal, in order to concede the railways to companies of his own choice; and it lessens the alarm which is universally felt at the abstraction from mercantile purposes, of the immense amount of capital in the hands of the companies, an amount which is calculated to be not less than 600,000,000 francs, supposing all the companies to have obtained as they assert, the tenth part of their capital as deposits. In addition to the announcement of the adjudication of the Paris to Lyons line, the Minister of Public Works publishes an *arrêté* relative to the vexed question of the *débarcaderé* in Lyons. It appears that the minister has determined that the railway entering Lyons by Vaise shall have a station in that part of the town, that it shall then go by a tunnel beneath the mountain St. Irénée to the Cours de Napoleon, that at the Cours de Napoleon, and at the same station, the Lyons to Avignon line shall take its rise; and that the Lyons and Avignon line shall have another station at another part of the town called La Guillotiere, and that the Paris to Lyons line shall share the use of it. Thus there will be three stations serving as five,—three for the Paris to Lyons line, and two for the Lyons to Avignon. The ministerial decision will entail an enormous outlay upon the companies and the state. It has clearly been given, with the view of satisfying the pretensions of local authorities and other eminent personages of the neighbourhood; but perhaps upon the whole, it is the best decision that could have been given as regards the town of Lyons, which is a long straggling place, and therefore in need of more than one station to accommodate its scattered population, divided like that of London, into pretty nearly two portions, residing in different quarters, the mercantile and the aristocratic. The mercantile classes (always, like agriculturalists, a discontented set), are not altogether satisfied. The railway serves, it is true, three different parts of the town, but it does so in making a large circle, which of course, will make the carriage of goods dearer. What the trading, money-making people wanted, was to have the station in the very middle of them, leaving the faraway "West-Enders," as the cockney would say, and the faraway "Mile Enders," if so I may express myself, of Lyons to shift for themselves.

With respect to the line from Creil to St. Quentin, which is to be conceded to a company on the same day as the Paris to Lyons, the Minister of Public Works has also given a decision as to the direction to be taken, which has been expected for a long time with great impatience. He has decided that the line shall go by the town of Chauny, and not by that of Ham or Lacfére, both of which being fortified places, were strongly recommended in a military point of view, arising from the defence of

Paris and the neighbouring country in case of invasion.

The number of companies formed for these two lines, of Paris to Lyons and Creil to St. Quentin, is so long, as to be really surprising. I subjoin here the list of those companies, as a sort of curiosity in its way.

For the Paris to Lyons line: Ch. Laffitte and Co., L'Union, Callon, jeune; Ganneron, Lapinsonnière, Sud-Est, Decan, Messageries Royales, Ardoin-Verdeau, Chastellus, De Roulage, Maîtres de Poste, Receveurs-Généraux, Française, Des Ingenieurs, Indépendante, Des Electeurs, Des Riverains, Du Commerce.

For the Creil to St. Quentin: Cordier, Carette and Minguet, Colbert, Compagnie du Nord, Admiral Arnous, Jucherau de St. Denis, Maîtres de Poste, Compagnie de Jonction, Compagnie de l'Oise. If all these companies remain independent, the maximum of the leases of the two railways, which is fixed at forty-five years for the Paris to Lyons, and seventy-five for Creil to St. Quentin, will be very considerably reduced by their competition. But it is certain, that before the day of adjudication, "fusions," as they are designated, will be effected, and the nineteen companies for Lyons will be amalgamated into one, or perhaps two or three companies; whilst the companies for Creil to St. Quentin will become one, or at the very outside two.

Such has been the case with the Tours to Nantes, and Paris to Strasbourg companies. Those lines have to be conceded the 25th November; Saturday sen'night the companies desirous to obtain the lease of them, had to make themselves known to the Ministry of Public Works. Before that day, Tours to Nantes had nine companies, and Paris to Strasbourg eleven. Late on Friday, these companies became reduced to two for each line. A "fusion" annihilated the separate existence of the Nantes companies of Mackenzie, Carette-Minguet, O'Neill, Drouillard, De Raigecourt, Lefévre, Delamarre, and the Basse Loire, leaving only the Post Horse Masters' Company independent.

A similar "fusion" of the Strasbourg companies took in the separate companies of Hingerlot, Ganneron, Gantil et Fol, Rothschild and the Messageries, Bechet, Odiot, Arnons de Hell, Doudeauville, and Laforce, leaving only the company of General d'Anthouard. These fusions have not been managed as they should have been. By leaving out a company for each line, the great amalgamated companies are threatened with opposition, which perhaps may become sufficiently formidable to carry away the prize. The most opposite statements are made as to the terms on which "fusions" have been effected. The truth is, that no one except two or three of the principal directors themselves know any thing very *positively* about it. However, I have good authority for saying that the Strasbourg "fusion" gave more than half the shares to the companies Gentil Fol, Ganneron, and Hinguerlot, and that the other companies share the other half in various proportions. On the Nantes "fusion" the companies of O'Neill, Drouillard, Raigecourt and Lefévre, have one-half of the shares, the Mackenzie and Carette companies have nearly two-thirds of the remaining half, and the other companies the other third.

Paris, Nov. 1845

Institution of Builders' Foremen.—One of the great objects of this association is to obtain an asylum for decayed members, their widows and orphans (a most praiseworthy desire), and we sincerely hope that the master builders may be led to aid them in realizing it. Alone, they are not likely to effect the object in view for a long time to come, but with a little assistance and advice it might soon be accomplished. More good is done by leading men *to provide for themselves*, thereby inducing habits of prudence and forethought, than by doing all for them at the last moment.

Baths and Wash-houses for the Labouring Classes.—We observe there is to be a public dinner at the London Tavern, on Tuesday, Dec. 16th, to celebrate the laying of the foundation-stone of the first model establishment: the Lord Mayor will be in the chair. The proceeds will of course be applied to increase the funds for the building, and we hope in so good a cause the attendance will be numerous.

ROUND TOWERS OF IRELAND.

An investigation into the origin of these mysterious remains of a far-distant age has been going on for some years past among Irish antiquaries, and many are the theories which have been promulgated with the view of elucidating their date and meaning. Our own columns have on more than one occasion contained the speculations of intelligent correspondents, whose personal research, both into buildings and into documents, and whose appeals to facts and actual admeasurements, bore testimony to their zeal and industry.

Mr. Petrie, an Irish antiquary of good standing and repute, and who has devoted much of his time for years past to subjects kindred to the one in question, has lately published an elaborate and learned memoir on the origin and use of these structures. Our limits prevent us from even giving a summary, of the data on which he founds his deductions, so numerous are they, and so interwoven with each other; we therefore content ourselves with giving simply the *results* of his investigations, and those too in his own words.

"The towers have been all subjected to a careful examination, and their peculiarities accurately noticed; while our ancient records, and every other probable source of information, have been searched for such facts or notices as might contribute to throw light upon their history. I have even gone further: I have examined, for the purpose of comparison with the towers, not only all the vestiges of early Christian architecture remaining in Ireland, but also those of monuments of known or probable pagan origin. The results, I trust, will be found satisfactory, and will suffice to establish, beyond all reasonable doubt, the following conclusions:—

1. That the towers are of Christian and ecclesiastical origin, and were erected at various periods between the fifth and thirteenth centuries. 2. That they were designed to answer, at least, a twofold use, namely, to serve as belfries, and as keeps, or places of strength, in which the sacred utensils, books, relics, and other valuables were deposited, and into which the ecclesiastics, to whom they belonged, could retire for security in cases of sudden predatory attack. 3. That they were probably also used, when occasion required, as beacons and watch-towers.

These conclusions, which have been already advocated *separately* by many distinguished antiquaries—among whom are Molyneux, Ledwich, Pinkerton Sir Walter Scott, Montmorenci, Brewer, and Otway—will be proved by the following evidences:—

For the first conclusion, namely, that the towers are of Christian origin:—1. The towers are *never* found unconnected with ancient ecclesiastical foundations. 2. Their architectural styles exhibit no features or peculiarities not equally found in the *original* churches with which they are locally connected, when such remain. 3. On several of them Christian emblems are observable, and others display in the details a style of architecture universally acknowledged to be of Christian origin. 4. They possess, invariably, architectural features not found in any buildings in Ireland ascertained to be of pagan times.

For the second conclusion, namely, that they were intended to serve the double purpose of belfries and keeps, or castles, for the uses already specified:—1. Their architectural construction, as will appear, eminently favours this conclusion. 2. A variety of passages, extracted from our annals and other authentic documents, will prove that they were constantly applied to both these purposes.

For the third conclusion, namely, that they may have also been occasionally used as beacons and watch-towers:—1. There are some historical evidences which render such an hypothesis extremely probable. 2. The necessity which must have existed in early Christian times for such beacons and watch-towers, and the perfect fitness of the round towers to answer such purposes, will strongly support this conclusion.

These conclusions—or, at least, such of them as presume the towers to have had a Christian origin, and to have served the purpose of a belfry—will be further corroborated by the uniform and concurrent tradition of the country, and, above all, by authentic evidences, which shall be adduced relative to the erection of several of the towers, with the names and æras of their founders."—pp. 4—6.

We would refer those who desire further information on this very interesting subject, and a knowledge of the data, which led Mr. Petrie to the above conclusions, to the work itself. Incidentally, it contains much valuable information on the antiquity, and general characteristics, of Irish ecclesiastical remains (profusely illustrated); and to this we shall hereafter refer.

AWARDS OF OFFICIAL REFEREES.

TANNERS AND LEATHER-DRESSERS' DRYING SHEDS.

Mr. J. G. Hepburn addressed the referees in October last, on the part of persons carrying on business as tanners and curriers in Bermondsey, who, in erecting buildings for the purposes of their trade, had received notice that such buildings being of timber, &c., were not conformable to the Act. He submitted "that Buildings used by them for workshops or drying places, are included in Schedule B part 1 of 7 & 8 Vict. c. 84, under the words 'all other buildings exempted by any Act of Parliament from the operation of the Act passed in the 14th year of his late Majesty King George the Third, and by this Act repealed,' and that therefore they are by Section 5 exempted from the provisions of Schedule D, the grounds for this opinion are that by the 14 Geo. III. c. 78, such workshops or drying places were constituted into a class called the 7th class, and were by the same Act (Sections 20 and 21) virtually exempted from the operation of the Act, by being expressly allowed to be built of any dimensions and of any materials, whereas all the other six classes of buildings referred to in the Act, were expressly restricted and limited as to their dimensions and as to the materials of which the buildings were to be composed. It is true that buildings of the 7th class were prohibited from being covered with pitch or tar, but it is submitted that not withstanding this, they are fairly and properly considered as forming an exemption from the operation of the Act, the design and object of which was to provide for the dimension of buildings and the materials of which they should be built.

The construction contended for, being assumed as correct, the workshops and drying places of tanners, curriers, and leather-dressers will come under the provisions of Section 16 of 7 & 8 Vict., c. 84, and will be subject to survey by the official referees, independently of the restrictions imposed by Schedule D as to walls, and the question will then be whether the intended building can be erected "with due regard to the security of the public."

It was stated, that if the referees decided that these workshops were included within Schedule D, the consequence to these trades would be so great as to compel them, for the necessary purposes of their manufacture, to locate themselves beyond the limits of the Metropolitan Building Act, although the principal manufacture of the kingdom in these branches is now carried on in Southwark and Bermondsey, and for which these places are eligible both as respects their situation and the inhabitants residing there, consisting chiefly of workmen and others employed in these manufactures.

Mr. Hesketh, the district surveyor, contended in reply,

"1stly. That such buildings were not exempted from the operation of the Act of 14th Geo. III. c. 78, but only from certain of the provisions thereof, and

2ndly. That if they were exempted from the operation of the said Act, they were so exempted by an Act which is repealed as far as relates to that part which is alleged to have so exempted them, and therefore they must be regarded in that light in which they would have been regarded if such alleged exemption had never existed."

The referees determined, Nov. 7th, "that workshops and drying sheds used by tanners, curriers, and leather-dressers, are not included in Schedule B, part 1, of the said Act, as being buildings exempted by any Act of Parliament from the operation of the Act passed in the fourteenth year of his late Majesty, King George III., and by the said Metropolis Buildings Act repealed—and that the sa

workshops and drying sheds are not exempt from the ordinary rules and provisions of the said Metropolitan Buildings Act as to party-walls and external walls, or in any other respect."

Costs to be paid by the applicants.

PROJECTIONS.

Mr. Tufnell, M.P., of 37, Curzon-street, May Fair, desired to make a certain addition to the portico of the said dwelling-house, that is to say, to fix a zinc and glass (all inclosed) green-house or verandah, for which he had the assent of the adjoining tenants on each side; the said green-house being in the centre of the house, and at a distance from the next houses.

Mr. Foxhall, district surveyor, objected to allow the projection to be made without the special permission of the referees. The award was, "that inasmuch as the proposed addition is to be built of proper and sufficient fire-proof materials, and inasmuch as it will be removed so far from the adjoining buildings on every side thereof, as not to obstruct the light and air, or be otherwise injurious to the owners or occupiers of such buildings, and inasmuch as such addition is not to project into the street so as to overhang or otherwise to encroach upon the public way, and is not to extend laterally beyond the portico, over which it is proposed to be built, if such addition be made so that the water therefrom shall not drip upon the public way, then the same will not be contrary to the said Act."

Costs to be paid by Mr. Tufnell.

With the greatest respect for the excellent district surveyor, we cannot understand on what ground he thought it necessary to send this case to the referees.

OPERATION OF LOCAL ACTS.

A stone eagle having been lately set up by Messrs. Baily, of Royal Exchange-buildings, Cornhill, which overhangs the public way a little "beyond the extension of the coping at the top of the house," was objected to by the Commissioners of Pavements. It was formerly over the door of the premises on the same site, and the district surveyor, at the rebuilding, made no objection to its erection. Messrs. Baily, in applying to the referees on the subject, first set forth "that by the 5th section of the said Act it is enacted, 'That notwithstanding any thing contained to the contrary in any Act of Parliament now in force, every such building shall be built, rebuilt, enlarged, or altered in reference to the walls, &c., and to the projections, and to any other parts or appendages of every such building, in the manner and of the materials, and in every other respect in conformity with the several particulars, rules, and directions which are specified and set forth in the several schedules to this Act annexed.'" And then shewed under what clauses of Schedule E such a projection might be made.

The referees awarded—"That although by virtue of the provisions of the Metropolitan Buildings Act, cited in the said requisition, certain projections may project beyond the general line of fronts in any street or alley, subject to the restrictions therein set forth, yet such provisions are to be deemed to be permissive to such extent only, as any other law may not prohibit the subject matter thereof; and that the provision in Section 5 of the said Metropolitan Buildings Act, which requires that the provisions of that Act be observed, notwithstanding any thing contained to the contrary in any other Act of Parliament then in force, is to be deemed to apply to such provisions of the Metropolitan Buildings Act as are obligatory, and not to such as are permissive only."

Costs to be paid by the applicants.

ASPHALTE FOR ROOF COVERING.

Mr. Manning proposed to form the roof covering of certain houses in the Fulham-road with fir joists "7 by 2," and inch deal boarding, covered externally with a coat or layer of Claridge's asphalte."

The Buildings Act requires, that the external part of any roof "must be covered with slates, tiles, metal, glass, artificial stone, or cement;" which terms Mr. Moseley, the district surveyor, considered did not include asphalte. The award was, "that 'Claridge's asphalte' is not to be deemed an artificial stone or cement, proper for the covering of any roof, flat, or gutter being of wood, and such material may not therefore be used in the manner described in the said requisition hereunto annexed."

DIVISION OF BUILDINGS.

Messrs. Winterbottom and Sands, being about to erect additional almshouses to the almshouses belonging to the Butcher's Charitable Institution, at Walham Green, Fulham, were called on by the district surveyor to build proper party-walls to a height of 18 inches at the least, above the roof to which they should adjoin.

This they considered, would destroy the harmony and general effect of the building, the part already built being without such party-walls. They accordingly referred the question to the official referees, urging, "that the said building or buildings are not to be deemed to be separate buildings within the meaning of the said Act, but that they are to be deemed to be one building in the occupation of the trustees of the said institution, and that the inmates of the said almshouses are to be deemed to be lodgers under the said trustees.

The award was, "that the separate tenements forming the almshouses in question, are to be deemed to be houses in separate occupations within the meaning of the said Act, each tenement having a separate entrance and staircase, and as such, must be separated from one another by proper and sufficient party-walls, according to the provisions of the said Act for the rate to which such houses shall belong."

Costs to be paid by the applicants.

THE MANUFACTURE OF GAS.

SIR,—I perceive by notices in the daily papers, that it is proposed to establish extensive works for the manufacture of coal gas. Is it not surprising, Sir, that in this age of improvement, the present imperfect mode of obtaining an illuminating gas should be still continued. Is it by the interest of coal proprietors, or do coal gas companies consider that the sale of coke is as profitable as the gas?

The mere extraction of gas from coal is simple enough, but a complicated machinery of condensers, purifiers, &c. is required to render it fit for consumption; and that this is ineffectually done, no practical man can for a moment dispute. Coal gas, as now manufactured, contains a quantity of sulphuretted hydrogen gas, and, should the whole of this be not extracted, produces, when burnt, the most injurious effects on the human constitution. The advantages, nevertheless, of gas are too apparent ever to permit us to doubt but what its use will continue general, both for illuminating and culinary purposes; and the time is not far distant when every room will have its burner, every kitchen its gas-cooking apparatus. How necessary, then, would it be to have a *pure gas*. That this gas can be had is sufficiently proved by the experiments of scientific men upon oil and tar; but from imperfections in the apparatus employed in procuring it, it has never been extensively brought into operation. Dr. Jones's "Address to Sir Robert Peel, requesting a legislative interference for the protection (both sanatory and pecuniary) of gas consumers," contains an *exposé* of many of the operations of *coal* gas companies, and should be read by every consumer. With many apologies for trespassing upon your time,

I am, Sir, &c. OBSERVER.

Paddington, Nov. 18, 1845.

THE ADELAIDE GALLERY.—Professor Keller and his corps of models are attracting large audiences, if we may use the word with reference to an exhibition where nothing is to be *heard*. "Pilbrow's Atmospheric Railway" is previously explained, and with the microscope, laughing gas, lectures, and music, makes an agreeable, and not uninstructive, evening's amusement.

MELROSE ABBEY.—We are requested to say, that this fine ruin, Melrose Abbey, is again open to the public. In consequence of some injury done by indiscreet tourists, it was closed for a short time, as mentioned in THE BUILDER, but this was simply to enable the Duke of Buccleugh to make fresh arrangements for shewing the building.

ON CERTAIN PROCESSES FOR STAINING GLASS.

THE *Bulletin de la Société d'Encouragement* contains an article on this subject by Professor Schubarth. We make the following extracts from a version of it that appears in the current number of Newton's *London Journal of Arts, &c.*

Mode of obtaining a Red Colour by means of Oxide of Copper.—The ancients were acquainted with the means of staining glass by the employment of oxide of copper; it is mentioned by Neri and Kunckel, in their works. The art was, however, so completely lost at the close of the last century, that it was generally believed that glass was always stained red by means of Cassius purple. It was not until 1828 that M. Engelhardt, of Zinsweiler, succeeded in staining glass red by means of a mixture of equal parts of oxide of copper and protoxide of tin: this process was tried with success in the glass manufactory at Hoffurmgsthal, Silesia.

The protoxide of tin is now done away with, and the compound employed is nearly the same as that mentioned by Neri, but more simple. It is composed of a mixture of copper scales (which are almost entirely composed of oxide), and oxide of tin (*zinnasche*) obtained by the oxidation of that metal in a state of fusion in contact with the air, to which a small quantity of iron filings is sometimes added, when a scarlet tint is required to be produced. Should the colour by accident disappear, it may be brought out by again bringing the copper into the state of oxide; this is done by introducing into the vessel a small quantity of tin or iron scale. It will of course be understood that the glass to be operated upon must not contain saltpetre, nor any other oxidizing substance.

Glass stained by means of oxide of copper is of a very deep colour, and can only be worked in thin sheets, and by covering it with a thick colourless glass (plate glass).

Obtaining a Red Colour by means of Gold.—The employment of gold for staining glass red does not appear to have been known to the ancients, and the period when it was first used, and by whom, cannot be ascertained. In the seventeenth century Kunckel employed Cassius purple for staining glass a ruby colour; this was discovered by A. Cassius a short time previous; but the recipe employed by Kunckel was not generally known until it was published in 1836, by M. Metzger, proprietor of the glass-works at Zechlin, on the occasion of M. Fuss' researches.

It must not be imagined from this, as some persons have lately stated, that it is necessary to use gold in the state of Cassius purple.

Neri, at the end of the 16th and commencement of the 17th century, stated, that in order to stain glass a ruby colour, it was only necessary to employ calcined chloride of gold. At a later period, Libar wrote to the same effect, and Merret certified that he had proved the efficacy of the process. In 1834, Golfier Besseyre stated, in the "Journal of Pharmacy," that Douault Wieland coloured his paste with perchloride of gold only. Lastly, in 1836, Fuss writes, that in Bohemia all the ruby-coloured glass was prepared with chloride of gold only, and that glass might be stained red as well with metallic gold as with oxide of gold or Cassius purple.

It is therefore a fact known for some time, that glass may be stained red, without either Cassius purple or oxide of tin, with metallic gold or preparations of gold. In the glass-works of Bohemia and Silesia perchloride of gold only is used, without the addition of oxide of tin, in order to produce their fine rose or carmine-coloured glass.

If powdered gold be triturated with twenty times its weight of enamel fritt, a light red or pink mass will be produced, without any metallic lustre.

It is evident that at the temperature of glass-houses, which is more than sufficiently high to effect the fusion of the glass, the gold contained in the Cassius purple will be brought back into the metallic state, whatever may be supposed to be the nature of this compound, upon which chemists have not yet agreed. If Cassius purple, chloride of gold, or gold leaf, be heated with borax or glass containing lead, to a temperature of 32° of Wedgwood's pyrometer, the gold will be precipitated in small globules at the bottom of the crucible, and if the heat be increased, the borax or glass will successively

assume a yellow, brownish yellow, green, and bluish green, orange, deep orange, and, lastly, a purple red colour, according as the temperature is raised and kept up.

We have verified the following fact, stated by Golfier Besseyre:—On triturating gold powder chemically pure with soot, mixing it intimately with a composition of glass containing lead (commonly called flint glass), and melting the whole in a glass-furnace, a glass is produced perfectly colourless at top, and presenting successively the following colours from top to bottom, viz.:—greenish-yellow, topaz-yellow, yellowish-brown, dark reddish-brown, and is even in some parts towards the bottom rather dull. M. Pohl has observed, that flint glass mixed with a small quantity of perchloride of gold, generally appears green after melting and cooling, some parts only having a red tint. On the contrary, on melting together glass containing a very small proportion of red lead and a small quantity of borax, with a solution in *aqua regia* of six ducats to 48 lbs. of fritt, after remaining in a state of fusion for six or seven hours, a perfectly colourless glass is obtained, which when worked into very thin plates, takes, upon cooling, a fine red colour. Knox states that gold melted with glass stains it green, which is deeper in proportion to the quantity of silica it contains, and that if the temperature be raised it changes to pale red.

When glass stained by means of gold is heated too often, or exposed to too high a temperature, it takes a light brown colour, loses its transparency, and will not again take a red colour; on being looked through, it will be seen that some parts are coloured a fine blue and bluish green; and grains of gold of various sizes may be seen with the naked eye (this state bears the greatest analogy to the phenomenon presented by a solution of gold slightly heated with oxalic acid). Pieces of colourless glass containing gold, cooled very suddenly, cannot by any known means be made to take a red colour, and remain perfectly colourless.

In conclusion we may state:—

1st. That in order to stain glass a red colour by means of gold, it is not necessary to use Cassius purple, or to add to the chloride of gold either oxide of tin or oxide of antimony.

2ndly. That by the addition of chloride of gold, or even metallic gold in minute particles, either to a very fusible glass of lead, or soda glass, containing a very small portion of minium (red oxide of lead), glass may be produced which will take a red colour whilst being worked.

3rdly. That if Cassius purple be employed, it will be decomposed during the fusion of the glass, and metallic gold will be precipitated from it.

4thly. That on grinding metallic gold to fine powder upon porphery with hard substances, a red coloured mixture will be produced.

5thly. That the colouring of the glass appears in all probability to arise from gold in a very comminuted state.

Several other metallic bodies present analogous phenomena.

Obtaining a Blue Colour by Oxide of Copper.—It is known that oxide of copper furnishes green or blue solutions, and will also stain glass a fine emerald green and light blue, turquoise blue, and sky blue.

For some years past a white milky glass has been manufactured in Bohemia and Silesia, known under the name of alabaster glass. The composition of this glass does not differ from that of ordinary crystal. (Bohemian crystal is a glass made without lead, with potash for its base.) After the glass has been melted, it is poured off and stirred up. A second charge is then melted, to which is added, when the fusion is complete, the glass previously stirred and cooled, which cools the mass; and as soon as it is melted, it is to be worked at the lowest possible temperature. The glass will be of a milky white, while if the temperature were much raised, it would become colourless and transparent.

If oxide or sulphate of copper be added to a colourless glass, and the temperature is sufficiently high, a transparent glass of a bluish green tint will be obtained. If the operation has been carried on as above stated to obtain a milky glass, it will be of a turquoise-blue colour. Lastly, if this turquoise-blue coloured glass be re-melted, at a high temperature, a transparent aqua-marine blue will be produced.

New Books.

Some account of the Church of St. Mary Magdalene, Taunton; and the Restoration thereof: together with several notices on Ecclesiastical matters. Printed in aid of the fund for the restoration. 8vo. 1845. Vizetelly and Co.

The church illustrated by this beautiful volume, is well known to all architectural students and professors, as one of the most magnificent specimens, in a part of the country celebrated for the splendour of its ecclesiastical edifices. The lofty tower, which forms its chief characteristic, is perhaps unsurpassed by any similar example of the architecture of the fifteenth century. In common with many other exquisite ecclesiastical edifices of former days, the church of St. Mary, Taunton, was suffered to fall into decay, by the neglect and apathy of its guardians, until, in the year 1840, the Rev. James Cottle succeeded to the vicarage of the parish. This gentleman, actuated by a warm appreciation of the architectural merits of the church, and feeling the necessity of prompt and decisive measures to preserve it from further dilapidation, proposed in 1842 to expend himself a sum of 3,000*l.*, if the parishioners would supply as much more as might be necessary completely to restore the sacred edifice. This liberal offer was accepted, and (as our readers are probably aware) the work of restoration was commenced, and is now nearly completed, in a manner which reflects the highest credit on all the parties concerned. The total cost, it is found, will exceed 7,000*l*; and the vicar has undertaken to add 1,000*l.* to the amount he originally offered to expend. Mr. B. Ferrey was employed as the architect on the part of the vicar, and the works executed by the parish, being perfectly distinct from the former, were placed under the superintendence of Mr. R. Carver, the county surveyor.

The present volume has been undertaken by the reverend gentlemen, to whose generous enthusiasm the lovers of ancient architecture are so much indebted, as a record of the success which, in spite of even more than the usual difficulties attending such exertions, has crowned his zeal and perseverance. Besides a minute history of the work of restoration, and a full description of the church, Dr. Cottle's portion of the volume contains much useful information on the antiquities of English churches generally, and their neglected state from the time of the Reformation. It comprises also some remarks on those questions of church discipline which have recently been so much agitated; and to these we may direct the attention of all who are interested in the subject. His strictures on the objectionable "pew system," as compared with that of open seats, are most convincing. A list, with biographical notices, of the archdeacons and vicars, and notices of the principal monuments in the church, complete the body of the work. But its appendices are hardly less interesting. The first of these, entitled "*Historical Notices* of the church, by George Cave," is a clear and discriminating essay on the dates and characteristics of the different portions of the edifice; the second, by Mr. Ferrey, the architect, is called "*Remarks on the Gothic Towers of Somersetshire*," and is full of valuable information on the subject. In addition to these there is an historical essay on the ecclesiastical architecture of England, by Thomas Porch Porch, Esq., A.M.,—a useful summary on that particular topic, but without any particular novelty of treatment;—and, finally, some remarks, by the Rev. Henry Christmas, M.A., on "The Furniture and Ornaments of Churches."

The volume is printed by Messrs. Vizetelly, in a tasteful and elegant manner, and is illustrated by a ground-plan and eight wood-cuts and lithographs, shewing the state of the church, before and since its restoration. Though ready to award sincere approval of the spirit and energy which have actuated the worthy vicar in this "labour of love," we cannot forbear remarking, that he has carried the system of painting, gilding, and ornamentation in the church rather to excess, and thereby rendered what is, and ought to be, subordinate in architectural character and effect, too predominant.

Correspondence.

PUBLIC NECESSARIES.

Sir,—Will you permit me, through the medium of your valuable and widely-circulated journal, to make one or two remarks on a subject which I am not aware of having been touched upon by any other, with the exception of a hint thrown out by your Cork correspondent in No. 139 of The Builder, whose suggestions (on the improvement of habitations for the working classes) appear very good. The great drawback to the carrying out his plans would be the expense; however, I think with care and certain modifications, something might be done in erecting much better abodes for the labouring population. Now, in this stirring period of inquiry as to the best mode of giving greater comfort to the Million as regards their abodes, &c., public wash-houses and baths are in course of erection in different parts of our metropolis, still there is one thing wanting to make them complete, which I trust the projectors of these excellent structures will not forget.

The thought has often struck me that there ought to be *public necessaries for men*, in every large town, more especially in huge London, where immense numbers of strangers from all quarters of the globe pour in; and in their perambulations, sight-seeing, &c., when they are perhaps miles away from their temporary abode, where, may I ask, are these conveniences to be found, so *essential* and *necessary* to *health and comfort?* No where, unless they go to an hotel, coffee-house, or some such establishment, which entails expense. Now, to obviate this great evil, I would suggest that there be a sufficient number of public necessaries in each district erected by the parish at their own expense, which would be but trifling. I feel assured no one can deny (who has the welfare of his fellow-creatures at heart), the great benefits which not only strangers, but the public in general would derive, knowing as we do, the thousands of houses inhabited by the lower order who have scarcely any thing in the shape of a privy (and, indeed, *some none at all*), and are little better than pigstyes, where every indecency is committed, and the smells from which effect the whole premises, tainting the atmosphere, and engendering disease amongst the miserable inmates; to every well-regulated mind, the picture is truly disgusting, when we think that all this might be easily rectified.

The whole talk now is *ventilation*, but first I would say, begin by removing such nuisances as these, for of this I am certain, that much *immorality*, *misery*, and *disease*, found in low and confined districts, in large populous towns, arise from this and other incidental causes.

I have seen the plan as to *public privies* carried out in Scotland, and they answer admirably well.—I am, Sir, &c. A Surveyor.

THE STUDY OF LINES.

Sir,—In reply to your correspondent, J. F. I. I beg to say that the best or even a good work on lines is unquestionably a desideratum, that is, one to shew the various distinct characters of such as can easily be practically described. Sir Isaac Newton said so; and I have been for more than twenty years pointing out the necessity of such a practical work, for which I had formed the plan.

What I have written in The Builder may perhaps tend to shew how little is known on the subject. The "Examination on Lines" has as yet received no answers or remarks, except as accompanying the papers on conic sections.

Lord Brougham referred me to McLaurin's papers; I had indeed seen them many years before, but as it is not possible to make working instruments on the principles he investigates, McLaurin's method not being practically useful, is not what Sir Isaac Newton considered desirable.

Such a practical work as is wanted would be large, but if it could be undertaken so as to ensure an extensive circulation, it might, it is thought, be brought within the means of every artist, mechanist, and mechanic. But who is to do it? I have collected a great quantity of material, which the Society of Arts many years ago, considered they were too poor to undertake the publication of.

I must leave it to those who know what I have done, to make remarks on what I have published towards this object.

I am, Sir, &c.

29, Wimpole-street. JOSEPH JOPLING.

Miscellanea.

MUSEUM OF ECONOMIC GEOLOGY.—We lately noticed a report that Government had determined upon erecting a West-end general post-office in Jermyn street, and had already purchased several houses with the view of obtaining a site. Whatever truth there may be in this report, certain it is that at least a part of the site will be appropriated for the Museum of Economic Geology, which has far outgrown the means for its accommodation. The present museum in Craig's-court is now very complete in many departments, particularly those of stone and coal.

PRACTICAL SCHOOL FOR ARTISTS, DESIGNERS, AND AMATEURS.—A school for the study of anatomy, perspective; the antique and living model; designing for manufactures, &c., has been opened at 18½ Maddox St. by a committee, under the superintendence of Mr. J. M. Leigh, who has been long known in connection with art. There is an admirable collection of casts; and the subscription is very low. A class for modelling, is formed and a collection of architectural models is contemplated, which will greatly increase its usefulness.

LLANDILO CHURCH COMPETITION.—In answer to several correspondents who have addressed us on the subject of this competition, we refer to an advertisement in our present number, wherein the committee appointed to examine and decide upon the designs sent in, request that all further inquiries may reach them before the 9th of December.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For executing the works on the Auchinleak and Ayr branch of the Glasgow, Paisley, Kilmarnock, and Ayr Railway, in length about 14 miles. It will be divided into two or more contracts.

For lighting a part of the parish of Tottenham, Middlesex, with gas or naphtha.

For supplying the East-India Company with British iron, cast steel files and rasps, also sheet-lead and lead-pipe.

For executing the works of the fifth division of the Dublin and Belfast junction railway, being a distance of 8 miles 128 yards; also of the sixth division, being a distance of 7 miles 1,523 yards.

For supplying 20,000 loads of British oak timber, 7,400 loads of British oak thickstuff and plank, and 400,000 British oak treenails, to her Majesty's several dockyards.

For the supply of such iron railing as may be required to surround the burial-ground adjoining St. Saviour's Church, Southwark; and the works connected therewith.

For Building a sewer in Bell-yard, Carey-street, to the extent of 500 feet; and also for a sewer in Southgate-road and Ball's-pond-road, Islington, to the extent of 560 feet.

For the execution of the works on the Portsmouth extension of the Brighton and Chichester Railway.

For executing the works of the second division of the Dundalk and Enniskillen Railway, being a distance of ten miles.

For making and burning from 700,000 to 1,000,000 clamp bricks.

For the erection of a dwelling-house at Maidenhead, Berks.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

Upon the Ellingham Hall Estate, near Wissett: a number of elm, poplar, and willow trees, larch, beech, and Scotch firs, alder poles, &c.

At Wibtoft and Little Claybrook: a large quantity of elm and ash timber, now standing on the estate of Lord Leigh.

At the Longs Arms Inn, South Wraxhall: twenty very prime walnut trees of large dimensions.

At Fen Ditton: a fall of about 600 excellent larch and other spires, some of very long lengths and large girths; also a quantity of useful pollards.

At the White Horse Inn, Dorking: 2,012 ash, and 4 elm trees, now standing on the Wotton estate.

COMPETITION.

The committee for the erection of the South Staffordshire General Hospital, Wolverhampton, are desirous of receiving plans, specifications, and estimates connected therewith. The sum of 100*l.* will be given for the one selected.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, Dec. 1.—British Architects, 16, Grosvenor-street, 8 P.M.: Chemical (Society of Arts), Adelphi, 8 P.M.; Royal, Somerset House, 4 P.M.; anniversary.

TUESDAY, 2.—Syro-Egyptian, 71, Mortimer-street, Cavendish-square, 8 P.M.

WEDNESDAY, 3.—Geological, Somerset House, 8½ P.M.; British Archæological Association (Western Literary Institution), Leicester-square, 8½ P.M.

THURSDAY, 4.—Antiquaries, Somerset House, 8 P.M.

TO CORRESPONDENTS.

"T. T." (Halstead), *is thanked for his good intention. It is not our practice to insert anonymous praise of a building we have not seen.*

"W. T. T."—*The removal of the monuments in Westminster Abbey to the Triforium has already been suggested. See "Chat about Westminster Abbey," p.* 140, ante. *The cloisters, as "W. T. T." says, might also be made available.*

"A Subscriber."—*We know of no price-book by which to estimate Gothic work properly.*

"G. S."—*We shall be glad to have the length and size of sewer, before inserting the amounts.*

"Drying Timber."—*A correspondent being about to erect a stove for drying timber, wishes to know the best way of fitting it up for the purpose.*

"W. H. W."—*Will our correspondent refer us to the projections alluded to.*

"W. D."—*We are obliged to our correspondent for his good opinion. As regards the offered information, we shall be glad to avail ourselves of it.*

"Assessment of Dilapidations."—*We defer the insertion of letters on this subject, hoping to receive others.*

"E. B." Double Entry, *by B. I. Foster, published by Souter and Law, Fleet-street, will be found useful.*

"Price Books."—*We refrain from recommending a price book until the editions for the new year appear.*

"Enquirer."—*Students are not admitted into the School of Design for the architectural class alone; but must pass through a regular course. A letter to the director would obtain all necessary information.*

"W. T. S" *esteemed communication reached us too late for the present number. It will appear next week.*

"A Looker-On," *and* "A Mason," *shall also appear.*

ADVERTISEMENTS.

ROFESSOR KELLER'S POSES PLASTIQUES.

ROYAL ADELAIDE GALLERY.—This day, and during the week, Professor Keller will exhibit at the Adelaide Gallery his Grand Tableau Vivans from the Ancient Masters, which have received so largely the encomiums of the press. Every morning at half-past three, and in the evening at nine o'clock. Great efforts have been made to add to the effects of this exhibition. A variety of new subjects have been added to those already presented to the public. The Concerts as usual. Also Pilbrow's Atmospheric Railway model, with explanatory lecture.

By Her Majesty's Royal Letters Patent

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PATENT ROUNDED RIM LOCKS,

WITH SECRET AND SECURE FIXINGS.

THIS CHEAP and USEFUL ARTICLE, obviating the unsightly appearance and insecurity of the common rim lock, can be obtained of any respectable ironmonger in town or country, or from the sole manufacturer, Mr. EDWARD WRIGHT, Wolverhampton.

FRAUD.—The Public is Cautioned against being Duped by certain parties, who are offering for sale as "BERDOE'S VENTILATING WATERPROOF FROCKS," garments which, although having attached to them W. B.'s name, and a fac-simile of his label, have not been manufactured by him or by others, who are, it appears, reaping a pretty rich harvest both in London and the provinces, by the sale of a composition falsely labelled, "Burdoe's Ventilating Waterproof, 96, Cornhill" (both alike spurious). Berdoe's genuine, and really Waterproof Overcoats, Shooting Jackets, &c., are made and SOLD in London ONLY at 69, CORNHILL (north side), and sold by W. B.'s agents in various towns throughout the kingdom. A LARGE STOCK for the WINTER now ready (Waterproof Cloaks, Capes, &c., for Ladies). The public is cautioned against imposition in purchasing either garments or a composition (professedly waterproof), which, although having attached to them W. B.'s name and label, have not been made by him.

FIRE-PROOF SAFES.—125, ALDERSGATE-STREET, CITY.

THE CHEAPEST HOUSE in LONDON for WROUGHT-IRON FIRE-PROOF SAFES.—JOHN LEADBEATER, many years Manufacturer for Messrs. Chubb, of St. Paul's Churchyard. Bankers, Merchants, Railway Companies, and the Public generally, are respectfully informed that he has constantly on SALE, at his Manufactory, 125, Aldersgate-street, City, a large assortment of very superior WROUGHT-IRON FIRE-PROOF SAFES, chests, boxes, and doors for strong-rooms or closets; the whole fitted up with improved detector locks, throwing from two to twelve bolts, warranted of the best materials and workmanship, yielding a positive security to cash, books, deeds, plate, &c. against the destructive effects of fire, and the skill of the most experienced burglars, at considerably reduced prices. Made to order at the shortest notice, at his Manufactory, 125, Aldersgate-street, City.

WILLIAMS'S PATENT SLATE RIDGES and HIPS. The above article is recommended as the best and the most suitable covering for Ridges and Hips of slated roofs ever invented, possessing a solid Roll of various sizes, more elegant and durable than lead, and 30 per cent. cheaper.—Sold by Messrs. J. and J. SHARP, Slate Merchants, Tooley-street, and Mr. RICHARD COOPER, Slate Merchant, Belvedere-road, Lambeth, London.

HIP TILES to suit slate roofs in colour; Ridges, with plain or rebated joints, roll tops, and vertical ornaments; drains, many sizes, with plain or socket joints; paving in squares, hexagons, octagons, &c., different colours; roofing, in Grecian or Italian styles, other devices also, or plain; conduits, which do not injure pure water; fire-bricks and tiles; clinkers, and out-door paving; sundry wall-coping, garden-borders, chimney-tops; also tubular and other flues of peculiar material. No agent, but a depôt at 22, WHITEFRIARS-STREET, FLEET-STREET, LONDON, under Mr. PEICKE'S personal care, to supply genuine TERRO-METALLIC goods at fair prices as per quality; also, additional Stock at No. 4 Wharf, Macclesfield-street, South, City Basin.

The TILERIES, TUNSTALL, STAFFORDSHIRE, are near the centre of England, whence boats are sent direct to any inland place; or to the Mersey for the coasts, the colonies, and elsewhere.

POLONCEAU'S BITUMEN PAVEMENT for paving Foot walks, Terraces, Garden walks, Stables, Coach Houses, Granaries, Corn Stores, and Salt Warehouses. For the exclusion of Damp and Vermin in Basements it is particularly adapted, and for Roofing Dwelling Houses, Porticos, Balconies, and Sheds. Price 3s. 6d. per square yard.

BITUMEN for covering the Arches of Bridges, Culverts, &c. &c. on Railways and other places (with instructions for laying it down), may be had at the rate of 45s. per ton, by applying to JOHN PILKINGTON, 15, Wharf-road, City-road.

TO ARCHITECTS.

IN consequence of many complaints having been made to the Company, by Architects, of a spurious material having been used in the execution of Works where the SEYSSEL ASPHALTE had been specified for, the Directors, with a view to ensure the fulfilment of any such specification, have authorized CERTIFICATES to be granted to Builders where the

SEYSSEL ASPHALTE

has been used. For the purpose of securing the use of the Genuine Article, Architects and others are recommended to insert in their specifications the "Seyssel Alphalte, Claridge's Patent," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used, gas-tar and other worthless and offensive compositions have been introduced.

I. FARRELL, Secretary.

Stangate, near Westminster Bridge, Jan., 1845. Seyssel Asphalte Company.

Books of Instructions for Use may be had at the Office of "The Builder," and of all Booksellers in Town and Country, price 1s.

*** In proof of the necessity of the above advertisement, it may be mentioned, that it has come to the knowledge of the Directors, that in certain works which have been executed by Messrs. CURTIS, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

Also in the case of a work at Lewisham executed by Messrs. ROBERT and DANIEL YOUNG, of 10, Crown-row, Walworth-road, where Seyssel Asphalte was specified for, a spurious article was nevertheless laid down by them.

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STEPHEN'S WRITING FLUIDS.—These Compositions, which have so remarkably extended the use of the STEEL PEN, are brought to very great perfection, being more easy to write with, more durable, and in every respect preferable to the ordinary ink. In warm climates they have become essential. They consist of—A BLUE FLUID, changing into an intense Black colour.—PATENT UNCHANGEABLE BLUE FLUID, remaining a deep Blue colour.—A SUPERIOR BLACK INK, of the common character, but more fluid.—A BRILLANT CARMINE RED, for Contrast Writing.—A CARBONACEOUS RECORD INK, which writes instantly black, and being proof against Chemical agents, is most valuable in the prevention of frauds.—Also a new kind of MARKING INK for Linen, and inkholders adapted for preserving ink from evaporation and dust.—Sold in Bottles, of various sizes, by all Stationers and Booksellers.—Be sure to ask for Stephens' Writing Fluid.

N.B.—These unchangeable Blue Fluids are Patent articles. The public are therefore cautioned against imitations, which are infringements; to sell or use which is illegal.

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STEPHENS' RULING and MECHANICAL DRAWING INK, for Engineers, Artists, and Designers.

This article will be found superior to the best Indian Ink for the above purposes. It does not smear with Indian-rubber or wash off with water. It flows freely from the drawing pen, and never corrodes or encrusts it. It may be used on a plate or slab, with a camel's hair brush, deluting it with water, or thickening it by drying, as required. It has the advantage of being ready for immediate use. Sold in conical-shaped Bottles, convenient for using from, without any Stand, at 6d. each.

All the above articles are prepared by HENRY STEPHENS, the Inventor, 54, Stamford-street, Blackfriars-road, London, and sold by Stationers and Booksellers.

BRITISH and FOREIGN SHEET GLASS, for Horticultural purposes, Sky-lights, &c. may be had at JAMES BROMLEY's 315, Oxford-street, London, at the reduced prices, also Microscopial Glass, French Shades, Plate and Crown Window Glass. J. B. will be happy to furnish Lists of Prices, or any other particulars that may be required.

DUTY OFF ORNAMENTAL WINDOW GLASS.

CHARLES LONG begs to inform his Friends and the Public, that he can now supply Ornamental Glass from 1s. 3d. per foot superficial; and borders from 9d. per foot, run; and having just built two of the largest Kilns in London, is enabled to execute extensive Orders with unprecedented dispatch, 1, King-street, Portman-square.—Terms, Cash only.

TO THE PLATE-GLASS TRADE.

THE BIRMINGHAM PLATE and CROWN-GLASS COMPANY beg to call the attention of the Trade, that their LONDON WAREHOUSE, 141, Fleet-street, is now open for the sale of their Crystal Plate-Glass, which for Brilliancy and Colour will be found to stand unrivalled by any other manufactory.—All orders, addressed to B. MOSS, London warehouse, or to the works, Smethwick, near Birmingham, will be promptly attended to.

BUILDERS, PAINTERS, GLAZIERS, and others supplied with every article used in the trade upon the best wholesale terms.—Address to R. COGAN, WINDOW GLASS, LEAD, and COLOUR WAREHOUSE, 5 Princes-street, Leicester-square, London, for complete lists, priced, of dry and good Colours, Brushes, Pumps, Closets, Plumber's Brass Work, and all materials.

COLOURED and ORNAMENTAL GLASS of every description at the very lowest prices.

BRITISH and FOREIGN SHEET for Horticultural and all other purposes, as low as any house in the kingdom.

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Gas Contractors, Fitters, Glass Merchants, and others supplied with any description. Lists of nearly 100 patterns, with prices affixed, sent to any part of the kingdom gratis.

CLOCK MAKERS, ALABASTER FIGURE MAKERS, ARCHITECTS, MODELLERS, and others, supplied with FRENCH ORNAMENT SHADES,

for covering Models of Public Buildings, Geological Curiosities, &c., &c., of all sizes and shapes. List of Prices may be had on application. Bee Glasses, Striking Glasses for Nurserymen, Fish Globes and Confectioners' Glasses, &c., of every size and description.

SASH, SHOP-FRONT, AND HOTHOUSE MANUFACTURER.—ESTABLISHED UPWARDS OF 70 YEARS. 87, Bishopsgate-street Without.

THOS. MILLINGTON begs to inform his Friends, that he still continues to manufacture the above in the same manner, and using only the best materials, that have given so much satisfaction for many years past. Every article will be made in the best manner, and the very lowest price charged. Lists may be had upon application. Drawings prepared.

FOREIGN WINDOW GLASS.

THOS. MILLINGTON begs to inform his friends, that he continues to receive weekly large consignments of FOREIGN GLASS, which he is determined to offer upon the very lowest terms. Address, 87, Bishopsgate-street Without.

PLUMBER'S BRASS WORK, WATER-CLOSET PUMPS, &c.—These articles require the greatest attention and care in the manufacture, and will be found superior and cheaper than at any other manufactory. Best Pan Water Closets, 34s.; 2½ Lift Pumps and Planks, 4l. 10s. 0d.; 3-inch Pumps, 5l. 10s. 0d.; 3-inch Bill and Stop Cocks, 30s. per dozen, and every article in this branch equally low. Every article warranted.—Address, THOS. MILLINGTON, 87, Bishopsgate-street.

VARNISH.

THOS. MILLINGTON begs to inform the Trade, Builders, Painters, and others, that this article can be had at his Manufactory, of the best quality and at the very lowest price. T. M. has long been a manufacturer, and has devoted much time and attention to it, using only the best of gums, and sparing no expense in the manufacture. Fine Pale Oak or Wainscoat Varnish, per imperial gallon, 10s.; Fine Carriage Varnish, 12s.; Copal, 18s.; Body Copal, 24s.; Gold Size, 10s; White Hard, 18s.; Brown Hard, 18s.; French Polish, 18s. per gallon. Paint, Dryers, Colours, ready and ground, and every article in the trade. If quality is taken into consideration, this will be found the cheapest house in London. Address, 87, Bishopsgate-street Without.

VARNISH.—It has long been a desideratum amongst the consumers of Varnish to obtain a good and genuine article; brilliancy, facility of drying, hardness, and durability are the qualifications necessary, but these are seldom if ever found united. The experience of a life-time devoted exclusively to the manufacture of this article, the great and important discoveries of modern chemistry, and the daily improvements in machinery, have enabled Messrs. George and Thomas Wallis to produce Varnishes (both oil and spirit) unrivalled in every respect, and they confidently recommend them to the trade, as deserving of notice both in price and quality.

Builders, Coachmakers, Painters, and others may depend on being supplied with a genuine and unadulterated article. Fine Oil Varnish, from 10s. per gallon; best White Spirit Varnish, 21s. ditto; Best Spirit French Polish, 20s. ditto; White Lead, Oil, Turps, and Colours of every description at the very lowest prices.—WALLIS'S Varnish, Japan, and Colour Manufactory, 64, Long-acre, one door from Bow-street. Established 1750.

WALLIS'S PATENT LIQUID WOOD KNOTTING. — This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; a boy can use it as well and effectually as the best workmen: it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20s. per gallon.

PATENT GALVANISED TINNED IRON. (MOREWOOD AND ROGERS' PROCESS.)

ARCHITECTS, SURVEYORS, BUILDERS, and CONTRACTORS are respectfully informed they can be supplied with this invaluable metal for building purposes, of the best quality and lowest terms. It is superior in every respect to zinc, and two-thirds less price than 7lb sheet lead for roofing, no woodwork being required, but iron rafters only, 21 inches apart, rendering the whole roof fire-proof. This mode of covering roofs is cheaper than Lead, Zinc, Tiles, or Slates, Parapet and other Gutters formed and fixed, also rain-water pipe heads, eave gutter, baths, stove and funnel pipe, cisterns and water-closets fixed. The sheets are 6 feet long by 2 ft., 2 ft. 6 in. and 3 feet wide, and 9oz. to any required weight per foot, and can be had either plain or corrugated.

Please apply to CHARLES GELL, Junior, No. 5, Quick-set-row, New-road, St. Pancras, where references and testimonials of the highest respectability of extensive works already done can be had.

MOREWOOD AND ROGERS' PATENT GALVANIZED TINNED IRON.

T. W. BEALE begs to acquaint the public that he is prepared to lay roofing, plain or corrugated, fix pipes, gutters, &c. Also chimney-tops and ventilating cowls of every description; also water and oil cisterns, of this incorrodible and fireproof metal. He manufactures all kinds of baths, as hip, shower, Roman, open, slipper, sponging, foot, children's, and self-heating baths; also toilet-cans and pails, slop-pails, coal-scuttles, cash and deed-boxes, and fire-proof safes of every description, 10 per cent. cheaper than any house in London.

The PATENT GALVANIZED TINNED IRON is applicable to the following uses:—The Lining of Ships' Store Rooms, Ships' Water Buckets, Water Jugs and Receivers, and for almost every purpose to which zinc, tin, copper, brass, or any other metal is now applied; is more durable, and manufactured at much less expense. An experienced workman sent to any part of the kingdom. All orders punctually attended to. For particulars, apply to T. W. BEALE, 46, Bridge House-place, Newington Causeway.

By Her Majesty's Royal Letters Patent.

MOREWOOD and ROGER'S PATENT GALVANIZED TINNED METAL. — This article was at first sold under the name of Galvanised Tin Plates, but the Patentees finding that the public, in some instances, overlooking the word Tin, confounded the article with Galvanised Iron, and that the character of their metal has thereby sustained injury, are desirous of giving it a name so distinctive as to prevent such mistakes, and consequent disappointment to purchasers in future. They therefore respectfully request purchasers to inquire for MOREWOOD and ROGER'S PATENT GALVANIZED TINNED IRON. In order to enable the public readily and at first sight to distinguish between the two metals, it may be well to inform them, that Galvanised Iron has a plain zinc-like appearance, while M. and R.'s Patent Galvanized Tinned Iron has a smooth crystalline surface.

MOREWOOD and ROGER'S PATENT GALVANIZED TINNED IRON, Patronized by the Admiralty and the Honourable Board of Ordnance, being extensively used in her Majesty's Dock-yards, at the Tower, and elsewhere, for every variety of Roofing, and other purposes, where a strong, light, cheap, and durable material is required.

It has been found by experience that this article is beyond all comparison superior to zinc; possessing, as it does, all the advantages arising from the strength and firmness of iron, combined with perfect immunity from rust; whilst it is free from the very serious objection which applies to zinc, viz. its contraction and expansion, consequent upon every change of temperature, and from which circumstance leakage must of course result.

This material is not likely to be destroyed by fire, as is the case with zinc and lead, which melt and run down, thus freely admitting fresh air to the fire, and causing it to burn more fiercely. It is, therefore, obviously well adapted for all the purposes above-named, and most importantly so, when there is the possibility of fire. It is also peculiarly suitable for chimney-tops, gutters, spouting, and out-door work generally, possessing the strength of iron, without its liability to corrosion. It is by far the most economical metal roofing that can be obtained, in consequence of its strength, as it may be laid without boards, and upon the lightest rafters.

This mode of preserving metal from rust does not only apply to sheet-iron, but also to manufactured iron in any form, as bolts, nuts, hinges, nails, &c. &c.

For full Particulars apply to S. HOLLAND, 34, Grace-church-street.

PORTLAND CEMENT of best quality manufactured by J. B. WHITE and SONS, of Millbank-street, Westminster. To be had at their Warehouses Druce's Wharf, Chelsea; Bell's Wharf, Paddington; and Earl-street, Blackfriars.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

Agent for Liverpool, Mr. WYLIE, 56, Gloster-street; ditto for Manchester, Mr. J. THOMPSON, Back King-street; ditto for Chester, Mr. J. HARRISON, Linen Hall-street.

THE PROJECTED RAILWAYS.

ANALYSIS of the PATENT METALLIC SAND, or English Pozzolano, used in the foundations of the New Houses of Parliament, the great Tunnels on the Birmingham Railway, Sea-wall on the Great Western Railway, in Devonshire, and other important works referred to more particularly in the prospectus.

Silica	49	Lime	6
Oxide of Iron	32	Magnesia	2
Alumina	6	Zinc	3
Arsenic and Carbonate of Copper	2		

Price in Swansea, free on board, 6d. per bushel, or supplied in London at 1s. per bushel.

Used as an external Stucco the Metallic Sand Cement is unaffected by frost or wet; in appearance it resembles the best Portland Stone, requires neither colour nor paint, and is entirely free from vegetative cracks and blisters.—Further Particulars on application to Mr. C. K. DYER, 4, New Broad-street, London; and at the Metallic Sand Wharf, King's-road (opposite Pratt-street), Camden Town.

KEENE'S PATENT MARBLE CEMENT.

THE PATENTEES of KEENE'S CEMENT beg to draw attention to the use of this material in the works recently executed at the COLOSSEUM, Regent's-park. The POLISHED COLUMNS in the Hall of Sculpture, the ornamental paving in the corridors and conservatories, and much of the stucco on the walls, are specimens of the very successful application of this cement. Patentees and Manufacturers, J. B. WHITE and SONS, Millbank-street, Westminster.

ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architectural and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

MARTIN'S FIRE-PROOF AND ORNAMENTAL CEMENT.

CAUTION.—Messrs. STEVENS and SON, Patentees, beg to caution their friends and the trade generally against confounding this invaluable Cement with others, erroneously said to be of the same description. S. and S. pledge themselves, that MARTIN'S CEMENT is totally dissimilar in composition and manufacture from every other, and, being a neutral compound, is not only free from chemical agency upon any substance with which it may come in contact, but completely resists the action of the strongest acids. They feel it a duty to direct attention to the following properties, which it exclusively possesses:—

1. It rapidly acquires the hardness of stone.

2. Unlike other internal cements, its hardness is uniform throughout its entire thickness.

3. Its surface (which may be made equal to that of the finest marble) never throws out any salt, and will receive paint in four days, without peeling, when put upon dry work.

It is peculiarly adapted as an internal stucco for walls, skirtings, architraves, mouldings, and enrichments of all kinds, to all of which purposes it has been extensively applied by Mr. Thomas Cubitt on the Grosvenor estate, &c.

For the above purposes, it possesses great advantages over wood, being more economical and durable, resisting fire, damp, and vermin.

For the floors of hall and fire-proof warehouses, its lightness, durability, and uniform surface give it an immense advantage over stone, being, at the same time, much more economical. The most satisfactory references can be given. To be had of the Patentees, Plaster of Paris and Cement Manufacturers, 186, DRURY LANE.

Agent for Liverpool and Manchester, Mr. R. PART, 28, Canning-place, Liverpool.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application to MANN and CO., SOLE AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOUR STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the suction, thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, producable by no other Paint whatever. It is cheap in its application,—and may be used by any Painter, in any climate, even in the most exposed Marine situations.

MASONS' PROVIDENT INSTITUTION.—A PUBLIC MEETING of the Trade will be held at the London Mechanics' Institution, Southampton Buildings, Chancery Lane, on TUESDAY, December 2nd, 1845, at Seven o'clock in the Evening. THOMAS WAKLEY, Esq., M.P., in the Chair.

The Provisional Committee have much pleasure, after a protracted and arduous task, in bringing the matter to its present shape, to be enabled to convene a Meeting of the Trade, for the purpose of establishing an Institution for granting Pensions to aged and necessitous Members of the Trade, their widows and Orphans, and for the erection and permanent maintenance of an Asylum, to be supported by Donations and Annual Subscriptions. Several influential gentlemen connected with the Trade will attend.

Entrances to the Theatre, Northumberland Court, Southampton Buildings, and Tennis Court, Middle Row, Holborn JOSEPH T. WHITEHEAD, 1, Johnson St., Westminster

The Builder.

No. CXLVIII.

SATURDAY, DECEMBER 6, 1845.

E wish to direct attention to one or two important points in the structural arrangement of STABLES. We have often had occasion to speak of the slowness with which he practical man adopts the deductions from cientific investigations: the tendency to conue taking an old path, although a new one, shorten the distance considerably, may be lose at hand. What *has* done, will do again: nd so we go on year after year in error, ithout troubling ourselves to reflect on the ossibility of improvement, or even looking ght or left to see what others are doing. Worse, however, than this:—even when the evils f a course are *known*, and instructions to oviate them are given, timidity, apathy, or bstinacy induces the majority to continue in . The want of scientific arrangement in resiences and workshops has killed thousands of uman beings, and has produced an appalling nount of discomfort, distress, demoralization, id misery. This wholesale slaughter is still oing on, and the great mass of the people ink little about it, and care less; it is so ommon for people to be ill, and to die when oung, that they look upon these occurrences matters of course, and, rather than take any ouble, persuade themselves that nothing can done to avert them.

This being the case, it is not greatly to be ondered at, that they condemn their *horses* the same casualties, by constructing stables r them pregnant with diseases. To arrange em otherwise, in the first instance, would cost tle or nothing, and save us, say, five-and-enty *per cent.* in horseflesh. But what of at. To effect it we must do something new, d we don't like new-fangled notions; beles, it might fail after all; and, moreover, w things give trouble. No; we will go on the old way, and if our horses fall ill we are worse off than our neighbours; and if they , why it is what happens to every thing.

There are some, however, who may think it rth while to try if this said dying cannot be stponed for a time, and may be willing to ve themselves a little trouble, to retain for ne additional years, the services of a faithful rvant. To such we would point out the imrtance, 1stly, of properly ventilating the bles, and, 2ndly, of immediately getting rid all traces of the droppings from the horse, h which end in view, a floor impervious by isture is absolutely necessary.

Loudon says, in his "Encyclopædia of Cote and Farm Architecture,"—"The stable which the horse is lodged should have its ors and windows to the south-east, as the dest aspect, and in general have all its nings on one side, and in the roof, to pret cross drafts of air. It ought to be on a soil, or, if on a wet one, it should be raised ve it by a hollow floor, or by materials of a d which will contain interstices of air been the natural surface and the artificial r. All stables should be large, cool, and lable of being well ventilated. The proper perature for a horse is 50 deg. in winter, from 60 deg. to 65 deg. in summer. The mode of ventilating a stable in winter is by trunks or tubes of boards, about a foot square, forming openings under the eaves, or carried up through the ceiling, where there is one, so as to pass through the roof, their tops being covered in such a manner as to exclude the rain, without impeding the ascent of the heated air. The inside openings of all these tubes should have small sliding shutters to regulate the ventilation. In summer, this is best effected by having the windows filled in with hinged luffer boards, or by having glass windows, with outer luffer blinds. In the latter case, the quantity of air admitted, both in summer and winter, may be very accurately regulated by the degree to which the glass windows are opened."

The arrangement for ventilation here pointed out is insufficient; it is simply an improvement on none at all, and even this is not provided in half the stables used. Air should be obtained in controllable quatities, by openings independent of the doors and windows; and, in large establishments, the removal of the vitiated air should be aided by mechanical means,—by the creation of currents irrespective of mere levity and the state of the atmosphere, such as by heat or the Archimedian screw.

In a range of stables for forty horses, recently erected by Mr. Dickinson, in Curzon-street, May Fair, great pains have been taken in this and other respects. An air-flue communicating with the external atmosphere, opens into each stall in two places, full in face of the horse (just above the bottom of the rack), the openings being masked by two pieces of perforated zinc, each about two feet long, and one foot wide. The air, in its passage to these openings, is made to pass over some pipes filled with water, which can be heated, so that in very cold weather, the fresh air admitted to the stables is first raised to a proper temperature. Immediately under the ceiling, are openings into a flue which communicates with a chimney where a fire is constantly burning, by which means the vitiated air is rapidly drawn off. The ordinary means of ventilation, windows and openings over the doors, are likewise provided to meet extreme cases. For closing each of the latter, a sash is used, divided into small squares, whereof every alternate one is left open; a second sash behind this, and about four-fifths of its length, has the corresponding squares glazed, and the others open; and thus, by shifting the latter backwards or forwards, admittance is given to the air either in large or small quantities. Mr. Dickinson assured us that one stall in some old stabling, which we saw (it had a skylight immediately over the hind quarters of the animal), produced more sick horses in the course of the twelvemonth than *the new range for forty-one horses*. It is right to say, that the system of ventilation to which we have referred was arranged by the proprietor, and carried out for him by Mr. Sylvester. As regards stable floors, nothing can be much worse than those commonly laid down, consisting of boulders, or bricks, in a bed of sand. The liquid manure penetrates the interstices, and is rapidly decomposed, giving off large quantities of ammoniacal gas, and vitiating the atmosphere to a great extent.

The object to be attained is, a floor impermeable by liquids, and so arranged that all which is thrown upon it may immediately run off. The writer of a useful article on the subject, in a recent number of the *Ayrshire Agriculturalist*, says:—"Let the centre of the causewayed stall be removed two feet in breadth and five feet in length, measuring from the croup end of the stall. Flags of sandstone pavement, of one foot in breadth, three inches thick, and of convenient length, having the inner or central edges bevelled to such an angle as that, when the two are brought together, there will be a space or central gutter formed like a V, one inch and a half in breadth at the surface, and two inches deep at the apex of the inverted cone, (the bottom of) which space must be filled with cement or pitch,—a slight downward and backward inclination must be given to the paving stones, so that whatever liquid may be dropped upon them, shall be rapidly conducted towards the hind quarters, and from thence conveyed, *on the surface*, to the point in the exterior found most convenient for a tank or reservoir, where it may be stored till required as manure."

Gutters, of the sort here described, could, however, hardly be depended on. Small cast-iron gutters, covered with a close grating fitted loosely into the top of it, are easily obtainable. In each stall there should be, in addition to the gutter behind, a branch up the middle to the extent of half its depth. In each loose box there should be three or four of these gutters in parallel lines, or they may be extended from the centre of the compartment in four directions, like a right-angled cross. Granite pitching, or paving bricks, *in asphalte*, have been used for stable floors, and seem to answer the purpose well. To avoid irregularities, when expense is not cared for, a concrete foundation should be prepared for the paving: to keep back the rats, a layer of broken glass in the centre of the concrete will be found efficacious.

In making arrangements for carrying off expeditiously the whole of the urine, it is desirable to recollect, that if collected in a tank, it is exceedingly valuable as a manure. We saw recently, a fourth cutting of grass from the same field, obtained through the use of it.

Racks are less used than they were, and wisely so. The manger should be divided into two parts, and one of them be made deeper than the other, to contain hay or green meat. In Mr. Cubitt's stables at Thames Bank, each horse is supplied with a lump of rock-salt, placed in a compartment of the manger. In this same establishment, with the view of preventing to the utmost the vitiation of the air, plaster of Paris, saturated with sulphuric acid is sprinkled periodically over the floor to absorb deleterious gases.

We terminate our present remarks with an assurance, that by attention to the ventilation of their stables, and the construction of the floors, all persons who keep horses may effect a considerable saving. A well-drained, impermeable floor, is, as we have already said, of the utmost importance.

COMPETITION CARTOONS FOR THE ART-UNION OF LONDON.

IN order that the committee may determine, what accommodation will be required for the exhibition of the cartoons to be submitted in competition for the premium of 500*l.* offered by the society, artists were each requested to send to the office on or before Monday last, a sealed letter containing his name and address, and having on the outside the title of his intended painting, and a motto or device, by which the cartoon must also be distinguished.

In compliance with this request, twenty-six letters have been forwarded to the office, and the committee are now seeking a fitting gallery to receive the designs. It may be well to mention, that artists who have not sent intimation of their intention to forward a cartoon are not thereby disqualified; this was simply a request, not a stipulation.

THE ARCHITECT OF THE LATE ROYAL EXCHANGE.

SIR,—In your number of the 17th of this month, in a communication "On the Identification of Architects," your correspondent suggests that "it has never been clearly decided if the late Royal Exchange and Temple Bar ought to be attributed to Wren or not?" I never knew the latter doubted, but about the former building, there is generally a misapprehension, which I shall be happy of the use of your valuable pages to clear up. There is fortunately no difficulty in doing this, because the Records of the City and the Mercers, Company upon the subject of rebuilding the Exchange after the great fire in 1666, are perfect and complete. All the more interesting portions have been extracted with great care and skill, and were printed for the use of the corporation in the year 1838. From a copy of these extracts now before me, I obtain the following facts:—

That on the 19th —, 1666, the commissioners appointed to the work summoned to their assistance Mr. Mills and Mr. Jerman, the city surveyors.

On the 9th of November, the committee speak of some "distast," amongst the surveyors, as retarding the work of preparing a design and estimate for restoring the ruined Exchange of Sir Thomas Gresham; a Mr. Hooke, also one of the city surveyors, gives a report and estimate on the 10th of November, on the same subject.

After clearing the ruins and other works, and after some coquetting on the part of Mr. Jerman, in which interval it appears to have been determined that the building should be entirely new, — at a joint committee, held on the 25th April, 1667 the following minute is recorded:—

"The committee, concluding it very necessary at this meeting, to make choyce of a surveyor for directing and overseeing the building of the Royall Exchange, and assisting them in the carrying on that designe to the best advantage, as to substantiallnesse, ornament, and frugality; and forasmuch as Mr. Mills, the city surveyor, hath declared that hee cannot perform that worke alone, and the committee being very sensible of the greate burthen of businesse lying upon him for the city att this time; and considering that Mr. Jerman is the most able knowne artist (besides him) that the city now hath: therefore the committee unanimously made choice of Mr. Jerman to assist the committee in the agreeing for, ordering, and directing of that worke; and, haveing declared the same unto him, hee after much reluctancy and unwillingness (objecting, it might bee thought an intrenchment upon Mr. Mills his right), at length accepted, being assured first by the Lord Mayor and the committee, that itt was no intrenchment, that this wholle committee, at all times, would acquit him from any scandall in that behalfe; then the committee ordered the clarke to acquaint Mr. Jerman with all the proceedinges of this committee about the said building."

After this appointment Mr. Mills's name does not occur again, and the works evidently proceeded with great rapidity, for they were finished within three years and a half from the period of Jerman's appointment. From another entry it appears the name of the architect was Edward, and that a brother, Roger Jerman, was carpenter at the new works. The name is spelt variously, and it occurs as German, Jerman, and Jermin.

At a committee, on the 20th Sept., it was resolved, "That as his Majesty hath much concerned himself with the building of the Royal Exchange, and apprehending it to be the duty of the committee to present him with a view of the drafts thereof, before they proceed to the maine worke," "they desire the lord mayor and four members of the comm., and Mr. Jerman, to wait upon his Majesty with the same."

On the 27th this committee report that "The drafts have been presented to and viewed by his Majesty and Sir John Denham, surveyor-general of his workes, and his Majesty declared his approbation and good liking thereof."

On the 9th Dec. occurs the following entry. "The committee considering that Mr. Jerman, who was chosen surveyor for rebuilding the Exchange in April last, hath not yet received any gratification for drawing drafts and directing the building; they therefore ordered that 50*l.* shall be payed him upon account until further consideration of his merits." These extracts I think you will agree with me, prove that Edward German was the sole architect. In these records Sir Christopher Wren is spoken of, under date of the 7th Jan., 1670, as "Dr. Wren, surveyor general of his Majesty's workes."

The clock and chimes were made by Edward Stanton, under direction of the celebrated Mr. Hooke, at the cost of 120*l.*

"The bells, which were to be ten in number, 'sound and durable,' were cast by Wm. Wightman, founder, at the rate of vj*l.* *vs.* for every hundred weight the said bells shall weigh."

I beg to apologize for having occupied so much of your valuable space, and am, Sir, &c.,

25th Nov. 1845. W. T.

DO THE CITIZENS REGARD THEIR ANTIQUITIES?

St. Helen's Place, December 1, 1845.

MR. TITE presents his compliments to the editor of THE BUILDER, and with reference to an article by Mr. C. R. Smith, entitled "Do the Citizens regard their Antiquities?"—which appeared in THE BUILDER of Saturday—would be obliged by the insertion of the inclosed correspondence. Mr. Tite would only desire to add one remark; viz., that in the statement he made at the "Institute," he intended no reference whatever, to the very respectable gentlemen, whose names are most unnecessarily introduced into Mr. Smith's communication:—

(*Copy.*)

5, Liverpool-street, City, Nov. 19, 1845.

SIR,—I have before me a report of a speech made by you at a meeting of the British Architects on Monday, in which occur the following passages:—

1. "In this, however, they were thwarted by private collectors, who went about amongst the men offering sums of money for coins and other articles. They had been attacked in the public press by one of these, and he would not parry the question, but mention the name of Mr. Roach Smith, *as he had been mentioned by him.*"

2. "Every care was taken for the preservation of this collection complete; in which they, however, were foiled, from the activity of these collectors. Amongst the most active was Mr. Roach Smith, who secured many, and particularly a bell which rang, after which there was a regular chase, but Mr. Smith had the best, and got possession."

I believe the above extracts from your speech, are *verbatim* as they were uttered. Reference has also been made by you to remarks made by me some years since; but mention of page, volume, and work, does not appear to have been added. Whatever observations I have felt myself called upon to make, with respect to the treatment of their antiquities by the "City authorities," I have made *openly*, and *where they could have been refuted, if incorrect.* After a lapse of some years, you have chosen to give utterance (if the report be true) to *most gross misrepresentations* of my conduct, in a place where you must have known *I was not present to refute your assertions.*

I lose no time in protesting against the injustice of the course you have been pleased to take, as well as against the misrepresentations and concealment of facts, which, by the report, it appears you have made; and I assure you, I shall omit no opportunity of contradicting your statement, and of laying before the public *facts* which I can substantiate by full and undeniable evidence. I am, Sir, your obedient servant,

(Signed) CHARLES ROACH SMITH.

William Tite, Esq.

(*Copy.*)

17, St. Helen's Place, Nov. 24, 1845.

SIR,—The extracts in your note of the 19th are, in the main, correct; not, indeed, as having been uttered by me in any set speech at the Institute of British Architects, but as a part of statements made in a slight discussion which followed the reading of the letter of Mr. Hawkins, informing the Institute of the intention of the trustees of the British Museum to open a department for the reception of British antiquities. In that letter the following sentence occurs:—"The claims of archæology, once publicly recognised, antiquities, when discovered, would no longer be ignorantly destroyed or dispersed, but would be scrupulously collected together into one place; the circumstance of their discovery, would be registered with far greater accuracy, and the result, in a few years, would be a most interesting collection of monuments of national art, and the development of the history of successive races, so far as it can be gathered from the evidences of archæology, and as it is exhibited in the museums of foreign countries." Towards the end, the fellows of the Institute are addressed through this public announcement, and a hope is expressed "that, by their authority and example, an active interest in the preservation of antiquities; may be created in the whole body of the profession, and may gradually be communicated to their clerks, and to the foremen, and others more immediately set over workmen employed in labours of excavation and demolition."

In congratulating the meeting, in common with other members, on the gratifying announcement of this letter, I took occasion to say, that the object having now been made a national one, I did not doubt of its success: that the attempts made by the corporate authorities of the city of London, to collect a Museum in connection with the City-Library, had been very much thwarted by the *exertions* of private collectors: that the most active was Mr. C. Roach Smith, who, not contented with securing by every means in his power, the possession of curiosities of this nature, had, most ungratefully, attacked those who were anxious to forward his public researches, but not willing to encourage his personal objects. That this gentleman had thought fit publicly to impugn the conduct of the Gresham committee, and myself, inferentially as their architect, in an article published in the *Archæologia*, and, subsequently, in other works; and that, as this was the first public opportunity which had occurred to me of rebutting those accusations, I availed myself of the opportunity to do so.

That it was always expected from the site of the Old Exchange—in the very heart of ancient London — and from the deep and extensive excavations required for the new building, that many interesting relics would be discovered; and, as architect of the building, and a Fellow of the Antiquarian Society, of some standing, I was most anxious that no pains nor expense should be spared to follow out those researches; to identify the circumstances under which any curiosities might be found, to keep them together, either in the City-Library, or to deposit them in the New Gresham College; as the nucleus of a collection, and in connection with a new library, which I hoped would one day rival that destroyed in the Fire of London. To this end I made the following recommendations to the committee:—That the hoarding round the site should be made perfect and sound, to enable the excavators to work uninterruptedly, and to secure a certain control over them: That the contractor should be bound to deliver up to the committee any article which might be found, and to take every possible care of such matters: That the clerks of the works should be desired to watch with the greatest attention, and that the foreman of the contractors should have the same charge: That a large room in one of the houses in Freeman's-court, occupied by the clerks of the works, should be appropriated to the reception, arrangement, and custody of all antiquities so discovered: and, further, to prevent the workmen being bribed to dishonesty, that they should be informed, by a printed notice delivered to them, and extensively circulated, that an account would be kept of what each man might find, and that they would be liberally compensated; but that, on the contrary, every attempt to secrete any article, and to sell it, was illegal, and would be punished. That the Gresham committee adopted these suggestions most willingly, and, with the chairman, were personally anxious, and took much interest in the result.

That some short period after the adoption of these regulations—having entirely for their object the suggestions and recommendations of Mr. Hawkins' letter—I was waited upon by you, requesting an order to enable you to visit

the works at all times. That I gave you this order most willingly, but that I explained to you distinctly in conversation, every one of the regulations adopted, and the reasons which influenced my mind in their adoption: that you then professed your entire approbation of the means taken, and of the motives of the committee and their architect, and your anxiety to co-operate in the carrying of them into effect.

That for some time, and until the excavation approached the west end of the Old Exchange, nothing of importance was found; but that on taking up the eastern end of the old merchants, area, the pit, described in the *Archæologia*, and in my report to the committee, printed by the city, was found, containing the most abundant collection of Roman remains yet discovered in the City of London. That your anxiety to obtain *possession* of some of these curiosities overcame your obvious duty. That notwithstanding every exertion *on our part*, you did obtain possession of some, and one of great interest, a bell which was sufficiently perfect to ring; and that there was then an active pursuit made, not after you, but after this bell, which, however, found its way into your hands. I did not tell the meeting, as I might have done, that the clerks of the works and the contractor's foreman, were constantly complaining to me of your interference with the workmen, until it came to an actual quarrel. That on receiving a letter from you, I had a meeting on the ground of all parties, when you were excessively violent, and threatened to shoot the clerk of the works; but that you assured me that you had not encouraged the men to abstract the curiosities, that you had even refused to buy them, and had sent them back when offered. That after hearing all parties, I told you in their presence, that they were to continue to give you, as they declared they had done, every facility for pursuing your archæological researches; but that as there were three witnesses to your interference with the workmen, I expected, on your part, an abandonment of all such interference.

I stated further to the institute, that all the curiosities thus collected, referring generally to their character, were, as you well knew, arranged with great care by the clerks of the works, and that they were then in my possession in a spare room at the London Institution, under the charge of Mr. Brayley, jun., who had been employed by the committee at some expense, to examine, classify, and report upon them. That there was a difference of opinion in the committee, as to their being preserved in the City Library or the Gresham College; but that it would be my duty to bring Mr. Hawkins' letter before the Gresham Committee.

From this statement, which exhibits the actual circumstances of the case, I now turn to some of your misrepresentations. At page 270, of your article in the *Archæologia*, vol. xix. on these antiquities, there is the following sentence:—"Among the fragments of which was one, as I am informed, stamped with the letters S. P. Q. R.; this I did not see, and I believe it was lost soon after it was in the possession of the Joint Gresham Committee, a fate that has also befallen other antiquities collected for that body." And at page 272, this:—"I regret that the regulations under which I was permitted to make my observations, in the course of the excavations on the site of the Exchange, did not tolerate such free and minute examinations as the importance of the subject required."

If you will refer to your own manuscript of the communication, you will see how much more offensive and unjust this latter sentence originally stood. I was not present at the society when your paper was read, but my attention was called to it by a friend, who pointed out to me also the report of it in *The Gentleman's Magazine;* and a reference to page 79, vol. xvii. *new series*, of that work, will give the character of your charge as it finally was made. The words are these:—"We were sorry to hear the writer state, that the exertions to rescue these objects, so illustrative of the ancient arts and manners, were opposed by persons who alleged they were instructed to do so by the United Gresham and City Improvement Committees, to the great obstruction of his researches."

The sentence in the *Archæologia* itself, was changed on my strong representation, in the proper quarter, and by the authority of a much-lamented and amiable friend of the society, then one of the directors. After what I have stated of your perfect knowledge of all my arrangements, and their object, you will permit me to refer with some astonishment, to page 198 of the same volume of the *Gentleman's Magazine*, where, in a report of the proceedings of the Antiquarian Society of the 13th of January, 1842, I find that you, Mr. C. Roach Smith, produced to the society a very curious "Medalet, struck in lead, found on the site of the old Royal Exchange:—apparently," as you are made to state, "deposited there on the occasion of the memorable visit of Queen Elizabeth, at the inauguration of the original building," having "the inscription ANGLIÆ·REGINA·VBIQUE·HONORATA. Surely, I need not tell you, that the only proper place for such a very remarkable curiosity, could not be any private collection.

I shall not pursue this subject further, nor follow you in your favourite and repeated attacks on "City Authorities." In your letter to me, you threaten some very violent course in an appeal to the public: perhaps, when you do so, you will print this statement; if not, it will be my duty to do so for you.

I am, Sir, your obedient servant,
(Signed) W. TITE.

C. R. Smith, Esq., F.S.A., etc.

ANNIVERSARY MEETING OF THE ROYAL SOCIETY.

THE Royal Society met, according to ancient custom, on St. Andrew's day (Monday last), to receive the auditor's report, and elect officers for the ensuing year. The meeting was numerously attended.

The president, Lord Northampton, was in the chair. The balance in hands of the treasurer was declared to be 2,076*l.* 11*s.* 10*d.* The total number of members is 831, of whom 61 are honorary or foreign. After the president had delivered his address, an admirable composition (ordered to be printed, on the motion of Sir Robert H. Inglis), and the society were about to ballot for officers, Mr. Gassiott, Fellow, whose name appeared in the letters signed "A Contributing Fellow of the Royal Society," which were published in *The Times*, rose to direct attention to them, in order that the author of them might not be elected into the new council. Mr. Gassiott, evidently much excited, but in very well chosen terms asserted, that as a merchant, which he was (and nevertheless he came into the society with the recommendation of a Faraday and a Herschell), the manner in which public attention had been drawn to his name, might have injured him fatally, in proof of which he appealed to some of the leading merchants of London, who sat near him. Mr. Gassiott read a letter from the solicitor to *The Times* proprietors, stating that Sir James South was the writer of the letters referred to, and another from Sir James South, in reply to an inquiry if he acknowledged them, saying the question was such that one gentleman had no right to ask another, and that he should not answerit. He, Mr. Gassiott, condemned strongly the conduct of the writer, in which he seemed to be supported by the meeting, and did not hesitate to call the letters slanderous. The President said he would venture to state, that no one gentleman present required any defence from Mr. Gassiott. With regard to the inquiry made of Sir James South, he hardly knew whether or not it was a fair one. A man either had a right to send anonymous letters, or he had not. If he had, he had a right to remain anonymous. If he had not, it was asking him to criminate himself. He (the President) would consider that Sir James South felt himself to be wrong, and did not feel bound to acknowledge it. He differed even from Sir James South's general proposition, that Fellows should not write F.R.S. after their names, to advance their own interests. It was a great honour, and every man who was a Fellow had a right to say so.

The principal changes in the list of officers were—Mr. George Rennie to be treasurer, in the place of Sir John Lubbock, who finds himself unable to fulfil the duties; and Colonel Sabine, to be foreign secretary, the office held by the late Professor Daniells.

The Society afterwards dined together at the Crown and Anchor, when a large number of toasts were ably and pleasantly proposed by the noble Marquis, and were responded to by Sir John Lubbock, Colonel Sabine, Captain Smythe, Mr. Amyott, Dr. Roget, Mr. Godwin, Mr. Greenbough, Mr. Samuel Warren, who humourously defended the "non-contributing" fellows, Dr. Parris, Mr. Sheepshanks, and others.

ASSESSMENT OF DILAPIDATIONS.

SIR,—In the query proposed by "a Surveyor," in your last number but one, whether in the assessment of dilapidations as against a tenant under covenant to repair, he can "make a charge for occupancy during the time necessary to complete those repairs," your correspondent appears to have fallen into the common error, of confounding *repairs* with *dilapidations*, whereas these two things are altogether dissimilar as well in their wrongs as in their remedies.

A tenant under covenant to repair, is entitled to a certain notice (usually of three months) detailing the repairs required. Should he neglect within the specified time to complete such repairs, your remedy is by ejectment for a breach of covenant.

Dilapidations are actual damages done to a property by waste or otherwise, beyond fair wear and tear. The remedy for dilapidations is by an action for damages by waste, misuse, &c.

Rent can be taken of a tenant only under his own covenant to pay such rent. Dilapidations are damages which no covenant can reach, otherwise their remedy would lie in ejectment, and can be claimed only on expiration of all covenants. Hence it is evident that no rent can be claimed under a covenant which does not exist; and rent can only be claimed under covenant. There is no case upon the books in which a loss of rent during repairs has been allowed in enhancement of damages by dilapidation. For my own part, I should not think it likely that such a claim was ever made, seeing that it is at once met by the reply—"If you were discontented with the state of the property during the existence of the lease, why did you not give notice of repairs? in which case no loss of rent could have accrued, and if such notice had been disregarded, you might have brought your action in ejectment, and by recovering possession of your property, prevented all the waste of which you now complain."

Nor would it be a sufficient answer on the part of the landlord that he was not cognisant of the want of repair during the term. Because he has reserved to himself a right of entry to view and survey, and therefore it will be supposed that he has exercised such right, and has been satisfied with the state of his property.

Again, it must not he forgotten, that a tenant whose term has expired, has no legal possession of the premises, and consequently is unable to perform repairs required of him as dilapidations. How, therefore, could a loss of rent be charged to him, when he at least can exercise no occupation, and when, for all he may know to the contary, another party may be actually in possession, and paying rent.

Property has its duties as well as its delights, its drawbacks as well as its advantages. Loss of rent during repairs of dilapidations, must be considered as a charge which it imposes. Lucky indeed is that landlord who has no greater grievance to complain of.

I am, Sir, &c. GEO. TATTERSALL.
42, Pall Mall, 26th Nov. 1845

CAMBRIDGE ANTIQUARIAN SOCIETY.—We learn that the council of the Cambridge Antiquarian Society have called a meeting to propose various arrangements for the promotion of its efficiency as a society for the study of history, architecture, and antiquities, and that persons favourable to such object who are not members of the society are requested to attend. In looking at the list of the council as given on the cover of its last publication, we see that Professor Willis is the president, Mr. Babington treasurer, Mr. C. W. Goodwin, secretary; and that amongst the council are the names of the Masters of Clare hall and St. John's college, Professor Corrie, the Vice-Provost of King's college, Rev. J. J. Smith, Sir H. Dryden, Rev. Jas. Goodwin, &c. &c.

WESTMINSTER COURT OF SEWERS.

On Friday, the 28th of November, a Court was held. The cash at the bankers was 17,098*l.* 7*s.* 1*d.* An application from the Holborn and Finsbury Commission to join in the expense of a new sewer down Shire-lane, Temple-bar, was declined, on the ground that large improvements were in contemplation in the locality, and that it was unnecessary to use the city outlet, when there was one in the Westminster commission quite contiguous.

Mr. Dowley brought up his report as to "the materials, &c., required for the new establishment of labourers and bricklayers, by whom all works under 50*l.* and the cleansing of sewers and gullies, are to be performed." Mr. Leslie moved that the report be printed, and taken into consideration at the next Court. Mr. Marriot having seconded the same, Mr. Donaldson objected to printing the report; he was satisfied there must be different yards to deposit the materials; there must be yard foremen to book the materials as they came in and went out. Although he felt convinced great confusion would arise from the change, still he thought that it should have a fair trial. The report should originate with the honourable mover, to prevent him from hereafter saying the plan had failed from the want of foresight. He ought to have the money, whether it were 1,000*l.* or 2,000*l.*, but the Court must be assured that he approved of the plan.

Mr. Baylis, Mr. Hawkes, and Mr. F. Grace concurred in throwing cold water on the plan, and fixing the responsibility of carrying it out, on the proposer. They objected to print the report. Mr. Le Breton thought this course unfair, and Mr. Cumberlege expressed his determination to take his share of the responsibility attaching to the general scheme he had helped to carry.

Mr. Allason thought the subject one of the most important that had ever been before the Court. The plan might succeed, or it might fail. He thought the honourable mover and seconder ought to be held fast as to responsibility. The Court, no doubt, would be inclined to give them all the aid in its power. He would confess that he was unfavourable to it, but at the same time he would render every assistance to carry it out. The Court must look to Mr. Leslie that the way in which he proposed to carry out his plan was a reasonable, proper, and judicious one. Mr. Dowley's mind was not Mr. Leslie's mind, and, therefore, the honourable commissioner, and not the surveyor, ought to be held responsible.

Mr. Leslie felt grateful to the gentlemen who had proferred kind assistance in carrying out his plan; but with all their kind expressions, they had not had the ingenuity to conceal their deadly hatred to it. It was the final blow to the forty years' monopoly of the contractors in that Court, and it was to be expected that much vexation on that account would exhibit itself. The real state of matters would shew that he (Mr. Leslie) did not come down to the Court with crude and ill-digested plans, but plans that could be carried out. The friendly feeling towards the plan could not be better evinced than, by looking at what the Court had been doing since the plan had been twice approved by the Court. Why they had dismissed the two surveyors, and declared that there should be no assistant-surveyors at all, and this immediately after the Court had twice wisely resolved to do itself, without contractors, all works under 50*l.*, and the entire cleansing of the sewers.

Mr. John Gunter thought the Court was bound to assist Mr. Leslie, and not to allow any parties to frustrate that which the Court had promised to do, by ordering and sanctioning his proposition.

The Chairman said, the simple question was, as to printing an imperfect document. The whole figures being in pencil, it was clear to him that it had been hastily prepared by their officer. It was then resolved to refer the report back to Mr. Dowley, and that he should submit it to the mover and seconder of the plan.

A long discussion then ensued as to the power of the Court to build sewers where none had before existed; Mr. Le Breton contending that the Court had the power, and Mr. Marriot declaring that the most minute trifling surface drain, when it passed the property of favoured commissioners, was a sufficient excuse to put the district to the expense of building a new sewer; and he instanced a recent expenditure in Brompton-road as a proof of what he said. There was no clear principle laid down, and consequently no security to property.

Mr Donaldson loudly complained of Mr. Marriot's statement. "We are all involved (said the honourable commissioner) in his attack, and I, for one, defy him to prove his assertions." Mr. Marriot said he was sorry if he had gone too far, for he intended to cast no individual reflections, but it was for the honour of the Court and its credit with the public, that there should be some regular plan laid down, and then the public would know what could be done and what could not, at the public expense. The chairman, without disputing his friend Mr. Le Breton's law, stated, that it would be unjust to call upon the public to pay for the advantage which was solely to private property. The matter then dropped.

*** We cannot understand honourable commissioners, who would throw upon the mover of a resolution passed by the Court, the responsibility for its success or otherwise. A motion when carried, becomes the resolution of the body, and with that body, not with any individual, rests the responsibility.

On Wednesday last, the committee appointed to prepare a reply to Mr. Leslie's pamphlet, in compliance with Sir James Graham's letter, brought up their report to a special Court. It was adopted, and is by this time in the Secretary of State's office. Of this, hereafter.

THE MORAL AND INDUSTRIAL TRAINING SCHOOLS AT SWINTON.

These schools, which are now nearly completed, are sufficiently important from their object, and their extensive scale to require some notice. They have been erected at Swinton, near Manchester, for the education of the pauper children of the parish, are fitted up with every convenience requisite for teaching various trades and occupations, and are no doubt well calculated to be the means of conferring important and solid benefits upon the poor of Manchester. Extensive as the building is, its size is not at first apparent. The general plan forms a quadrangle, covering, independent of the garden, four acres of ground, the principal front being 460 feet in length. The arrangements comprise, school and class-rooms for boys, girls, and infants, work-rooms, sick and fever wards, a dining-room, which serves also for a chapel, domestic offices, a surgery, lavatories, and masters' rooms. The design was by Messrs. Tattersall and Dickson, the superintendence and completion of the building being mainly due to the latter. It is in the Elizabethan style, the materials being red brick with stone dressings. Approached from the Manchester road, the main front has a more imposing effect than we recollect to have seen elsewhere, a modern example of, in the same style of architecture. The breaks and gables, and the centre and its balustraded steps, are composed with much skill and effect in the result. In the centre rise the two turrets. There is much stone work about the entrance, and the details partake largely of the Italian style; indeed, whatever merits there may be in the building, there is nothing which could not have been quite as well treated in a purer style of architecture than that employed. In the interior, there is little in the way of decoration to call for notice; the board-room is, however, a good apartment, with some tolerable furniture. The great merit of the building consists in the manner in which every part is adapted to the object of instruction in the various trades. The lavatories are fitted up with numerous basins, in rows, cut out of blocks of stone, and with large baths for complete immersion. The total cost is understood to be about 40,000*l.* The arrangements for ventilation cost 5000*l.* (!) and were under the superintendence of Dr. Reid. Though this amount may include the heating, it appears enormous. Considering that Dr. Reid's plans do not appear to have yet met with any great success, we are surprised that they should have been adopted. Ventilation is undoubtedly a matter of paramount importance, and by no individuals is held to be more so than by architects. If every architect of a public building had had some thousands allotted to *him*, solely for ventilation, and experiments in reference to it, the successful ventilation of large buildings would not be, as it still is, a desideratum. However important ventilation may be, and we are prepared to argue the great importance of it, it is not to be sought to the detriment of other objects; the convenient arrangement of a building should not be sacrificed, much less the stability, and the beautiful is quite compatible with it. In the building here noticed, the turrets perform the office of ventilating shafts; the air is warmed by hot-water pipes of large bore, and is passed through the building by enormous flues, built out into the rooms in the most unsightly positions; some of them, we may venture to say, are not less than three feet square. In the principal school-rooms, the air is admitted by numerous holes drilled in the floor, and passed out by valved apertures in the ceiling, which can be regulated. The dormitory is over the school-room; but as the two apartments could never be in use at the same moment, the ventilation of the upper room is provided for, whilst its occupants would not breathe the vitiated air.

In a communication, lately received from a valued friend, one of the board of guardians, he says—"The apparatus has been tried as far as it is completed, and found to work well;" further he says, that he is "anxious to do justice to a man who has been attacked by witling senators, disappointed patentees, parasites of Mr. Barry, and a score of others, who, from various motives, have been induced to injure the reputation of one who, I honestly believe, to be practical in his views, and honest in his intentions." In reference to this we may say, that no fair trial can take place till the building has been used for the intended purposes in the full extent, which it cannot have been hitherto; that Dr. Reid's plans have been objected to by men of every description and party, who have had lamentable experience of their inefficiency. We are not aware of any instance of their success. They are enormously expensive, and injurious to the building and its objects, and should no longer be persisted in. Every architect is able to receive valuable information from men of science, eminent in their own walk, and is anxious to seek it, but it is on him that the arrangement of every part should depend, and no successful issue can be arrived at by any other course. Ventilation, as now managed, be actually destructive of the health, which it is expected to benefit, it would be positively better to leave it quite unattended to; at least, we venture to say that a skilful architect, if unfettered, would produce a better result, and at the same time consistent with any other end which, in late attempts at ventilation, is deemed an after consideration. The ventilation must be adapted to the building, not the building to the ventilation. We shall always be anxious to meet with any valuable suggestions from Dr. Reid or from any other individual, and should a instance of success in any plan be shewn to us shall gladly record an opinion in its favour. But, at present, the evidence as to Dr. Reid's system is strikingly unfavourable. * *

STONE STAIRCASES, UNDER THE BUILDINGS ACT.

Sir,—I lately commenced erecting a dwelling-house, which, I believe, comes in the first class of buildings. In ignorance of the provisions of the New Buildings Act, I commenced a stone staircase, but did not provide for supporting the stone landings by fire-proof constructions in the passage, &c.; I am now told I must do so; and having referred, when too late, to the Act, this certainly appears to be the intention thereof. If so, I shall be compelled to put up a wooden staircase the same as my passage, &c., and may never have an opportunity of bringing in my stone staircase as it is of peculiar construction. Perhaps you may be able to suggest some way in which I can use my stone steps with the landings I have fixed. To me it appears unaccountable that all the staircase, passage, &c., may be of wood, but not a part. Perhaps you can throw some light on the subject, and oblige

Your constant reader,

A Mason.

*** The wording of the Act in this respect is precise, and seems to leave no discretionary power. The regulation is certainly anomalous. We should be inclined to send the question to the referees.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At an ordinary meeting held on Monday last, Mr. Papworth, V.P., in the chair, Mr. W. C. Reed was elected an associate. A candidate as Fellow, was black-balled, on what account did not appear.

A paper was read on the *Kentish Rag Stone* by Mr. J. Whichcord, jun., associate. The district in which it is quarried is about thirty miles in length through the central part of Kent, and is about four to ten miles in breadth. This district comprises the towns of Sevenoaks, Maidstone, and Lenham, &c. The quality of this stone is very variable, being in some districts hard and flinty, and in others almost as easy to work as Portland stone. It is in the quarries at Boughton, in the neighbourhood of Maidstone, that the best qualities of stone are procured, and as the men employed in them often find among the rubbish stones of a spherical shape, some as much as 12 inches diameter, and similar to those employed for the artillery of the fourteenth and fifteenth centuries, it is not improbable that at that period these quarries supplied stones for that and other purposes in the metropolis. It was to this quarry that Mr. Whichcord confined his observations, and a diagram accompanied his paper, which shewed the various layers of stone and hassock,—the technical name given to a species of sand which invariably intervenes between the different strata of stone.

These layers are about twenty in number:—Firstly, the land rag, which is a hard stone, dark in colour, and is to be procured in lengths of five or six feet. This first layer is about fifteen feet from the surface of the ground, the intervening space being occupied by the vegetable mould; then a deep bed of loam of different qualities; and lastly, three beds of hassock, separated from each other and the loam by three shallow layers of ferruginous sand. The second layer of stone is termed header—laying, on account of its being principally used for small headers. Next in order is the green rag, which is free of working, and easy to be got in lengths of about six feet. The hassock, which divides this and the next layer of rag, is indurated enough to form good working stone. We then have a layer used principally for paving, and called yellow rag, succeeded by the pelsea, from which the largest stones can be procured, hard and strong in quality. Then the coleman and little coleman, separated by the hassock, and both of which give stones too hard and flinty to be used for other purposes than headers, &c.

We now come to the thickest layer, called great rag, which from having many cross fissures cannot be got in blocks of any length, and is therefore used for headers or else for lime. The bed of hassock which lies directly under the great rag is of very superior quality, and resembles the Reigate stone. It is used by the masons for their benches, and stands the weather exceedingly well. We then have the Newington cleaves, which is hard and difficult of working, but yields stones of large size. The next layer is an exceedingly shallow one, and is so flinty, as precludes its use for other purposes than for macadamizing roads. Then the Whiteland-bridge, from which stones of 12 feet long can be quarried with certainty and ease: it is of a blue colour. The next in succession is the Mainbridge, resembling the preceding layer, but from which stones of so large a scantling as from the Whiteland-bridge cannot be procured. Then comes the garl, used generally for headstones: it is separated by a bed of hassock, thicker than the others, from the Horsebridge layer, which gives good stones, of nearly 15 feet in length. We then find three beds called the header-layings, with their alternate beds of hassock; these are very inferior in quality, and of little depth. The next two layers are called the upper-bottom and under-bottom; they yield stones of fair quality and large dimensions. The hassock which separates them is rubbishy, and that which follows the under-bottom layer is exceedingly soft. We now come to the last layer, which is called white rag, resembling chalk in appearance, and useless as a stone, as it crumbles in the atmosphere. It reposes on a bed of hassocky clay, beneath which the quarrymen have not penetrated: it is very doubtful whether any limestone is to be found lower than this.

The author then alluded to the various modes of dressing the different kinds of rag stone, and mentioned that the small hassocky spots which occur continually, in it render it unfavourable for tooling, as they give it the appearance, when smooth, of bad Portland; it is, therefore, usually picked. He also stated that, although the harder qualities of Kentish rag stone are scarcely inferior to granite in resisting pressure, the vents occurring in it render it dangerous to use as a bearer.

The following analysis was made by Mr. Phillips:—

KENTISH RAG STONE.

Carbonate of lime, with a little magnesia	92·6
Earthy matter	6·5
Oxide of iron	0·5
Carbonaceous matter	0·4

HASSOCK.

Carbonate of lime	26·2
Earthy matter	72·0
Oxide of iron	1·8

CHURCH NEWS.

The inhabitants of Rotherham are about to restore the south porch of their ancient church to its original state. The works are entrusted to Messrs. Weightman and Hadfield, architects.——The new church at Rise, in the diocese of Bangor, was consecrated on the 12th ultimo. The interior of the roof is painted blue, and studded with gilt stars. There are four stained-glass windows. The east window is a representation of the last days of our Saviour upon earth—the crucifixion, the taking down from the cross, &c. The walls are decorated with scrolls with appropriate texts of Scripture. It was built at the sole expense of Mr. Bethell, from a design by Mr. Chantrell, of Leeds, architect.——On Wednesday next, the 10th inst., the nave of the Holy Trinity Church, at Hull, will be re-opened by the Rev. Dr. Hook, Vicar of Leeds.——The church of St. Mary De Crypt, Gloucester, was re-opened with great pomp on Thursday week.——An organ has recently been erected in St. Paul's Church, Herne Hill, by Bishop. The case in which it is contained, is of carved oak, cut by the machine of Mr. S. Pratt, of Bond-street; the cuttings are of quatrefoils, gothic and heraldic devices. It may be said to be in two compartments, being placed on each side of a gothic window, richly painted, at the west end of the church. ——In the process of taking off the whitewash from the interior of the Hungerford Chapel, in Wellow Church, thirteen distemper drawings, representing our Saviour and the twelve apostles, have been discovered around the east window. The larger figures, eight in number, are about half the size of life, and the colouring of the whole is said to be well defined.——It is intended to make some extensive renovations and improvements in the parish church of Liddington, Wilts, including a re-pewing of the church throughout, with the view of increasing the accommodation, which is much wanted.——The sum of 2,600*l.* Three-per Cent. Consols, has recently been transferred by Miss Jane Cook, of Cheltenham, to the trustees of the London Society for promoting Christianity among the Jews, for the purpose of enabling the church on Mount Zion, according to the plan proposed by their architect. ——George Liddell, Esq., has lately given a plot of ground, as a site for the new parish church of St. Paul, at Hull. The value of the donation is ascertained from the fact of 850*l.* having recently been refused for this piece of land. ——A monument has within the last week been erected in Gloucester Cathedral, to the memory of the late Major William Davy. It is of Chilmark stone, and consists of a central canopy, crocketed and crowned with a rich finial, flanked by clustered buttresses, terminating in pinnacles, and supported by corbel angels, bearing shields with initials. The family arms and crests are emblazoned in panels under the tablet, and in the spandril of the central arch. The inscription is engraved in the old black letter, with rubricated capitals. It is designed and executed by Mr. Osmond, of Salisbury.——The church lately erected at Woolfardisworthy, Devon, was consecrated on Friday last, by the Bishop of Exeter. It was designed by Mr. Hayward, of Exeter, and built by Mr. Baker, of Southmolton. The velvet altar-cloth, the chair for the altar, the stone pulpit, and the memorial window, were presented to the church by different persons.——Earl Howe, last week, laid the foundation-stone of the new church of St. Stephen's Woodville, near Ashby-de-la-Zouche, when the Countess, Lady Gore, and the Hon. Captain Curzon, were present at the interesting ceremony.——A new ecclesiastical district has been formed in Cheltenham, and a church, in the early Norman style, to be dedicated to St. Peter, will very shortly be erected. The committee of the Church Extension Society have already fixed upon a site and plan, and have also provided a sum of 50*l.* per annum towards a permanent endowment.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

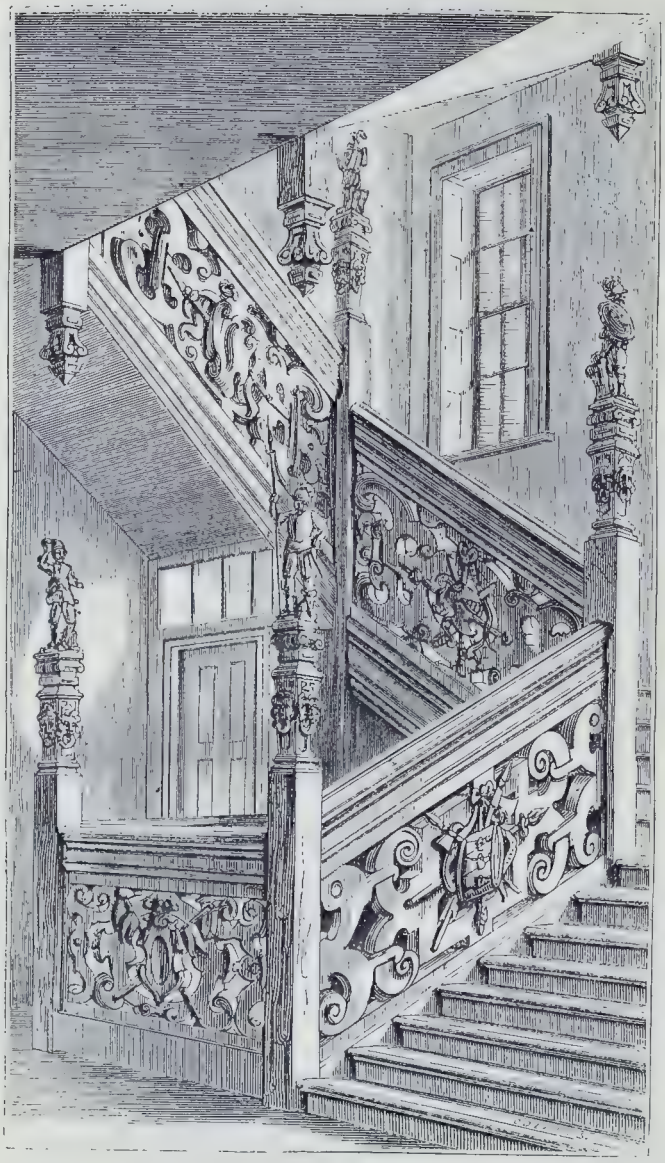
The association met on Wednesday evening last; Mr. Pettigrew, F.R.S., in the chair. In opening the business of the evening, the chairman said, that some discoveries of a very interesting nature had been made during some excavations on the Duke of Beaufort's estate at Badminton, and that his grace had stopped the works until their president and the draftsman of the association could visit the spot. Amongst a variety of antiquities exhibited, were some ancient swords, which led Mr. Planché (when describing them), to inquire if any information concerning the sword of Charles I. at Whitehall, removed from the scabbard, had been obtained. Mr. Crofton Croker, the hon. sec., said he had addressed Lord Lincoln on the subject, but had not yet received a reply.

Allusion being made (in the course of an interesting conversation on the preservation of monuments), to a letter in *The Times* of the preceding day, stating that the tombs of Henry IV. and his queen (at Canterbury), were about to be repaired in a doubtful manner, at a cost of 1,600*l.*, Mr. Pratt, the proprietor of the carving machine, said that parts of the tomb were now in his hands to be copied exactly.

Mr. C. Roach Smith, read a valuable paper on Roman antiquities found in and near London, which he exhibited, and at the end of it, brought before the meeting the statement made by Mr. Tite at the Institute of Architects, and his own letter on the subject, given in The Builder last week. Mr. Smith also read a correspondence with Mr. Tite, which appears in the present number of our journal, and answered in detail the particular charges brought against him; which charges, he argued, from the circumstances under which they were made, were intended to discredit the Archæological operation through him, their secretary. Mr. Lott, F.S.A., Mr. Jerdan, the chairman, and others, addressed the meeting on the subject, and a resolution was passed, expressing regret that Mr. Roach Smith should have been subjected to the attacks complained of, and thanking him warmly for the disinterested zeal which he had ever exerted himself to preserve the antiquities of the city.

Repairs of Maynooth College.—The *Globe* says, the board of Maynooth College recently made an application to Sir Robert Peel, stating that the sum of 30,000*l.*, allocated for repairing the old and erecting new buildings, would fall far short of the requisite amount, as appeared by the plans and estimates of Mr. Pugin, the architect, which were forwarded to the right hon. baronet, and it was submitted for the consideration of Government, whether, under such circumstances, an increase of the building fund should not be made. The reply of the Treasury was read at a meeting of the board on Friday se'night, peremptorily refusing any increase whatever. Already upwards of 2,000*l.* have been expended by the Board of Works in the repairs of the old college buildings, and much remains to be done, independently of the new buildings. The board, having no alternative, determined to call on Mr. Pugin to make a corresponding reduction in his plans and estimates, in order that the sum allocated should cover all expenses. A building committee was appointed to consult with the architect, consisting of Archbishops Crolly, Murray, Slattery, and M'Hale; Right Rev. Dr. Kinsella, Lord Ffrench, Sir Patrick Bellew, and Mr. Hussey.

STAIRCASE, CROMWELL HALL.

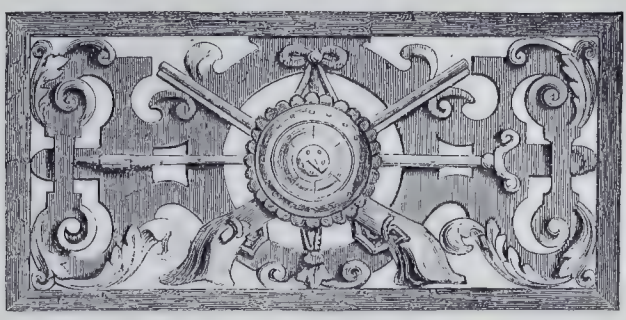


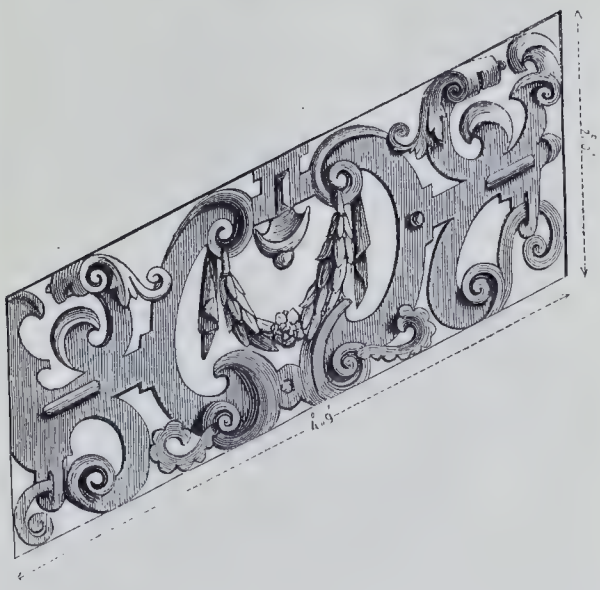
STAIRCASE AT CROMWELL HALL, HIGHGATE.

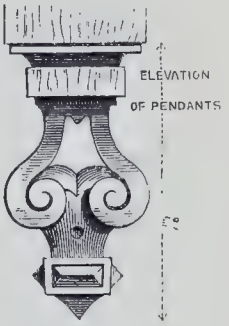
Highgate, so well known to every Londoner, was formerly enriched with several magnificent Elizabethan mansions, which have long since disappeared. Among them was Dorchester House, a view of which, copied from a very rare print, will be found in Mr. Prickett's small volume of the "History of Highgate." In the collection of drawings by John Thorpe (preserved in Sir John Soane's museum), which are of the date of Elizabeth and James I., there are plans of houses at Highgate, but no elevations or names are added to them.

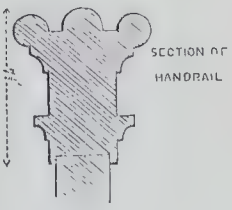
Of the interesting old building known as Cromwell Hall, in this neighbourhood, very little information, besides what the building itself affords, can be obtained. In this particular it is not at all singular, as there are several ancient buildings of important character both in the neighbourhood of London and throughout England, of which the names of their first possessors have been lost; an old shield of arms placed in some conspicuous part of the structure, if it can be deciphered, is generally the only guide which will throw light on the subject. Sometimes, instead of one shield, we find a great number, as many, perhaps, as twenty, belonging to the ancient gentry in the neighbourhood, or it may be the armorial bearings of those families with whom the proprietor was connected by relationship, but not so closely as to entitle him to place them in his own escutcheon in the proud situation of regular quaterings; of course, when this is the case, we are in the dark as to who possessed the house. For an instance of this kind we have the old manor-house of Hollingbourne, in Kent. If a shield of arms, either in plaster or stone, is placed singly in the centre of a ceiling, or over a fire-place, such may, without fear, be given to the person who erected the building, unless, as was frequently the case in the civil wars, the proprietor of a sequestrated estate removed the eye-sore (to him) of the real owner's shield, and substituted his own. Whether this was done at Cromwell Hall, without having the names of the parties who, one after the other, had been owners of the building, it is hazardous to say. The house is universally supposed to have been built for, and inhabited by, General Ireton, who married, in 1646, Bridget Cromwell, eldest daughter of the protector; a shield of arms on the ceiling of the drawing-room has, without examination, been pointed out as belonging to Ireton, and with like carelessness, the monogram A. C., in one of the fire-places, was said to represent the initials of Anne

DETAILS OF STAIRCASE, AT LARGE.









Cromwell his wife. Ireton bore on his shield, *ermine, two bendlets, gules;* the plaster shield on the drawing-room ceiling at Cromwell Hall has *two bars gemal, and in chief a lion, passant gardant.* I am indebted to a friend in the Herald's College for the information, that this coat stands in an ordinary of arms, tpe. Elizabeth to Tregoze, being *azure, two bars gemal, and in chief a lion passant gardant, or.* He remarked that a similar coat, but with different tinctures, might have been used by some proprietor of the old house, of an entirely different name, and that there was no match whatever to it to be found in the pedigree of Cromwell.

The name of Tregoze is not mentioned in any topographical history of Highgate, and the connection of General Ireton's name with the building appears to rest upon no other foundation than that of tradition. Norden, in his account of Highgate, speaks of a "faire house," the situation of which exactly resembles that of Cromwell Hall. He says:—"Upon this hill is most pleasant dwelling, yet not so pleasant as healthful; for the expert inhabitants there report, that divers who have long been visited with sickness, not curable by physicke, have in a short time repayred their health by that sweete salutarie aire. At this place — Cornwalleys, Esquire, hath a very faire house, from which he may with great delight beholde the stately citie of London, Westminster, Greenwich, the famous river of Thamyse, and the countrey towards the south, verie farre."

This Cornwallis, Lyson supposes, was son of Sir Thomas Cornwallis, a man of considerable eminence in the reigns of King Edward the Sixth and Queen Mary; he led a retired life during the reign of Queen Elizabeth, and died at a very advanced age in 1604. It is probable that the monogram A. C., previously noticed, might belong to a descendant of this Sir Thomas Cornwallis, one who bore some part in the first erection of the building; as to the personage for whom it was intended, I must leave the inquiry in the hands of those who have more inclination and more time than I have to pursue it; there can be little doubt from the style of the building, that of Charles the Second, and from the decorations of the interior being of a military character, the house must have been intended for an officer of distinction. If he had been a royalist, his shield would probably have been well known, and his name preserved, but those of the other party have fallen into such obscurity, that there is possibly no chance of obtaining the information we seek after.

Cromwell Hall was erected, I should suppose, about the year 1650, and the style is that order or class of Elizabethan architecture so common during the reign of Charles the Second. This style was gradually lost; specimens of it may be seen as late as the reign of Queen Anne. The richest part of the structure of Cromwell Hall is the staircase; and this alone gives undeniable proof that the house was erected for some great military commander. The print shows a view of the staircase on the ground-floor; it is carried from the basement to the attics in the same style.

Of the design of the staircase it is hardly necessary to remark, it is deserving of great praise; nearly all the bays, of which there are thirteen, are different; so are all the small figures on the top of the standards; these are carved by no mean hand,—their expression and attitudes are admirable. Some are represented as playing on drums and fifes, the military band of the infantry of the day, as the trumpet, cornet, and kettle drums formed those of the cavalry; others are saluting, mounting guard; some of them are supposed to be portraits, and that they should be so does not appear at all unlikely, so well are some of them executed. One has been stolen, or, to use a polite word, *appropriated*, by some thieving self-imagined antiquary. The real antiquary, supposing the figures were in safe keeping, would rather see them in their original position. The lost figure is said to have represented Oliver himself,—it was the last on the top of the staircase; his statue, however, would hardly have been put where it could only have been seen by the domestics. These figures are each 1 foot 7 inches high,—some of them have been sadly mutilated; the costume is mostly that of the soldiers of Cromwell's army, but in one or

two the costume approaches nearly that of the reign of James the First.

The character of the ornamented bays will be best seen by the two, given in detail, on the preceding page; the whole are of similar character, containing within the scroll-work, shields, arms, such as helmets, breast-plates, swords, pikes, and flags; musical instruments, wreaths of laurel, &c.; in some are represented instruments of war of earlier date: many of the small figures in the standards have circular shields on their left arms. In the whole of the bays the artistic filling up of the space, and the leaving of proper voids, is capitally attained.

The building contains a great deal more of detail interesting to the architect. The front itself is a good specimen of the heavy moulded brickwork of the day; several of the rooms contain richly-ornamented plaster ceilings,—one in particular is extremely handsome, and the quaintly carved door-frames leading into all the rooms from the staircase, must not be forgotten. Several of the plaster friezes in the rooms are of much earlier style than the building itself; they were the plasterer's stock patterns of the day: some of them I have met with in old buildings in Yorkshire and Somersetshire. The rooms are of a noble size, and indeed the whole building is planned on a grand scale; it is admirably adapted for its present purpose, the education of youth on the French system: the establishment is called College Français de Londres, the master is the Rev. G. V. De Linde Monteuuis. This gentleman kindly permitted me to inspect the building, for the purpose of making the sketches engraved in the present paper. C. J. R.

COLOURED DECORATIONS.

At a meeting of the Decorative Art Society, on November 26th, a paper "On Chromatic Decorations," was read by Mr. E. Cooper. He commenced with a chronological review of various modes of applying or using colour in Egypt, and on the continent of Europe, from remote times to the end of the 17th century. In referring to the stupendous and richly-decorated remains of temples and porticos in Egypt, he commented on the dull and opaque colours, contrasted with mat and burnished gold (laid on in leaves) which are found therein, and also upon mummy cases; he described the coloured intaglios on the walls, and the painted ceilings of deep azure, studded with stars in the temple of Medeenet Haboo, at Thebes; he exhibited drawings of Egyptian ornament of excellent design, and remarked that no progressive improvement in decorative art is discernible in these works.

The temples of Greece were then noticed, where colour was applied to capitals, frieze, entablature, and the back-grounds of the tympanum; also on the ogee mouldings, where honeysuckle, egg, and other enrichments were painted or stencilled; and it was observed, that, although no remains have been discovered, it was reasonable to infer, from the eminent state of plastic art, that contemporary pictorial art had arrived at considerable perfection, and the names of some Greek artists were given, on the authority of Pliny and Quintilian. After some remarks on the vases of Greece, and the mural decorations of the sepulchres of Etruria, he directed especial attention to the magnificent baths or thermæ, of Titus, at Rome (erected A.D. 70), and (referring to the illustrations by M. Ponce), he observed that the fresco paintings found there, display in the grouping, drawing, and management of drapery, a refined feeling and knowledge of art; and in his remarks on the colour used, he observed that the decorations were executed, most probably, by Greek artists.

The decorations of Pompeii and Herculaneum, being of the same period, were then described; but, as might be supposed, from their being provincial towns, they would be found inferior in execution and splendour to those of the capital. The arrangement on the walls, of masses of black, red, and white, exhibited a principle which was commented on at some length; and it was also remarked, that these examples do not afford an absolute criterion by which to estimate the perfection of the arts of that or the preceding age. Passing over several centuries, he next noticed the early efforts of Christian art, remaining to us in the mosiacs of the churches and palaces of Italy; and after some remarks on the productions of Cimabue, Giotto, and Leonardo da Vinci, he entered upon a consideration of the decorative works of Michael Angelo and Raphael.

In this period of Italian art, the anachronisms and disregard of relative proportion, in the parts composing arabesque or grotesque decorations, were especially noticed, as well as the enrichments, similarity in design and colouring, existing between the works of Raphael and his school, and those in the baths of Titus, before alluded to, and which were discovered at this time: a striking instance was exhibited, in the decorations at Mantua, by Giulio Romano, and Andrea Mantagna. (See Gruner, plate 24, and plate 5 of the Baths.)

The magnificent decorations by the Venetians were next described, in which massive mouldings richly carved and gilt, divided the surface of ceilings and walls; the coffers or panels being filled with paintings by Titian, Tintoretto, &c., produced a gorgeous effect. The decorations of the ceiling of the sacristy attached to the Duomo, or cathedral at Venice were said to be worthy of recommendation, on account of durability and splendour, for open colonnades in this country (such as at the Royal Exchange); the back grounds were of vitrified gold, and exhibit all the beauty of ancient mosaic, combined with the harmonious colouring and beautiful ornament of the sixteenth century. This century witnessed the rise and decline of fine art in Italy, and in the following one, although we meet with some good artificers, they were mere copyists and mannerists, and not great artists.

In discussion, the terms arabesque, grotesque, moresque, &c., were argued; the modes of lighting, and the principles of *gravitation* of colours on walls of apartments were commented on, and a regret expressed that decorations in the houses of nobility are not sufficiently known or accessible to the inspection of decorators and artists.

CEMETERIES *VERSUS* CHURCHYARDS.

In the course of the alterations now going forward at Redcliffe church, Bristol, it has been found necessary to the security of the walls, by rendering them free from damp, to lower to a depth of several feet a portion of the soil which in the course of ages had risen far above its original level; and in doing this, many graves have been opened, and the bony tenants ejected from their dwellings. This course has naturally been met by great opposition on the part of the parishioners, and it has become a debateable question whether the dead should be allowed to rest, and the walls to decay, or whether the interests of the buried should give way to those of the living, and the bones be removed for the better security of the costly and magnificent temple. It is a painful question, but one that we think must be decided in favour of the building and those who have a living interest in its stability. It brings with it, however, some considerations on the presumed freedom from disturbance, in the rest afforded by the churchyard, and may serve to illustrate the fallacy of the notion, entertained by many, that the repose of the dead is more permanently secured by burial in a churchyard than in the public cemeteries.

That which has happened in the case of Redcliffe, has happened lately or must happen soon, in regard to half the churches in the country. Since the zealous spirit for restoring and preserving our ecclesiastical edifices which distinguishes the present day, has gone abroad, it has been discovered that in order to defend the walls and pavements from the destructive agency of damp, a course similar to that now being pursued at Redcliffe, is in most cases necessary. Constant burial has a tendency gradually to raise the soil of the churchyard; and the most reprehensible practice of burying close up to the church walls produces at once damp, and an instability arising from the removal of the due support, afforded by the earth, to the foundations of the walls. To remedy this there is no other course than to remove the graves.

In the course too, of improvements which the spirit of the age requires, churches have in some instances been swept away to improve the thoroughfares in towns, and the grave yards have been converted into pitched ways.

The new cemeteries, whatever may be the case in future ages, are not at present liable to such disturbances, and therefore they have an advantage in this respect, to add to the very important considerations that recommend them, in a sanatory point of view, over churchyards in towns.*

The truth is, we cling to the idea of superior sanctity in churchyard ground, and of more undisturbed repose existing within the shadow of the churchyard yews, from the associations and habits of feeling that make all venerable abuses dear to us, and which it requires at first an effort of reason to overcome; but which, once overcome, are looked back to with surprise that in spite of reason, they should ever have exercised such influence. It requires only that we grow accustomed to the new system of burial, that the yews and cypresses and willows of our new cemeteries have time to strike deep root in the soil, in order that we learn to associate these cities of the dead with the notions of undisturbed seclusion and hallowed tranquillity, which, in truth more properly belong to them, than at least to *city* churchyards. What spot can have more the aspect of a *home* of the dead, than the beautiful burying ground of Père-la-Chaise? It is not gloomy—it is not gay; but has a sort of cheerful solemnity completely harmonizing with the tone of mind in which death should be contemplated by the Christian.—*Great Western Advertiser.*

* "In large towns, and among a compact population, as in London, where the daily expenditure of nervous and muscular energy of the majority of its inhabitants is so constant and so excessive—where with the professional, the literary man, the artisan, and the various classes of a most industrious and hardly-worked community, the toe of the night (more especially in crowded busy neighbourhoods) treads on the heel of the morrow, and the toil of the day is scarcely permitted to be forgotten in the repose of night—how important is it to themselves, their relations or dependants, and the society of which they are units, that during the period when their *power of resistance* against *malurious* influence is weakened by sleep, the atmosphere they are insensibly breathing should be in as pure a condition, or, in other words, as free from mechanical admixture, as possible; how important is it, I repeat, that present legislations should retrieve the errors of the past! A superior education, and pecuniary means, enable the higher classes of society to locate themselves beyond the reach (at least they think so) of malarious influence. The principle is a selfish one—the practice even more than doubtful. May they be warned in time! They have never, as yet, roused themselves from their dangerous dreaming, until the shadows, generally dimly outlined in the distance, have striden as the destroying angel over their own thresholds."—*Interment and Disinterment;* by Mr. G. A. Walker.

THE TROUBLES OF RAILWAY SURVEYORS.

We lately referred (*ante* p. 564), to the opposition which gentlemen engaged in the railway surveys meet with from certain land, owners in various parts of the kingdom, and gave cases illustrating the desperate lengths to which this opposition is carried. Since then several other cases have occurred, affording additional proof, if such were required, of the necessity for parliamentary interference early in the ensuing session.

On Tuesday last, a company of railway surveyors were employed to take the levels, &c., near Islip, Oxon, when they were interrupted by the villagers, who, by main force, put an end to their proceedings.

At the Brentford Petty Sessions, on Monday, six railway surveyors were convicted on a charge of trespass on the grounds of Mr. Wilmot, at Elseworth, and sentenced to a fine of 1*l.* each, with a warning that the highest penalty would be enforced in case of future delinquency.

Last week an attempt was made by the surveyors to complete their operations over the estate of Mr. Leigh, of Adlington, for the London and Manchester Direct, but that gentleman, with a number of servants, forcibly resisted the attempt, and, after a fight, secured several of them, who, on being taken before the Macclesfield magistrates, were charged with a trespass, and were fined 5*s.* each, which, with expenses, amounted to 20*s.*

Another conflict has occurred at Saxby. The scene is related by the *Leicester Advertiser.*—The surveyors belonging to the Peterborough and Nottingham Junction Railway attempted to survey a portion of Lord Harborough's land at Saxby, near Stapleford Park. The tenant ordered them off, but they would not retire. Several of Lord Harborough's men were present, and one of them (Biddle, a keeper) stood before the surveyor, and prevented his carrying the chain forward. This gentlemen then rushed upon Biddle, and

attempted to move him by main force, but not succeeding in that, he immediately drew a pistol, and threatened to shoot him. Nothing daunted, the keeper replied, "Shoot away!" and a slight scuffle at once ensued; but, happily, the pistol was not discharged. Just as this was ended, Lord Clinton, one of the directors of the company, and Mr. Grindley, their London solicitor, came up, and the latter gentleman read a paper purporting to be a permission from Lord Harborough to the railway company to survey. This, however, had no effect upon the tenants and retainers of Lord Harborough. The whole party then moved off. Biddle applied to the nearest magistrate for a warrant against the surveyor, who had threatened to shoot him, which was granted; and the delinquent (a Mr. Charles Frow, of Thorpe, in Lincolnshire) was apprehended in Melton, and shut up in the county prison from Saturday to Monday, when the case was heard before the Rev. G. E. Gillett, of Waltham. Mr. Gillett said he should send the case to the assizes, and should require the defendant to find sureties for his appearance, himself in 100*l.*, and two sureties in 50*l.* each.

At the petty sessions at Ashendon last week, four charges were preferred against two surveyors and their assistants, at the instance of the Duke of Buckingham. The surveyors and labourers employed in making surveys for the South and Midlands Railway were charged with committing damages on a farm at Westcott, the property of the duke, and in the occupation of George Homan. One was charged with breaking a fence, and damaging it to the amount of one penny. Another with chopping up a fence, and damaging it to the amount of sixpence. Others with having each committed damage to the amount of twopence. They were all fined.

Before daylight, as the keepers on the estates about Osberton were on the watch, they were surprised by the strange vision of divers wandering lights. This was thought to be something in the way of poaching, and, pouncing upon the intruders, they found them armed, not with snickle, drag-net, or air-gun, but with brass tubes, long poles and chains, the lights proceeding from divers bull's-eye lanterns. Each party prepared for action, the game-watchers levelling their guns and the intruders their long poles with a flag at one end and pointed with iron at the other, like so many foot-lancers. The keepers, finding the number of the enemy on the increase, beat a retreat, and left the fields unmolested to the foe, who proved to be the surveyors for some line of railway projected between Lincoln and Retford, which Mr. Foljambe had refused permission to be surveyed by day, and of which they were making a stolen survey at night.

Cases of determined opposition, and some of them accompanied by violence, have also occurred at Appleton, about eight miles from York, at Glenfalloch, in Scotland, and at Hammersmith, near London. At Lincoln a *ruse* was resorted to for getting surveys across the property of a refractory landowner. A surveyor held him in parley whilst his assistants performed their work, and then coolly told him his refusal was of no consequence, as the necessary survey was completed. We might fill several pages with similar notes.

St. Mary's Church, at Beverely.—A local paper says that the restorations of this fine edifice are progressing satisfactorily, and the work already executed is done in a substantial manner. A barrel drain of sufficient dimensions has been laid at a considerable depth round the church, which proves very efficient in keeping not only the floor of the nave and chancel, but the whole building perfectly dry. The flagged area and parapet wall, and the approaches to the five entrances, are finished. The foundations of the fabric have been carefully examined, and the basements of the buttresses, the walls, and their respective weather mouldings, repaired and restored to a considerable height; so that the stability of the structure may so far now be considered as secure as when first erected. The interior of the crypt is being proceeded with, and what has for ages seemed only a miserable-looking cellar, choked up with accumulations of soil, and bones and debris of every kind, already assumes a handsome appearance.

FOREIGN ARCHITECTURAL AND COLLATERAL INTELLIGENCE.

The Net-work of French Learned and other Instructional Societies. — The Secretary of State for Public Instruction, Mr. Salvandy, has sent a circular to all the above establishments, calling upon them to furnish him with data of their origin, scope, exertions, means and income, charter of enrolment, laws, and regulations, &c., for compiling therefrom an "*Annuary of all French Learned and Instructional Societies*," to be published regularly every twelvemonth at the expense of Government (!) This work will astonish the world, as it will shew the vast number of such establishments scattered over the whole of the country. It has been before the intention of Mr. Salvandy to combine and connect all the societies with the French *Institute*, whereby, without a meddling or impeding interference, their exertions might be combined and centralized. In connection with this plan, was another, entertained by the corporation of the City of Paris—viz., to provide all the instructional societies of the metropolis with *one common building*, for their collections, meetings, exhibitions, &c.—[At a moment when societies and collections of national antiquities, &c. are everywhere springing up or projected in this country—the idea of an annuary of British instructional societies might be entertained, and a comparison with that of our neighbours lead to beneficial results on either side.]

Government Literary Works in France.—Our readers will perceive, from the list of foreign works, how many are published "by order and expense of Government"—others appear under the patronage of the Secretary of State for *Public Works*; all which, it is almost needless to observe, does scarcely ever take place in this country. But even works, which are printed quite as a private enterprise, are patronized in several ways in France and Belgium, unknown, hitherto, with us. *Individual* subscriptions by the sovereign, as *such*, take place, as a matter of course, in every monarchic country; but the next step taken, in France, is a subscription "*pour les bibliothèques du Roi*," and this amounts to ten or twelve copies. Next comes, then, the subscription "*pour les bibliothèques publiques*," made by order of the Secretary of State of *Public Works*, or any other to which the publication may more immediately refer, by which, a thus patronized work gets *officially* spread over the whole of France, in all the universities, colleges, and other superior schools.

Milan. Atelier of the Sculptor Marchesi. Large Burial-ground "extra muros." — Exalted patronage of arts is not only beneficial in itself, but also by the example it sets before others. The King of Sardinia has done so much of late for art, that the Italians call him another "*Re di Baviera*." H. M. has chiefly bestowed his patronage on the sculptor Marchesi, whose atelier is one of extreme interest even with those who had seen the extensive *art-workshops* of Schwanthaler and Thorwaldsen. It is filled with his own sketches, studies, and models, besides the drawings, pictures, and models of other artists, all which is enhanced by the splendid and costly material in which he executes his works—huge solid blocks of Carrara marble. The style of Marchesi is chiefly formed after that of Canova, and therefore, greatly coincides with modern Italian taste, while it may less tally with that of the other European nations, who have identified themselves rather with the bold and eccentric way of Thorwaldsen. Marchesi has even gone beyond Canova, in adhering to a feminine and meek style of sculpture. He is executing now three most extensive works—some monuments for the late Emperor of Austria; and then nine colossal statues of Carrara marble; a great religious art-work destined for the new church of St. Carlo Boromeo at Milan. The first group of three figures, represents *Religion* with cross in its left—the next a mother with several children, one kissing the feet of the Saviour, personifying *Love*—the last, a blind man led by two virgins, *Hope*. The pedestal, also in marble, will be adorned with profuse flower-garlands, equalling the finest works of the Netherland school. The church will be a *Rotonda* in the Roman style, with high cupola, a deep choir, and half round aisles. Another vast structure, executed by Mr. Aluisetit, is a *Campo Santo*, at the expense of the town-corporation of Milan. As the population of that city nears now 180,000 souls, the necessity for a huge burial ground has been deeply felt, and *three millions* of francs are reserved for that purpose. Besides the open burial-ground, encompassed by a high railing, there will be a great number of sepulchral vaults and sepulchral chapels, to meet the wishes and means of the different ranks of society—a large church, a sepulture of honour or *pantheon*, for deserving citizens, and an open colonnade all around. The style of these buildings will be the ancient Greek or Roman. All this, however, is *marred* by a separation and repartition of the four corners of the cemetery—destined each for the burial of persons who have committed suicide, Protestants, Jews, and children who died unbaptized.—*Allgemeine Zeitung.*

Destruction of Antiquities in the Roman States.—The important architectural monuments of the old *volscan* city of Cora—great and renowned long before the founding of Rome—are no more. Numerous ruins of different epochs, especially the cyclopean walls (contemporaneous with those of *Micene*), bespoke its greatness even in the Roman times. Those beautiful architectural fragments on the *Piazza* before *Sta. Maria della Pietà*—as well as most of the inscriptions; life-size marble figures, the polygons of the cyclopean walls of the city and castle, have all been destroyed of late in various ways, for burning lime, &c. Only the stupendous slabs of rock—15 to 20 feet long—have not been disturbed. The Commission for the Preservation of Antiquities at Rome, does not seem to exert itself very actively.—*Allgemeine Zeitung.*

J. L——y.

WORKS IN THE PROVINCES.

Surveyors have lately been busily engaged in measuring the ground for the site of a new college at Galway. It is to be at the rear of the present college or school of Erasmus Smith's foundation, and to extend across to Bohermore. It will occupy a space of about eight acres, and will be principally built on the ground of M. J. Blake, Esq., M.P., a field occupied by Henry Comerford, Esq.——Sir Watkin Williams Wynn, Bart., has given 200*l.* to build national schools at Ruabon.——Nasmyth's pile-driving machine has just completed the task of driving the piles for the gigantic coffer-dams in connection with the new dock about to be constructed at Devonport for the steam navy. The coffer-dam is 1,650 feet in length by 20 feet wide, composed of three rows of piles driven as close together as possible; in the vast number driven by the steam pile-driver not one was split. The very last duty the machine had to perform was to complete the driving of some piles which were driven by the ordinary means as far as such could possibly drive them; these the steam pile-driver sent down to *further depths*, varying from three to ten feet, proving thereby the superior driving power of the steam, over the ordinary machine. —— A Gas Company has been formed at Sheffield, for the purpose of constructing additional gas works at Grimsby: capital 10,000*l.*, in shares of 10*l.* each, supported by Lord Worsley and a wealthy committee. —— A company is in the course of formation for the construction of wet docks on an extensive scale at Lynn, in Norfolk. Mr. Rendal is the engineer.——With the view of improving the port of Colchester, so as to allow vessels of from 300 to 450 tons burden to reach the Hythe, the following works are in contemplation: to make a new cut from Rowhedge to Stake Reach, on the west side; the point on the Wivenhoe side of the river to be taken off, and the river to be made more navigable to Wivenhoe; the shallow part of the river below Wivenhoe to be deepened; from the termination of the new cut, at Stake Reach to the Hythe, the river to be widened and deepened; to make new quay walls on both sides of the Hythe, and about 60 feet to be added to the river from the eastern side (Mr. Hawkins' premises), so as to form a dock or basin for vessels; to place locks near Rowhedge, so as to form a floating basin or canal from thence to the Hythe bridge. The cost is roughly estimated at 50,000*l.*——The projected Argyll canal is to be provided with locks, or rather tide-gates, 56 feet wide, 250

feet long, and 18 feet deep, in neap tides, and the rest of the canal in proportion, thus allowing the largest steam-boats to pass through with ease, and avoiding the error which has been hitherto committed in all Scotch canals, that of making them so small, that none but vessels of small size can enter them. —— The Kingston Cotton Mill Company, at Hull, have entered into contracts for the building of one immense mill, 167 yards long, 28 yards wide, and 4 stories high. This building will form one side of a square, and it is intended to add two others of precisely the same dimensions. The site comprehends about twelve statute acres, and is within a mile of the town. Upwards of 2,000 tons of castings will be required for this one mill alone. Messrs. James Lillie and Sons, of Manchester, have the credit of designing this unparalleled undertaking, and to them also is intrusted the fire-proof castings, &c.——The town council of Norwich have appointed a committee to consider of the best means of improving the river communication between that city and Great Yarmouth, so as to make it navigable for sea-borne vessels. The committee are empowered to adopt all requisite measures to ensure the passing of an Act, in accordance with the above object, during the approaching session.——The Glasgow theatre was last week entirely destroyed by fire, with the exception of the walls, and these have since fallen.——The remains of a Roman villa, of considerable extent, have been recently discovered near Weatherley, Oxfordshire, and some excavations have been made under the direction of Dr. Bromet. All that has yet been made out is a hypocaust and a bath. These remains are distant about a mile and a half from the palace of the Bishop of Oxford, at Cuddeston; his lordship has taken much interest in the excavations, and has requested Dr. Buckland to superintend the continuance of them.

RAILWAY JOTTINGS.

The rush to the Board of Trade on *Sunday* last to deposit plans, had in it something ludicrous: divers were the disasters that ensued. The great Western Railway was traversed all day long by special trains bearing these precious deposits. One serious collision took place. ——The new station houses are now rapidly rising at Brentwood, upon the Eastern Counties Line; the designs, it is said, combine utility with good taste. —— Mr. Mylne's and Mr. Campbell's portions of the North British Railway have just met at Dunbar, and the line for a distance of several miles may be said to be finished. The station office is now in course of construction.——It is said to be the intention of the Great Western to apply for parliamentary powers to carry a new line to Birmingham on the broad gauge, and that the London and Birmingham have it in contemplation to lay down another set of rails to accommodate their increasing and prospective traffic.——A new railway station is about to be erected on the Eastern Counties Line at Stratford, on a site of ground known as Perkins's Field, and opposite to the present station. The building will be one of some magnitude, and capable of affording greater facilities for increasing the traffic on that line of railway.——A calculation has been going the round of the provincial press, and originating in the *Railway Almanack*, shewing that of thirty-eight of our leading railways specified, four pay a dividend on their capital of 10 per cent. One pays a dividend of 9 per cent. Five pay a dividend of 8 per cent. One pays a dividend of 7 per cent. Five pay a dividend of 6 per cent. Seven pay a dividend of 5 per cent., and fifteen pay less than 5 per cent.——Sir Willoughby Gordon, the Quarter-Master General of the Forces, in his late examination before the Gauge Commissioners, stated that the effect of the rapidity of railways was such that there was as much efficiency with a small army as was formerly the case with a large one. General Burgoyne in his evidence before the same commissioners said, "with regard to the advantages of railways in a military point of view, I may be permitted to observe, that acting on the defensive against an invading enemy, we should have the use of them to the last. They would be of no use to the enemy, because they would have neither locomotive engines nor carriages to put on them. In the old warfare it was a great object to get possession of a road of common mention, which was equally available for either party. It is quite a different thing in the case of railways. I do not consider it necessary, with the modern system of railways, to have troops stationed along the coast. The great reserves would be stationed in the interior." Such results must inevitably lead to a reduction of our standing army. —— The directors of the Eastern Counties railways have ordered an estimate to be made of the expense of erecting an electric telegraph to communicate from the terminus at Shoreditch to Norwich and Yarmouth. At present there is no intention of extending the same benefit along the line to Colchester. The junction between Stratford and the Thames will be opened in a short time, and will connect Blackwall, Cambridge, and Colchester. It verges off near the Stratford station and passes through several meadows to the edge of Bow Creek, which has been dammed in along the banks. The directors of the Eastern Counties have announced, that from the present time they are willing to issue yearly and half yearly tickets for the convenience of residents upon the line. The terms for an annual ticket, the whole distance from London to Colchester, first class carriage, is fixed at 6*l.*, the minimum charge is 10*l.*, which confers a second class yearly ticket from London to Ilford.

Correspondence.

VENTILATION.

Sir,—There is a long letter in your paper of 15th November, on the subject of Ventilation, which tells of a plan of ventilation of a large public building containing about 300 persons, many of whom were afflicted with fever and small-pox, that the system adopted by "an obscure country individual" was so successful, that six years have since elapsed without one case of fever or small-pox occuring. Allow me to ask "A Working Bricklayer" what is the nature of the plan? which at present appears somewhat doubtful.

I have adopted with success, a simple plan viz., having at the top of each window outside, a double blind, with a rebate about ⅜ inch distant in the frame filled with fine perforated zinc plate, the finer gauge inside, and the window-sash regulated by a bolt with holes at distances, so that it can be let down to any degree of opening, allowing the air to pass through numberless small appertures; the inner gauge being kept warm by the heat of the room, causes a degree of warmth to be imparted to the fresh air, and therefore no inconvenience arises. We know that in a tropical climate, the continued heat would be intolerable if it were not from a constant breeze blowing, so that in the finest weather the wind absolutely whistles through the blinds on the windward side of the houses, and it is this incessant change of air that makes it durable and even pleasant, but even then it is not advisable to sit or stand in the draught. I can therefore readily understand how persons must suffer in the Central Criminal Court, who are obliged by their duties to bear the draught of either hot or cold air. It should be more broken and diffused, and I think the plan I have named the most likely to produce such an effect. I am, Sir, &c.

55, Parliament-street, T. B. Lawrence.
Westminster, 27th Nov., 1845.

CABINETS D'AISANCE.

Sir,—In your paper of November 28th, is a letter on this subject, which is one of the utmost importance to the health and comfort of every one who resides in or visits London, and is imperatively urged on the authorities by the additional claim of decency. Public *erections* for this purpose would be expensive and offensive.

In most streets or lanes leading out of the great thoroughfares, are premises which by a small expenditure, may be adapted for these purposes; the rent to be paid by the sewer rates; to be distinguished by some inoffensive mark, and under the direction of the police.

Viator.

Wanstead Park, once the celebrated seat of the Earl of Mornington, is now converted into a brick-field. When the whole of the brick earth is exhausted, the site will be covered with villas.

Miscellanea.

Bad Ventilation of Places of Worship.—Churches and chapels, though more lofty than schools, are usually less in area, in proportion to the numbers frequenting them; and though in most cases they are occupied for fewer hours in the week, they seldom profit by much pains taken to change the air, whilst they are unoccupied. "In regard to churches," says a medical witness, "many illnesses and deaths proceed from faults of ventilation and warming; from the rush of cold air in one place on those who sit near the doors and windows, and the want of fresh air in other places." And if such be the case with the congregation, in a building often of the most costly character, wherein a trifling expense would permanently secure abundant ventilation what must be the injury sustained by the preacher in the pulpit? Placed on a height at which his voice acts at a disadvantage, as if on purpose that he may breathe an atmosphere composed of the breath of all who sit beneath him on the floor, he has to exert his lungs to the utmost pitch, while they have the worst of the air to work with. And the more promising his talents, the more successful his exertions in interesting and edifying a multitude of hearers, so much the sooner is he likely to be consigned to silence, consumption, and the grave. Still more pitiable, if possible, is the lot of Sunday school children, whom modern architects, and committees and commissioners, are apt to place in the recesses of a lofty roof. Above the vent afforded by the windows, and with rarely any ventilation in the ceiling, they have the foul air of the whole building in a sort of halo round their heads. And there, when they can scarcely see the minister, much less hear him, with perhaps little convenience for sitting, and none for kneeling, and with their attention previously exhausted in school, they are required, under penalty of chastisement, to keep still, and silent, and awake, and in an atmosphere which of itself is quite enough to produce in a grown person, much more in a child, inattention, restlessness, and drowsiness. To say no more of the unhealthiness of a position such as this, I cannot refrain from expressing my apprehension that there must be hundreds of thousands in the land, who have hence conceived a deep and lasting aversion to the house of prayer.—*The Unhealthy Condition of Dwellings, &c., by the Rector of Alderley.*

Early Painted Decorations.—We learn from the *Gloucester Chronicle* that some curious remains of the early art of painting, as practised in England, have been lately brought to view, at Southerop, in Gloucestershire. The chancel of the parish church, of the Anglo-Norman era, requiring restoration, on removing the accumulated coatings of whitewash from the walls, it was discovered that it had been at one time a perfect gallery of scriptural and other subjects, not the smallest portion, from the roof to the floor, having been left unadorned. Most of these quaint designs were too far advanced in decay to be deciphered; but the Nativity, the Annunciation, and the Decapitation of St. John the Baptist, are still apparent, and shew that the recluse and devout designers possessed all then known of art, as well as all the learning of the time. A remarkable device for the decoration of a sacred edifice remains in one of the deep recesses of the lancet-shaped windows; it is the figure of a youth, in a red tunic, shooting an arrow at a red squirrel in a bright yellow tree, the bow held in the right hand. The costume of this figure seems to make the date somewhere about the middle of the fourteenth century—five hundred years since.

The Electric Telegraph in America.—We understand that an attempt to lay a pipe across the East River, at New York, for conveying the wires of the Electric Telegraph, has been completely successful; this pipe is of lead, in one continuous piece, half a mile long, weighing 6,000lbs., and without a joint—perfectly air-tight—and was securely laid across the river from a steam boat, engaged for the purpose, after considerable labour and difficulty; in the pipe are four copper wires, perfectly isolated, to safely transmit the magnetico-electric fluid. The whole was executed under the direction of Mr. S. Colt, engineer, and the pipe was constructed by Messrs. Tatham Brothers and Co.—*Mining Journal.*

NEW APPLICATION OF IRON DROSS.—A French mechanic formed the idea that by subjecting iron dross to the slow cooling process which is known to produce a total change in the nature of glass, a new and useful species of stone might be obtained: and as iron dross, such as the large furnaces yield, is a wholly useless substance, the announced successful result of his preserving attempts cannot but be matter of great interest, more especially at the present time, when the smelting furnaces of England are in a hitherto unknown state of activity. The object which the Frenchman ought to accomplish was, to impart to iron-dross the compactness and hardness of granite, and at the same time to save the cost and labour which the hewing of the real stone requires. To this end he contrived to let the iron refuse, while in a fluid state, run into iron forms, which were previously brought to a red heat by being placed so as to receive the superfluous flame which issues from the mouth of the furnace; and in order to insure the slow cooling, these forms are provided with double sides, between which sand is introduced, which is well known to be a bad conductor of heat; the whole is then brought again to a glow heat, and in like manner again cooled off. By this procedure, it is asserted, the discoverer has succeeded in forming paving-stones, flags, large building-blocks and even pipes of any given form of a degree of hardness and polish equal, to the best hewn natural granite, and at the most trifling conceivable cost.

RAILWAY TERMINI IN LONDON.—*Heretofore* laughs at the notion of having only one terminus in the heart of London for all the railways? How many streets would it require for exit and entry? What size must the terminus be? And how would it be possible for the inhabitants to pass and repass those streets without numerous and fearful accidents, particularly at such times as Greenwich fair, Easter, Whitsuntide, &c.? At Derby the station is 40 acres area, and only three lines of railway run into it. The London and Birmingham, Great Western, and South Western metropolitan termini together, we apprehend, considerably exceed that. Then there is the Eastern Counties, and Northern and Eastern, to Blackwall, the Greenwich with its millions, the Dover, Brighton, and a host of new schemes, coming into London. What space is possible would be large enough for all these? Where in London is it to be got: and what would it cost if it could be got? Would 100 or 150 acres be sufficient? Comparatively speaking, London would have to be swept away—the city, indeed, almost entirely, to provide it with a railway station.

BARRY *versus* SOANE.—A writer in the *Athenæum*, in an article on architectural mutations, says, relative to the alteration of Soane's Board of Trade, at Whitehall:—"The front already completely dismantled, and stripped of all its columns and stonework, which is almost enough to bring Sir John from his '*domus æterna*' to protest against the audacious sacrilege, although Mr. Barry is not acting his work only as he himself did that of his brother knight, Sir Robert Taylor at the Bank of England. Still Mr. Barry might be content with devouring as much of poor old Soane as he had already got, his Law Courts and which he prided himself so much), and his Halla Regia, and Royal Gallery at the House of Lords, all of which, after escaping the conflagration and the fate of perishing, like Sodom, in a glorious blaze, will soon be destroyed here ignominiously by the rude and ruthless hands of workmen. Truly Mr. Barry seems bent upon exterminating Soanean architecture altogether, at least as much of it as he possibly can; nor, we dare say, would he at all scruple to demolish the '*domus æterna*' itself.

NEW AND ECONOMIC MODE OF GENERATING STEAM.—A French engineer, M. Simard, now in London, has discovered an exceedingly simple means of curtailing the quantity of coal hitherto required in the generation of steam. His principle, for which he has taken out a patent, is that of putting whale or other fish oil into the boiler, unmixed, or little more or less water. When the oil is at a temperature producing steam, water is thrown in, and steam is produced as fast as required by the machine, without the oil passing off in vapour, or decomposing. Various experiments have been made, and the saving in fuel is stated at from 40 to 50 per cent.

SPAFIELDS BURIAL GROUND.—Towards the close of last week, Mr. Bramhall the barrister who had been appointed arbitrator by the court of Queen's Bench, to decide upon the proper steps to be taken with respect to this Plague-spot in the metropolis, sat for the first time at Fendall's Hotel, Palace Yard. After a short conversation, the proceedings were postponed for a week to allow of an examination of the grave-yard being made by a chemist and surgeon to be appointed by the arbitrator.

MONUMENT TO THE REV. DR. WATTS.—The inauguration of a cenotaph to the memory of the late Dr. Watts, author of the well known "hymns," took place last week at the Albany Park Cemetery. It consists of a full-length figure of Dr. Watts, in his ecclesiastical costume, nine feet in height, standing on a pedestal of Portland stone, thirteen feet high and six feet square. In his left hand he is represented holding a book, and two others are upon the seat on his right side. It stands about the centre of the grounds.

NEW HOSPITAL AT GREENOCK.—The late Sir Gabriel Wood, whose demise took place in London a few days ago, has given in charge of appointed executors, the princely sum of 80,000*l.*, to be expended in the erection and maintenance of an hospital in Greenock, for the reception of the aged, infirm, and disabled seamen of that port.

Tender.

For building stabling for 100 horses, omnibus sheds, and other works, at Upper Holloway, Mr. J. Wagstaff, architect.

Love	£2350	0	0
Chesterman	2265	0	0
King and Co.	2145	0	0
Curtis and Co.	2018	0	0
Watson	1919	14	0
Allen	1895	0	0

Tenders opened in the presence of the parties.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For repairing and keeping in repair for three years the Harnham, Blandford, and Dorchester Turnpike-road.

For the erection of certain buildings for the purpose of a Fever Hospital, &c., in the Land of Promise, Hoxton, for the parochial authorities of St. Leonard's, Shoreditch.

For the restoration of the south porch of Rotherham church.

For paving and repairing certain carriage and footways in the district of Knightsbridge, for the paving commissioners of the parishes of St. Margaret and St. John, Westminster.

For the supply of materials to the commissioners of the metropolis roads.

For supplying the parish of Hackney with 10 tons weight of cast-iron Lamp-posts, to weigh not more than 3¼ cwt. each post.

For supplying the Richmond Railway Company with 35,000 Oak keys.

For executiug the works of the Horsham and Keymer Branches of the London and Brighton Railway. Tenders to be sent in for the two contracts, separately.

COMPETITION.

The committee for the erection of the South Staffordshire General Hospital, Wolverhampton, are desirous of receiving plans, specifications, and estimates connected therewith. The sum of 100*l.* will be given for the one selected.

The committee appointed to superintend the Rebuilding of the Parish Church of Llandilo are desirous of receiving designs, in the Gothic style, for the same. The sum of 50*l.* will be given for the one selected, and 30*l.* for the second best.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At Kneesworth, near Royston, Cambridgeshire, a fall of Ash and other trees; also a quantity of Fir poles, spires, and topwood.

At the Ship-yard, near the Cliff, Ipswich: a large quantity of superior and useful Timber, suitable for building purposes.

At Haselgrove, Queen Camel, Somerset: upwards of 1,000 Maiden Oak, Elm, and Ash timber trees, now standing.

In the Subscribers' Wood Yard, Baltic-street, Leith: 240 logs Honduras Mahogany, 140 logs St. Domingo ditto, 146 logs Cuba ditto, 148 planks Rio Rosewood, 147 planks of Bahia ditto.

BY TENDER.

To be delivered, free, on board, in one or more Prussian ports in the Baltic: 200,000 Fir railway sleepers and 150,000 Oak ditto.

TO CORRESPONDENTS.

"Subscriber from the first."—*In measuring plastering the openings should be deducted. The sides of the openings, if plastered, added. If the walls are stuccoed and the cornice be under six inches in depth, it is the custom to include one-third the height of cornice in measuring height of walls; if floated, two-thirds. When cornice is above six inches in depth, include whole height of cornice in measuring walls, and then deduct and add (the round of room by depth of cornice) as "not set."*

"Well Wisher."—*"Arnott's Elements of Physics" may be obtained through any bookseller.*

"Not a Victim."—*We are not disposed to return to the subject at this moment.*

"J. B. B." *would best obtain the information by writing to the Rev. J. W. Pugh, Llandilo.*

"D. E. I."—*Either Keene's cement or Martin's cement, answers admirably for internal work, and is well fitted for mouldings.*

"Assessment of Dilapidations," "Archi," "D. R.," "Barrister," *should have given us their names. An anonymous opinion merely, in such a case is worth nothing.*

"Beginner."—*The "circular shallow recesses" found in spandrils of Norman arches are simply ornamental: they are very general.*

"X. Z. X."—*A notice of the church from a local paper is in type: it shall be withheld for a few days, so that our correspondent may write to us.*

"J. R."—*We shall be glad to have the particulars of the case Porter v. Wilson.*

"Hinges."—*A. B. H., Post-office, Broadway, Deptford, says he has invented a spring hinge, and would be glad to dispose of the invention.*

"J. K." *has our thanks.*

"Young Cabinet Maker."—*An elementary treatise on perspective will teach him what he requires.*

"Revision of the Buildings Act."—*We are compelled to postpone consideration of a host of letters on this subject.*

"T. S."—*The letter about Caen stone is merely an advertisement. Any real information on the subject we will gladly insert.*

Westminster Sewers.—"W. A.," "X. Y. Izzard," *&c., must pardon us for delaying the consideration of their communications.*

"A Youngster."—*Weale published a work on the subject a short time ago, which will be found useful.*

Postponed.—"A few questions respecting Sewers," "Health of Towns," "Working Classes' Association," "Mr. Lucas's Restoration of the Parthenon," "St. Dunstan's."

Received.—"J. S.," "T. I.," "W. P.," "J. L." (Bond-street), "J. Hare," "C. Humphrey," "A. B.," "An Abstract of the Evidence on Mr. Perkins' Petition for an Extension of the Patent for his Hot Water Apparatus," 1845, "The Westminster Review" for December, 1845 (Clarke, Pall-mall), "Old England," concluding part (Knight), "Gallery of Arts" (Knight), Card to lectures at St. Martin's Library, "The Railway Review" for December (Simpkin and Marshall).

*** Correspondents are requested to address all communications to the EDITOR.

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MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, Dec. 8.—Geographical, 3, Waterloo-place, 8½ P.M.

TUESDAY, 9.—Freemasons of the Church, Little Newport-street, St. Martin's-lane, 8 P.M.

WEDNESDAY, 10.—Graphic, Thatched-house Tavern, 8 P.M.; Royal Literary Fund, 3, P.M.

THURSDAY, 11.—Royal, Somerset House, 8½ P.M.; Antiquaries, Somerset House, 8 P.M.; Royal Society of Literature, 4, St. Martin's-place, 4 P.M.

ADVERTISEMENTS.

PROFESSOR KELLER'S POSES PLASTIQUES.

ROYAL ADELAIDE GALLERY.—This day, and during the week, Professor Keller will exhibit at the Adelaide Gallery his Grand Tableau Vivans from the Ancient Masters, which have received so largely the encomiums of the press. Every morning at half-past three, and in the evening at nine o'clock. Great efforts have been made to add to the effects of this exhibition. A variety of new subjects have been added to those already presented to the public The Concerts as usual. Also Pilbtow's Atmospheric Railway model, with explanatory lecture.

ROYAL POLYTECHNIC INSTITUTION.—A Lecture on the prevalent disease in Potatoes, and the means of extracting the starch as an article of food, will be delivered by Dr. Ryan, daily, at half-past Three, and on the Evenings of Mondays, Wednesdays, and Fridays, at Nine. Professor Bachhoffner's varied Lectures, with Experiments, in one of which he clearly explains the principle of the Atmospheric Railway, a Model of which is at work daily. Mr. Downe, the celebrated Flutist, accompanied by Dr. Wallis on the Pianoforte, will perform a Duet Concertante, and afterwards a favourite Fantasia, at Three o'clock, on Tuesdays, Thursdays, and Saturdays, Coleman's new American Locomotive Engine, for ascending and descending Inclined Planes. A magnificent collection of Models of tropical fruits. A new and very beautiful series of Dissolving Views. New Optical Instruments, &c. Experiments with the Diver and Diving Bell, &c. &c.—Admission, One Shilling. Schools, Half-price.

TO ARCHITECTS AND BUILDERS.

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C. S. and Son beg to refer to the extensive works performed by them at Windsor Castle, Northumberland and Stoa House, Blenheim Palace, Chatsworth, &c. as a guarantee for the superiority and durability of their work, in confirmation of which numerous letters from noblemen can be shewn.

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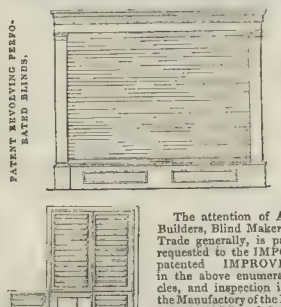
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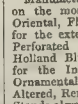
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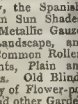
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Manufactory, 96, Regent-street, and 131, Chancery-lane.

THE Patentee can confidently recommend these Shutters both for security and durability. The edges being sheathed with IRON, and the cost little more than common shutters, their construction so simple, that the largest establishment can be opened or closed in a few moments with the greatest possible ease without the use of machinery. Their superiority over other Revolving Shutters consists in being made without metal hinges, consequently cannot rust, buckle, or get out of order, and are equally safe. W. SNOXELL will have much pleasure in giving reference to numerous establishments where they are fixed, having on all occasions given the greatest satisfaction.

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VENETIAN BLINDS FOR EXPORTATION.

The Builder.

No. CXLIX.

SATURDAY, DECEMBER 13, 1845.

THE announcement of the proposed revision of the Buildings Act, has brought us a flood of letters complaining of its operation. With some trifling exceptions, however, the cases set forth relate to the administration of it rather than to the Act itself, and several of the letters apply wholly to the proceedings of one or two district surveyors only.

We are never willing to find fault, and would at any time step a little way out of the path of strict duty, to avoid hurting the feelings of a professional brother. Our object in alluding to one or two instances of unwise conduct on the part of district surveyors, at the present moment, is to induce those who are deputed to see the Act carried out, to "do their spiriting gently," and not by an avaricious grasping after fees, to increase still further the feeling of disapprobation which has been engendered. If they would consider for a moment, as we well know a large number of the body do, that they hold their office for the protection of the public, and not for their own personal advantage, their course of action would often be different from what it is. The Act is not put into an officer's hands simply that he may find occasions to demand a fee, but that he may see its provisions for the general good (often opposed to private interests), honestly carried out; provision is made in it to pay him fairly for all he does, but any thing beyond this he ought not to look for; and what is more, *must* not. To return to the letters before us.

The first we take up reproaches us in strong terms, for omitting to draw attention to an information laid by Mr. C. R. Badger against Mr. Barnes, for having "made certain additions to projections" from a house situate on a plot of back-ground in the Lewisham-road, contrary to the Act. Mr. Barnes shewed that the works complained of were commenced before the first of January last. Truth to say, the award of the referees on this matter was before us (*every* award comes before us), but having had occasion to comment on the proceedings of this gentleman, of "Lamb and Lion" notoriety, some time ago, we were led to delay noticing it. Suffice it to mention, the referees decided there was no ground for bringing the case before them, and marked their sense of the proceeding by making Mr. Badger pay the costs, 4*l.* 11s. 4d.

Another correspondent, in connection with the same neighbourhood, writes as follows:—

"6, Bath-terrace, Horsemonger-lane,
Borough, Dec. 4, 1845.

SIR,—A friend of mine, a keeper of livery-stables on Blackheath, has had a sign-board (about 5 feet by 3 feet, and 1 inch thick), fixed against the front of his stables, with four iron holdfasts driven into the joints of the brick-work; for doing which, the district surveyor made a claim of 30s. My friend hesitated to pay him, after which he reduced the amount of his claim to 10s., which was paid, and a receipt given for the amount. I shall feel obliged by your informing me, through your excellent journal, if the demand made by the surveyor was in accordance with the Buildings Act.—I am, Sir, &c.,

NICHOLAS METHERELL."

Now, this exorbitant demand was not only unwise, but, as it seems to us, perfectly unjustifiable. It is such conduct as this, on the part of a very few individuals, which is bringing the whole body, most undeservedly, into disrepute. The Act sets forth the height at which signs or notice-boards must be fixed, and involves the necessity of sending notice to the district-surveyor before putting up such, that he may see the directions are complied with; but for a service like this, a merely nominal fee, if any, should be taken. For the inspection and removal of projections, which involves writing notice, &c., the Act allows the surveyor to demand 10s. For such services as that alluded to by Mr. Metherell, or for seeing, for example, that a chimney-pot above 4 feet high is properly fixed, half-a-crown would be ample. This might easily be put on a proper footing by the referees.

A few days ago, Mr. Geo. Porter, the surveyor for the district of Newington, summoned Mr. John Wilson, builder, of Southwark, before a magistrate, for having neglected to give him notice of having begun to resume operations in the building of certain dwelling-houses, after suspending the progress of such building for three calendar months, for which omission he was liable, under the provisions of the Act, to a penalty of 20*l.*

It appeared that, in the latter end of the year 1844, the defendant, Mr. Wilson, gave the necessary notices to Mr. Porter for the erection of five dwelling-houses in the front of Pownall-terrace, in the Kennington-road, and, in order to avoid the provisions of the new Act, had formed a foundation, and laid down a certain quantity of brickwork, before the new Act actually came into force. Mr. Porter, conceiving that the building was not in such a state, when the new Act came into force, as to take it out of its provisions, the matter was submitted to the official referees, who made an award in his favour. Instead, however, of following up the award of the referees, Mr. Porter thought proper to proceed against Mr. Wilson under that clause of the Act by which a builder is required, where the operation of a building is suspended for three calendar months, to give notice to the surveyor of his intention to recommence the building, as if he were about to commence a new building. Mr. Wilson, considering the building to be under the operation of the old, and not the new Act, had neglected to give this notice. The summons was ultimately dismissed on a technical objection.

It seems to us, with all deference to Mr. Porter, that this mode of proceeding carried an arbitrary aspect. It could hardly be expected that the builder, while contending that the work did not come under the provisions of the new Act, would give a notice admitting its control. The course taken by Mr. Porter we are compelled to place in the list of those we have termed *unwise*.

Those correspondents who complain of district surveyors for objecting to materials or workmanship, must not expect the slightest sympathy from us without the fullest proof that the objections were captious. On this head, and indeed in all cases where the interests of the public,—the actual purposes of the Act,—are really concerned, the district surveyors will no where find more strenuous support than in the pages of THE BUILDER. The office is a responsible one. It is not a sinecure,—a quiet provision for life in acknowledgment of the merit of the holder, as some of the new surveyors really seem to think it. The money they are to receive, is for services rendered, and should they fail to perform those services disgrace will follow. The recent fall of three houses in Cavendish-place, Wandsworth-road, and its fatal results, with two or three similar disasters, particulars of which are now before us, and which are said to reflect in some degree on the district surveyors, may serve to illustrate this assertion. Still we do not allude to these particular accidents with any view of imputing blame, our information is at present insufficient, but merely to shew the responsibility of the office, and to induce a proper consideration for it on the part of the public, when duly discharged.

We may mention, relative to the revision of the Act, that several committees have been appointed out of doors to consider the subject. A committee of the vestry of St. Marylebone met at the court-house last week; Mr. H. Biers in the chair. They were attended by Mr. John White, the district surveyor of the parish, and Mr. Scace, the parochial surveyor, and having gone through, and commented upon various matters requiring revision, adjourned for the purpose of preparing a report, to be brought up to the vestry on an early day.

THE RESTORATION OF THE PARTHENON AT THE BRITISH MUSEUM.

THE model of the Parthenon, restored by Mr. R. C. Lucas, to which we alluded some months ago, is now completed, and has been recently purchased by the trustees of the British Museum for public exhibition in the Elgin room. It is on a large scale, being about nine feet in length, by six in width. The structure of the temple is executed chiefly in wood, the sculptures are modelled in a kind of wax. It is placed upon a lofty basement, so that the pediment is sufficiently above the eye to convey something like an idea of the perspective in which the original was viewed. The figures and groups are all modelled with the greatest care, either from the torsoes brought by Lord Elgin from Greece, or still remaining there, or the drawings of Carrey made before the partial destruction of the Parthenon in 1687; those portions of the original design which have irretrievably perished, have been supplied by the promptings of Mr. Lucas's own powers of invention, aided by a most careful study of all that the extant remains of ancient art, and the research and sagacity of modern archæology, could furnish, by way of authority and illustration. These divers materials have been combined with extraordinary industry, ingenuity, and judgment by Mr. Lucas, and with the happiest result. The impression produced by the restored model, small as its scale is, is novel and imposing. A new world of art seems disclosed to us. For the first time we behold the true character of Greek architecture.

In northern climates and modern times, the Doric order has never really engaged our sympathies; its cold, normal beauty of structure has been authoritatively proclaimed the standard of faultless simplicity, and admired as such, but the untenanted pediments, and empty metopes impart to the mind an impression of cheerless and desolate monotony; all who felt thus, unconsciously recognized the truth, that such Doric architecture is a mere lifeless thing, a body from which the spirit which once animated it had left. When we look at the model of the Parthenon, all seems instinct with vitality.

The pediments are filled with majestic forms, so arranged, as, out of the utmost variety of attitude and grouping, to produce one great harmonious composition. Along the sides of the temple, standing out like jewels on a diadem, are the metopes; each presents an allusion to the mythic and primeval period of Athenian history, a passage, as it were, from a great national epic; some exploit of Pallas, of the deities of the soil, or of Theseus or other Athenian heroes; some sacred religious ceremony; or as in the metopes brought over by Lord Elgin, a great contest like that of the Centaurs and Lapithæ,

is told in a succession of metopes, each a complete picture framed in its triglyphs, standing out like the single combats which are successively presented to the eye in the battles in the Iliad, detached from the main action; in the metopes, as in the description, from the infinite variety of movement and grouping, there is no monotony in the iteration of subject.

If we turn our eye from the bold projection of the metopes to the interior of the peristyle, we then behold, by a more subdued light and in a slighter relief, the matchless frieze. If in the pediments we see the perfect beauty of divine forms as created by the hand of Phidias, if the metopes represent that second mythic period, the heroic age, so in the frieze do we see revealed to us the actual life of antiquity. The people among whom Phidias lived stand before us in bodily presence, as every five years in the most sacred festival of their city they moved in solemn array to the temple of their tutelary goddess. The procession of this frieze, from its continuity and the nature of its subject, is more studied and better understood by the public than the rest of the sculptures in the Elgin room, but Mr. Lucas has done good service by showing in his model its relation to the metopes, and the consequent difference in the depth of its relief, to suit the diminished quantity of light. See some excellent remarks on this subject in the "Penny Cyclopædia," Basso relievo. We have glanced at a few chief features in Mr. Lucas's model, rather by way of invitation to the public to examine it for themselves, than as an accurate account of it. Our limits will not here permit us to do justice to a work the result of so much enterprize, judgment, research, and artistic power.

Nothing but the most resolute will and earnest study of the antique would have enabled Mr. Lucas to deal with the many difficult questions which this question involved; to ascertain the original motive of the pedimental compositions, it was necessary for him to examine and compare the arguments of the different writers on the mythology of the Parthenon—arguments full of learned allusion, written mostly in foreign languages, and appealing to habits of thought novel to the English mind. With infinite tact, Mr. Lucas has selected out of conflicting elements all the material most useful for his purpose; he has deferred to received authority, embodied suggestion, and, where conflicting theories were irreconcileable, he has with æsthetic acumen cut the Gordian knot of controversy, and restored the composition according to such analogies of design as an artist only can perceive. We regret that we can do no more than mention the chryselephantine of the Virgin Goddess, who stands all glorious within the cella, arrayed with a gorgeousness that would have tempted the cupidity of the temple-robbing monarch, Dionysius of Syracuse; nor can we enter upon the *vexata questio* of the metallic and polychrome decorations of the Parthenon, which Mr. Lucas has, we think wisely, as far as possible eschewed.

Enabled by this model to realize more definitely the idea of the great design in which architecture, sculpture, and painting were so marvellously combined by Phidias into one harmonious composition, conveying by three different forms of expression, and, as it were, trilingually, one great idea, we are naturally led to turn our eyes on the present condition of English art.

Why have we, in this country, arbitrarily put asunder what the Greeks had joined—Painting, Sculpture, and Architecture? Why did we set apart these three fair sisters at their second birth—the *renaissance*—and with step-motherly nurture bring them up in separate establishments, teaching them separate aims and principles of action, and giving to them divided interests? why, having done this, do we now as arbitrarily bring them together, after so many years of estrangement, and expect from them all at once, readiness in co-operation and common principles of design in the execution of our public works? The great task now demanded from English art, the decoration of the Houses of Parliament, so that on those walls shall be written the chronicle of the British race, in those niches enshrined the memory of their great men, in those windows "richly dight," the heraldic splendour of her regal lines—this subject, pregnant with great ideas, must not be made "a declaration and a theme" for a half-taught school, nor can be dealt with by combining into one patchwork the compositions of single artists, working without concert or unity of purpose. It must be treated by a school directed by one mind, and taught to work out harmoniously, portions of one great design; to give utterance with one voice, to the great thought of which the design of such a building should bear the impress.

PRYOR'S BANK, FULHAM.

In a previous number of our journal,* we gave an engraving of an Electoral Chair belonging to Mr. Baylis, of the Pryor's Bank, Fulham, and said we might one day lay before our readers, some account of the extraordinary collection of Gothic decorations and utensils, deposited in that quaintest of quaint residences. The current number of *Fraser's Magazine* contains a charming article on this very subject, illustrated by twenty-nine woodcuts; and although to convey any thing like a complete account of Pryor's Bank, its treasures, and the kindnesses of its owners, Mr. Baylis and Mr. Whitmore, would need a volume, instead of the article sixteen pages long, here devoted to them, a very clear and pleasant notion of all is given by it.

A passing glance externally, as you pass over Putney-bridge, would ascribe it to the Cockney Gothic tribe; internally it is a mine of interest. "The whole edifice," says the writer in *Fraser*, "from the kitchen to the bed-rooms is a museum, arranged with a view to pictorial effect; and if it were to be called 'the Museum of British Antiquities,' it would be found more worthy of the name than the national institution so designated. Rich as that collection is in the classic works of Italy and Greece, and the mysterious remains (until recently) of ancient Egypt; specimens illustrative of Norman, Saxon, Romano-British, and Celtic manners, tastes, and manufactures are sought for in vain in the building nominally appropriated by the nation for their reception, arrangement, and preservation. Equally deficient is the British Museum in medieval antiquities, and the consequence is, that the artist who desires truthfulness in an English work, knows not where to seek for the necessary information.

In a print, published about forty years since, by J. Edington, 64, Gracechurch-street, of Fulham Church, as seen from the river, the ancient aspect of the modern Pryor's Bank is preserved. The situation of this humble residence having attracted the fancy of Mr. Walsh Porter, he purchased it, raised the building by an additional story, replaced its latticed casements by windows of coloured glass, and fitted the interior with grotesque embellishments and theatrical decorations; and here he had frequently the honour of receiving and entertaining the late king, George IV., when Prince of Wales. It was then called Vine Cottage, and having been disposed of by Mr. Porter, became, in 1813, the residence of Lady Hawarden, and, subsequently, of William Holmes, Esq., M.P., who sold it to Mr. Baylis and Mr. Lechmere Whitmore about 1834.

By them a luxurious vine which covered the exterior was cut down, and the cottage, named after it, replaced by a modern antique house. Mr. Baylis being a true antiquary, his good taste induced him to respect neglected things, when remarkable as works of art, and inspired him and his friend Mr. Whitmore with the wish to collect and preserve some of the many fine specimens of ancient manufacture, that had found their way into this country from the Continent, as well as to rescue from destruction relics of old England. In the monuments and carvings which had been removed from dilapidated churches, and in the furniture which had been turned out of the noble mansions of England—the 'halls' and 'old places'—Mr. Baylis saw the tangible records of the history of his country; and, desirous of upholding such memorials, he gleaned a rich harvest from the lumber of brokers' shops, and saved from oblivion articles illustrative of various tastes and periods, that were daily in the course of macadamisation or of being consumed for firewood.

The materials thus acquired were freely used by him in the construction of a new building upon the site of Vine Cottage, and adapted with considerable skill; but when neither the vine nor the cottage were in existence, it appeared to Mr. Baylis ridiculous to allow a misnomer to attach itself to the spot. After due deliberation, therefore, respecting the situation upon a delightful bank of gravel, and the association which an assemblage of ecclesiastic carvings and objects connected with 'monkish memories,' there collected, were likely to produce upon the mind, the new house was styled the 'Pryor's Bank.' But however characteristic and carefully selected this appellation might have been, that it was at first misunderstood or misrepresented by the facetious natives of Fulham, is proved from a Putney tradesman inquiring to what extent Messrs. Pryors' bank would discount good bills!"

Real old English hospitality has been always practised by the owners of Pryor's Bank, and their entertainments have usually been distinguished from those of every day by masques or plays, and the distribution of numerous literary *pieces de circonstances*. One of these, "the last new ballad," circulated at an entertainment given in 1843, during the Fulham regatta, we are led to reprint, as affording a bird's-eye view of the place:—

"Strawberry Hill has pass'd away,
Every house must have its day;
So in antiquarian rank
Up sprung here the Pryor's Bank,
Full of glorious tapestry,—
Full as well as house can be:
And of carvings old and quaint,
Relics of some mitre'd saint,
'Tis—I hate to be perfidious—
'Tis a house most sacrilegious.

Glorious, glowing painted glass,
What its beauty can surpass?
Shrines bedeck'd with gems we see,
Overhung by canopy
Of embroider'd curtains rare—
Wondrous works of time and care!
Up stairs, down stairs, in the hall,
There is something great or small
To attract the curious eye
Into it to rudely pry.

Here some niche or cabinet
Full of rarities is set;
Here some picture—'precious bit'—
There's no time to dwell on it;
Bronzes, china—all present
Each their own sweet blandishment.
But what makes our pleasure here,
Is our welcome and our cheer;
So I'll not say one bit more,—
Long live Baylis and Whitmore!"

A right pleasant day that was; and the gratification we have in recalling it leads us to risk a "pshaw!" from those of our readers who wish to find in our pages only the *practical*; in consideration of whom we will take the following dissertation on

PLATES AND DISHES,

suggested to the writer of the article already quoted, by the number and variety of those he finds in the kitchen. The history of them, he says, would afford an opportunity for a dissertation on the rise and progress of the fine arts in this country, as they present most curious and important specimens of early drawing, painting and poetry. "The old English plate was a square piece of wood, which indeed is not quite obsolete at the present hour. The improvement upon this primitive plate was a circular platter, with a raised edge; but there were also thin, circular, flat plates of beechwood in use for the dessert or confection, and they were gilt and painted upon one side, and inscribed with pious, or instructive, or amorous mottos, suited to the taste of the society in which they were produced. Such circular plates are now well known to antiquaries under the name of 'roundels,' and were at one time generally supposed by them to have been used as cards for fortune-telling, or playing with at questions and answers. More sober research into their origin and use, shews that they were painted and decorated with conventional patterns by nuns, who left blank spaces for the mottos, to be supplied by the more learned monks; and a set of these roundels generally consisted of twelve. As specimens of the style of these mottos about the time of Henry VII. or VIII., the following may be taken:—

'Whersoeber thou trabeleste,
Este, Weste, Northe, or Southe,
Learne neber to looke
A geben horsse in the mouthe.'

* P. 150, *ante*.

'En friends ther ys flattery,
In men lyttell trust,
Thoughe fayre they proffer,
They be often unjustr.'

There are many sets of verses for roundels extant in manuscript, and a few have been printed; indeed, it appears likely that to the love for this species of composition we owe Tusser's "Five Hundred Points of good Husbandry," and most of his other admonitory verses.

After the Reformation coloured prints superseded the painted manuscript 'poesies' of the nuns and monks, and the elder De Passe, and other artists of the period of James I. and Charles I., produced a variety of oval and circular engravings, which were pasted upon roundels and varnished over. The subjects generally selected were those which naturally arranged themselves into a set of twelve, as the months. By the Puritans, the beechen roundels thus decorated were regarded with especial dislike, and they returned to the use of the unadorned trencher and 'Godly platter.' When 'the Merry Monarch' was restored, he brought over with him from Holland plates and dishes manufactured at Delft, where the porcelain known as Faenza, Faience, Majolica, and Fynlina ware, made during the fifteenth century in the north of Italy, and upon the embellishments of which, according to Lamartinière, the pencils of Raffaelle, Giulio Romano, and the Caracci were employed, had been successfully, although coarsely imitated. And it must be confessed, that many of the old Dutch plates, dishes, and bowls, upon the kitchen-shelves of the Pryor's Bank, deserve to be admired for boldness of design, effective combinations of colour, and the manual dexterity displayed in the execution of the patterns. The superior delicacy of the porcelain of China, which about this time began to be imported freely into England from the East, caused it to be preferred to the "Dutch ware," and the consequence of international commerce was, that the Chinese imitated European devices and patterns upon their porcelain, probably with the view of rendering the article more acceptable in the Dutch and English markets. But while the Chinese were imitating us we were copying their style of art in the potteries of Staffordshire, with the commercial manufacturing advantage given by the power of transferring a print to the clay over the production of the same effect by means of the pencil, an idea no doubt suggested by our roundels of Charles the First's time, and which process became of the same relative importance as printing to manuscript. This was the origin of our common blue-and-white plate, or what is known as 'the willow pattern,' where

'Walking through their groves of trees,
Blue bridges and blue rivers,
Little think those three Chinese
They'll soon be smash'd to shivers.'

The popularity of this porcelain pattern must not be ascribed to superior beauty or cheapness, for to the eye of taste surely a pure plain white plate is infinitely superior to an unfeeling copy of a Chinese pagoda, bridge, and willow tree 'in blue print.' The fact is, that the bugbear of a vulgar mind—'fashion'—long rendered it imperative upon every good housewife and substantial householder, to keep up a certain dinner-set of earthenware, consisting of two soup-tureens and a relative proportion of dishes and vegetable-dishes, with covers, soup-plates, dinner-plates, and dessert-plates, which were all to correspond; and should any accidental breakage of crockery take place, it was a manufacturing trick to make it a matter of extra-proportionate expense and difficulty, readily to replace the same unless it happened to be of 'the blue willow pattern.' The practice, however, of using for the dessert-service, plates of Worcester china painted by hand, and the execution of many of which as works of art call for our admiration as much as any enamel, created a taste for forming what are called harlequin sets, among which, if a few plates happen to be

'Smash'd to shivers'

the value of the whole set is only proportionately depreciated, and what has been broken may perhaps be advantageously replaced."

We commend the whole article to our readers.

CITY ANTIQUITIES.

MR. TITE *v.* MR. ROACH SMITH.

SIR,—On Wednesday evening last, after the regular business of the ordinary meeting of the British Archæological Association, I brought forward and read the letter from Mr. Tite, printed in THE BUILDER of this week, which letter I had not received when I addressed you, in reference to the vague and erroneous statements uttered by Mr. Tite, and printed in THE BUILDER of the week previous.

Although this letter contains much irrelevant matter, and I am perfectly satisfied would, to the minds of all who know me, carry in itself conviction of the absurdity of the charges brought against me, yet, from the respectability of the writer, it is calculated to excite prejudice in quarters where I may presume I am unknown. A necessity therefore arises for my meeting the charges as publicly as possible, and I regret that Mr. Tite could not have made it convenient to accept the invitation sent him to be present last Wednesday at the meeting of the Association, when he would have had an opportunity of hearing my explanation, and of making any observations which he might have thought necessary. The statements made by Mr. Tite amount to a charge of breach of faith towards him, and of opposition to the Joint Gresham Committee in their endeavours to collect antiquities discovered on the site of the New Royal Exchange. As briefly as possible I proceed to meet the alleged facts he has adduced.

On the 24th of Nov. 1840, I obtained an order from Mr. Tite to visit the excavations, during the months of December and January. I was much engaged both at home and in the country, and made no visit to the Exchange that would have required the order, until the 1st of February. On the evening of 31st of January, I returned from an excursion in Kent. On this day occurred a circumstance upon which hangs the chief charge brought against me by Mr. Tite, nearly five years afterwards, which charge he asserts is supported by three witnesses. On entering my house, I noticed a fragment of a statue of Charles II., which I ascertained had been left by two drunken workmen, who stated that they had brought it from the Royal Exchange. I immediately gave orders to prevent a like occurrence, and when the men called in the morning, I ordered them to take it to the museum in Freeman's Court, and, moreover, paid them for a barrow to carry it in. Whether they took it back or not I cannot tell, but I suspect they took it in mistake either to the Guildhall or to the British Museum. On the following afternoon I made my first formal visit to the excavations, intending to avail myself of the *privilege* granted by Mr. Tite, to obtain information, and to make sketches. I had scarcely entered, before I was stopped by a stout burly man, in whom I recognized a person who, some years previous, had been summoned by me before the Lord Mayor for ferociously assaulting a youth then in my employ. He immediately ordered me to leave the premises, and, using the most brutal language, threatened if I delayed, to get me *kicked off*. I mildly expostulated with him, and begged him to tell me the meaning of such unprovoked conduct. "Meaning!" said he, "didn't ye get a man to bring ye an image t'other day? and then didn't ye bribe 'im to take it to the Museum?" I at once saw the ridiculous mistake the man had made, and I attempted to set him right, but my pacificatory efforts only increased his rage and violence. I then announced myself as under the especial protection of Mr. Tite, confirmed by a written order. His reply my pen refuses to write; it included a substantive signifying the very reverse of truth, with a forcible participle, meaning total exclusion from mercy, prefixed, and concluded with a demand of "Show me the order." I respectfully asked him to step with me to my house, or, to permit me to fetch it. This was answered by an insulting observation, concluding with "*We* act under the Gresham Committee, and have orders to hinder *you* from coming here. You have bought things of a rascal called Sullivan, who we had discharged, as great a blackguard as ever lived, and I can prove it." Who the unworthy individual he alluded to was, I have not the slightest notion. During the dialogue, I was every moment expecting this Gresham agent would have struck me, and I believe he would, had he not been restrained by the people who had assembled around us, and by the appearance of another person in authority (Mr. Tite's second witness I presume), who had that morning called upon me about the lost fragment of sculpture. To him I appealed, and asked whether I was to be subjected to this usage, holding as I did an order from Mr. Tite? He replied, "Mr. Tite can give you no order to buy things here, and we have orders from the Gresham Committee to prevent you coming upon the ground." I returned home, made notes of these particulars, and wrote to Mr. Tite. On the following day (I believe) I again visited the works and, in the presence of Mr. Tite, had to encounter similar treatment, Mr. Tite observing that he had given me an order, and could do nothing more! I then said, that if his order could not protect me from personal violence, if I came again I should feel it necessary (in self-defence), to come armed, when, if the Gresham agent should think fit to put his threats into execution, by laying hands or feet on my person, he might run the risk of being shot. But if antiquaries and archæologists sometimes speak daggers and bullets, they seldom use any beyond the sharp pointed and keen edged goose quill, and the pop-gun pellet of paper, which explodes in an ill-natured critique; and if the intemperate servant, who had doubtless exceeded his orders, had been discharged by Mr. Tite (as he would have been by some gentlemen), I should instantly have pleaded for his restoration.

For about two months I declined, on account of fear of a recurrence of these unpleasant obstructions, from visiting the excavations. These two months, and the two months previous comprise the period during which Mr. Tite says "nothing of importance was found;" "and then he speaks of the pit (*opened in April*) and says, that "the clerks of the works, and the contractor's foreman, were constantly complaining to me of your interference with the workmen, until it came to an actual quarrel." Now, if nothing had been found in January, February, and March, about what were the complaints made which led to the *quarrel* which took place on the 1st and 2nd of February, and not in April, when the pit was opened? In fact, when the *quarrel* occurred, nothing of importance was found, according to Mr. Tite's shewing, and when antiquities were discovered in the pit, no *quarrel* took place!

From the beginning of February to the beginning of April, I was engaged in prosecuting researches on the site of the French Protestant Church in Threadneedle-street, with the assistance, not of any city company or committee, but of a private individual, Mr. E. Moxhay, and the discovery and preservation of two beautiful tesselated Roman pavements were the results of his liberality. Here let me contrast individual intelligence, generosity, and public spirit, with corporate ignorance, meanness, and selfishness. Had I applied to this corporation (now of a sudden made to affect so much anxiety to fit up their *one* room for a museum), I should have been laughed at. "'Tis only rubble and rubbish," said the leader of the Court of Common Council, when, a short time since, that body gave up the remnant of the old city boundary wall, on Tower Hill, to be pulled down; and these pavements in their eyes would have been nothing more, and assuredly would not have been saved from demolition, as the city wall has been, in spite of the efforts of the corporation. Drawings and models of these pavements have been made and circulated throughout the kingdom, and one of them has furnished an elegant design to a maker of floor-cloth in Moorgate-street. Mr. Moxhay placed them at my disposal, at the very period when Mr. Tite falsely accuses me of being actuated by *personal objects*. I recommended that the pavement, which could be safely removed, should be sent to the British Museum, and entirely through my advice it was there deposited, and I placed models of both in the collection of the Society of Antiquaries. If I had been so anxious to "obtain possession" of every thing for my own collection or for "personal objects," is it likely when these interesting and valuable remains were literally presented to me, I should have transferred them to a public museum? Was it likely when I acted thus in Threadneedle-street, I should have shown, at the same time, so different a disposition on the site of the Royal Exchange? That I should have been lavish of pounds on

the one spot, and covetous of farthings on the other?

In April I again visited the excavations on the site of the Royal Exchange, as I perceived hundreds were in the habit of doing daily *without orders*. At this time the pit alluded to was being excavated, and I made hasty sketches, and took notes occasionally, but not without fear of a recurrence of former direct obstruction. My visits did not admit of such minute examination as the subject demanded, but *no quarrel took place*, no complaints could have been made, for I never remember being there without seeing Mr. Russell, the clerk of the works, or some of the gentlemen from Mr. Tite's office, and I must have heard of the complaints if there had been any. On no occasion did I ever interfere with anybody, and the only charges that can be imagined to have been made must have been those preferred more than two months previous, which I have shown were absurd and false. I hasten now to the stories about the bell, and the leaden medalet, or jetton. Mr. Tite had read in the "Archæologia" that a bell, among other objects, had been found in the pit, but he has never visited my museum to ascertain if I actually possessed this enviable relic, and, if so, how and by what means, and at what period of time. He has not, in fact, taken the trouble to ascertain the truth of any of the trumpery tales upon which he seems to have founded his accusations against my conduct and character.

When, by the circulation of handbills, by "boarding round the site," and by other means considered necessary to their archæological *battue*, the Joint Committee of Gresham Affairs had had the run of the cover to themselves, I proceed to show how, alone, and single-handed, I succeeded in preserving what these zealous gentlemen, with their handbills and boards, had overlooked. Mr. Tite says truly that this pit was filled with soft peaty earth; but Mr. Tite is not perhaps aware that this soft peaty earth contained many minor objects of interest which it was impossible to detect by boards and handbills, and which were carted away in this soft peaty earth, and disposed of at a remote distance from the site of exhumation in an open unfenced situation, accessible to anybody who might have cared to examine it. From this rejected "soft peaty earth," far from the Royal Exchange, I procured, from time to time, many curious objects of ancient art, which certainly, but for my exertions, would never have been discovered and preserved.

Mr. Tite's "Mountain in Labour" produces a bell, and a medalet in lead! The latter he says, "is a very remarkable curiosity, and surely the only proper place for such could not be any private collection!" This little peace of lead came into my possession long before I had the honour of knowing Mr. Tite, although he says he is a Fellow of the Society of Antiquaries of some standing. It was met with during some partial excavation, before the general works commenced. So little consequence did I attach to it, that it remained for months upon my table before I was induced to examine and clean it, when I deciphered an inscription and the Tudor arms. It was previously a lump of worthless lead, but I regenerated its defaced impress, and thus *made* it an object of interest, but surely not an object to be envied the possession of. I exhibited it to the Numismatic Society, and to the Society of Antiquaries; I freely permitted a wood-cut of it to be made for one of the pictorial weekly newspapers; and I adapted the inscription to the obverse of a medal of Prince Albert, designed by me, and engraved by Mr. Stothard * to commemorate the Prince's advent to lay the first stone of the New Royal Exchange, the Joint Gresham Committee having omitted to order a medal to be engraved to record this interesting event. If Mr. Tite will now point out to me the more proper place, where he insinuates a better use would have been made of this farthing's-worth of lead, I will cheerfully cede possession of it. Had I been a servant of the corporation, and seized some thirty or forty gold nobles, on behalf of the city, and had never rendered to science or to the city exchequer a proper account of the *treasure trove*, then Mr. Tite might, with some reason and justice, have imputed to me "personal objects," and have worthily stood forward as a public accuser. But, I trust, I have said enough to show that the accusations brought against me are frivolous, vexatious, and false; that they have all the appearance of being *an after-thought*, and are calculated to mislead the public, and to injure private character; that they neither apply to me nor to my colleagues in the city, and that they are unworthy the office Mr. Tite holds, through which office he has thought proper to disseminate them.—I am, Sir, &c.,

CHARLES ROACH SMITH.

5, Liverpool-street, City, Dec. 6.

* Of Arlington-street, Myddleton-square.

COMPETITION ALTAR-PIECE FOR ST. JAMES'S CHURCH, BERMONDSEY.

PAINTING and sculpture are essential as accompaniments and embellishments of architecture, and it can scarcely be said that architecture in its highest departments is complete or perfect without their aid. In the ancient Christian edifices of Europe, both were extensively employed, and painting, especially, seems to have been regarded not merely as an integral and necessary auxiliary, but in some instances as a feature of paramount importance. The architectural remains of Lombardy, of Venice, and of Sicily, with those of Normandy, and of our own country, shew that the painter was employed to an immense extent in the decorations of the altars, walls, vaulting, and other parts of churches. Passages from the Holy Scriptures; monkish legends of the lives of saints; memorials of the religious deeds of kings and princes; arabesque and floral decorations, may still be traced in abundant instances, proving incontestibly that the taste for pictorial art, and for its application to sacred purposes, flourished without interruption from the introduction of Christianity in Britain to the dissolution of monasteries by the tyrant, Henry VIII. After the Reformation, it was a favourite employment of bigots and fanatics to destroy and mutilate these, which had become objects of Roman Catholic superstition. The prejudice thus engendered against the introduction of pictures into churches, still subsists amongst many of the Protestant clergy; and has operated most unfavorably on the development of art in Britain. An unworthy parsimony in the erection of our sacred edifices has further contributed to exclude from them the works of the painter, and has thereby deprived them (with but few exceptions) of their most effective and appropriate embellishments.

We may, however, hope that a better era for art has arrived. Painting and sculpture have received their due consideration in the works in progress for the accommodation of the Houses of Parliament; and the extensive application of the ancient models to new churches in all parts of England, has induced a desire to embellish these structures somewhat in accordance with those in imitation or emulation of which they have been constructed. Hence we find that stained glass, encaustic tiles, and similar accessories, are now largely employed. It is our present object to advert to the not less important point of the introduction of paintings in churches, not built in the mode adopted in the middle ages. In these structures, modelled upon the classic forms of ancient Greece and Rome, the *altar-piece* is perhaps the only part to which painting can be successfully applied; and it is to be regretted that an object so well adapted to stimulate and exercise the powers of the artist in the highest branch of art should be so frequently neglected. Without adverting to the few pictures produced of late years as altar-pieces, we may proceed to notice the Ascension, by Mr. John Wood, which has just been completed for St. James's Church, at Bermondsey.

It appears that the late Mr. Harcourt, a wealthy inhabitant of the parish, bequeathed the sum of 500*l.* for the purchase of a picture, to be placed in a recess over the communion-table of that church. The trustees not being able to procure a satisfactory picture for the purpose, advertised for sketches, upon the understanding that the artist whose production was selected should forwith execute the work, and receive the amount of the bequest. They fixed upon the Ascension of Our Saviour as the subject, and the finished sketches in oil were required to be 36 inches in height by 17 inches in width. The altar-piece, including a frame provided by the trustees, to be 25 feet in height by 11 feet in width. On the 4th of December, 1844, nearly 80 compositions were sent in; several of them by members of the Royal Academy. Mr. Eastlake, R.A., and Mr. Haydon were appointed to examine them, and to select the most meritorious; and Mr. Cooke, R.A., was to decide in the event of those gentlemen differing in opinion. The two former however agreed that Mr. John Wood's sketch was the best of those submitted, and Mr. Cooke fully concurred in their opinion. A decision thus unanimous, by artists of such high reputation and admitted taste, naturally excited the curiosity of all lovers of the arts; and it is therefore gratifying to find that the picture, which is now completed, fully justifies the opinion so given of its merits, and reflects the highest honour on the artist.

The figures in Mr. Wood's composition are considerably above the natural size. On a canvass of 275 square feet (25 feet by 11) the artist has given, in the upper part, a full-length figure of the Saviour, occupying nearly one-half of the picture. The figure appears buoyant in air, with a nimbus around the head, the radiation from which illumines with a golden effulgence the upper region of the sky. Clothed in a flowing robe, or mantle, over a white vestment, with arms extended, and a placid expression of countenance, He casts a parting look towards his earthly disciples and associates, whilst his body is evidently in the act of ascension from them. The eleven disciples, witnesses of the superhuman event, the ascension of their lord and master into "the heaven of heavens," are at once astonished, terrified, and glorified by the beatific event. An incident so unparalled could not fail to produce varied and conflicting emotions in its witnesses. The artist has endeavoured to portray these, in the attitudes and expression of the apostles. They are represented in various positions; standing, kneeling, prostrated, with uplifted hands and faces, bodies bent with reverential awe and devotion. The artist has apparently familiarized himself with the best accounts and representations of the age, personal character, and costumes of the time which he had to depict; and he must have attained a high proficiency in his art to have given not only variety, but almost personal identity to the eleven apostles he has represented, and to have clothed them in costume which, both in form and colouring, should satisfy the eye of the critic, and the feelings of the Christian.

The production is one that can hardly fail to advance the character of the British school, and to advance its meritorious author considerably in his profession. We cannot conclude without expressing our hope that it will not be long before the name of John Wood is enrolled amongst the members of the Royal Academy.

CONSTRUCTION OF ROOFS.

SIR,—I have been recommended by some professional gentlemen, well acquainted with your journal, to submit to you a question respecting the comparative strength of queen-post and king-post roofs. The building to which I refer is Doric, the pediment very flat, and the width of the roof 60 feet. The ceiling has sunk a few inches, in consequence of the heads of the queen-posts having yielded to the pressure, and thus, much of the weight of the roof has been brought down upon the beams. It has been suggested, that the only remedy is to substitute king-post principals; these alone having strength to bear a roof so flat as the one in question. Others contend that queen-post principals are best. By giving your opinion, you would confer a favour on many persons besides your obedient servant,

Hull, Dec. 4. H. N.

*** For the span named, we should use a queen-post roof. Both king and queen-posts should be of hard oak, and the heads if formed in the common manner, should be as small as possible, as by their shrinking, sagging is caused. To lessen the possibility of this, it is a good plan to make the end of the principal rafter abut against the straining beam; in this case the tie-beams should be each in two pieces, notched on, one on each side and bolted together.

VENTILATION OF STABLES.

FORGETFULNESS OF ARCHITECTS' SERVICES.

"Suum cuique."—In your last number you alluded to Mr. Dickinson's stables, in Curzon-street, and the system of ventilation there adopted. As professional services are too often forgotten in descriptions of new buildings, I am sure you will take an early opportunity of stating that these stables were executed from my plans and superintendence. Mr. Dickinson required an adequate and effectual ventilation; Mr. Sylvester was consulted, and advised the principles of the system; and the necessary structural arrangements and working out of these principles were left to the architect.

If a similar division of labour were adopted in public buildings, which require ventilation on a large scale, and the details of construction left to the architect to embody in the building, I think we should not have to complain of the monstrous excrescences which disfigure many edifices where the ventilating doctors have been trying their processes, apparently without any regard to architectural arrangements. The remarks in your last number on the ventilation of the schools at Swinton are so perfectly applicable to the subject, that I feel it unnecessary to say one word more.

From the experience which I have had, I am inclined to believe that many of the failures which have attended the recent adoption of the ventilating system have arisen from the doctors attempting too much. They are like some young practitioners in the medical art, relying solely on drugs and nostrums, and forgetting the "vis medicatrix naturæ." In both cases I suspect, that a slight additional power given to the patient would enable him to throw off easily his complaint. I am, Sir, &c.,

THOMAS LITTLE.

*** We gladly insert the above to rectify an omission caused solely by want of information in that respect. We quite agree with our esteemed correspondent, and have often remarked it, the architect's services are too frequently forgotten in describing the merits of a building. If the result be not satisfactory, if (in his endeavour to meet the views of his employer and give him all he desires for some most inadequate amount), he should pare down too much, and a failure should occur, on him rests all the responsibility, and on him falls all the abuse.

CLAIM FOR RENT IN ASSESSING DILAPIDATIONS.

We have great pleasure in laying the following letter from Mr. George Smith (the architect of the Mercers' Company), before our readers. In connection with Mr. Tattersall's, which appeared last week,* both bearing out the opinions we expressed in the first instance, it may be considered decisive.

My Dear Sir,—I have carefully perused and considered the "Question in Assessing Dilapidations," mentioned in The Builder of the 22nd ult.,† on which you desire my opinion. I have much pleasure in acceding to the request, and take leave to state I am of opinion that rent is not recoverable under the circumstances mentioned, nor is it customary to claim it. The lessee has a choice of two remedies, either to sue for damages during the existence of the lease, or by action of ejectment, the neglect of either or both, I think would and should bar him from the claim of rent. This is my view and opinion of the subject, whatever may be the legal construction put upon the case.

I remain, my dear Sir, &c.,

GEORGE SMITH.

Mercers' Hall, Dec. 8, 1845.

Masons.—*The Great Western Advertiser* says:—"At no period, perhaps, was there a greater demand for this class of workmen than there is now at Swansea. The erection of the new Wesleyan Chapel, the Unitarian Chapel, the new Station House, and several other extensive private buildings, has produced an unprecedented demand for masons as well as for carpenters, &c., and excellent wages are received."

* P. 583, *ante*. † P. 565, *ante*.

A FEW QUESTIONS RESPECTING SEWERS.

1. What are the dimensions of the several sizes of sewers now in use?

2. What is the least size of a sewer, so that it may have the requisite space for examination, cleansing, repairing, or for opening new communications with new drains?

3. What is the desirable limit of the longest length for the smallest sized sewer?

4. What is the least fall that a sewer should have?

5. Has any plan been tried for forming wells at convenient distances to collect the sediment from the sewage?

6. What would be the best size and distances for such wells?

7. Is there any data to determine, in what average time a given length and size of sewer would furnish a given quantity of sediment?

8. Supposing such deposit sediment-wells to be found useful, what would be the best material, what the average cost of each, and what would be the value of manure that might be collected in this way in London?

9. Could an apparatus be contrived to take out the sediment, put it into suitable casks or other vessels, to be taken away in carts and conveyed by railway trucks into the country?

10. When the best form for sewers is determined, would it not be desirable to have the best form of bricks constructed for them?

11. Would not a form for the bottom of a sewer, resembling an inverted Gothic arch, be better than the egg-shape?

12. Would it not be an improvement to have longitudinal timber, as a sill at the bottom of sewers, not only for the purpose of making an even run for the sewage, but also to prevent unequal sinkings, which in some grounds must take place, and cause sediment deposits?

13. What difference, if any, is now made in the foundations of sewers, when in clay, gravel, sand, peat, &c.?

14. When there is sufficient fall in a sewer, why is any inconvenient limit given to the height?

15. Why should not the height of sewers, when the fall and other circumstances will admit of it, be such as would allow workmen to walk upright when examining, cleansing, repairing, or forming new inlets?

16. State what is the least space required from the surface of a road to the top of a sewer?

17. What depth and space is required under streets for water and gas-pipes?

18. When a new sewer is required, what is the usual mode of determining every circumstance that should be taken into consideration?

19. Is there any prepared list of points for inquiry?

20. What quantity of silt is taken out of sewers on an average?

21. What is the greatest distance between the shafts to the different sized sewers?

22. What are the names and descriptions of tools, &c., used in the several operations in the formation and subsequent works, and to keep sewers in efficient order?

23. Has any plan been tried to prevent the dirt, &c. from streets being carried by rain into sewers, without stopping the free circulation of air?

24. In applying the liquid sewage as manure, would it not be better to take off as much as possible from elevated positions to the country, than to allow all to run down to the Thames, and have the whole to elevate?

25. What extent of ground would the sewage of the higher parts of London manure, without pumping any?

26. Could not a great quantity of liquid sewage be directed to some one, or to the several railways, and be then drawn off by a tap into casks or tanks, on railway trucks, and thus conveyed into the country, where it would be useful?

27. What is the probable quantity, and what would be the cost per ton, that could be obtained in this way?

28. Might not sewers be made advantageously sufficiently large to contain water and gas-pipes?

29. Would not the proposed new park at Battersea be a good opportunity to adopt an improved system of forming sewers?—From

Nov. 26, 1845. A Looker-on.

THE STATE OF THE GAS MAINS.

Sir,—It has long been matter of surprise to me, that the Gas Companies of London should pay so little attention to the laying of, and keeping in order, the main pipes in the streets, and I believe that it is in a great measure owing to this that the inhabitants of London are compelled to pay the high price for gas they do at present, occasioned by the great extent of leakage existing in the pipes, caused not only from decay, but through the great carelessness displayed in their laying, and which leakage bears a very large per centage upon the gas made; I have known it to exceed 40 per cent. This loss might have been prevented (or nearly so), if the companies had but employed persons competent to undertake the work, and it behoves new companies to pay attention to this very important branch of gas lighting, as it will give them the means of competing better with existing companies, and supplying gas at a much lower rate than it is at present.

The mains of the companies now established have for the most part been laid without care or judgment, ignorant persons having been employed to superintend their laying, and the consequences are, the unequal supply of gas to different districts, and the loss by leakage as previously stated.

I have paid considerable attention to this subject, and can bring forward proofs to corroborate my statements. It is scarcely possible to open the ground in any of the London streets without finding the earth impregnated with gas, and the iron gratings give evidence of the great waste that is taking place, and this must be perceptible to any one in passing through the streets. I can refer to the officers of the Commissioners of Sewers to bear me out in saying that it is dangerous entering the sewers, solely from this cause, until they have been ventilated by the opening of the air-holes. In addition to the nuisance from the stench, it is most dangerous, as accident or design might occasion an explosion that would be destructive to life and property; and the Government ought to take such steps as to make it compulsory on the different gas companies to make their main and service pipes sound, and to see that the officers of the gas companies are competent to perform the duties they undertake, by establishing a Board of Examiners, as proposed by Dr. Jones in his lectures on "Gas and Gas Meters," and preventing parties from applying who are entirely incompetent and wholly ignorant of the business they profess, and whose only claim and merit is that they have a friend among the directors, whereby grocers, tailors, &c. get transformed into engineers, superintendents, inspectors, &c.; and it is from the ignorance of such parties that London is at present the worst and dearest lighted city in which gas is introduced. Gas, under proper management, can and ought to be supplied from 4*s.* to 4*s.* 6*d.* per 1000 cubic feet, and many companies would find themselves in a very different position to what they are at present, and the shareholders would receive dividends instead of reports, as is the case at present with some of them. I shall resume this subject, as also on the quality of the London gas, gas-fittings, and gas-meters, if it should meet your views.—I am, &c.,

Dec. 5. "Carbon."

Materials for History of Bath.—We hear that the Royal Literary Institution at Bath has received a valuable present of about one hundred books and pamphlets, and several hundred engravings, illustrative of the city of Bath. The books and pamphlets relate chiefly to the history and antiquities of the Queen of the West, and show to what extent science and literature have been indebted to her. The engravings are arranged in a large folio volume, beginning with the Roman altars of the earliest period, and continued with successive maps of the city, views of the surrounding scenery, prints of its churches, public buildings, and public men. Of interesting objects, of which engravings could not be found, drawings have been made. The collection was formed with much care, and at great expense, by Capt. Chapman, who has been often a resident of the city, and who now generously wishes that the public should enjoy the fruit of his labours.

SOUTH PORCH, NORTH WALSHAM CHURCH, NORFOLK.



THE SOUTH PORCH OF NORTH WALSHAM CHURCH, NORFOLK.

The church of North Walsham is large, and mostly of a plain decorated character. It has nave and aisles, covered by a triple roof. The chancel has aisles, being, in fact, a continuation of the nave and aisles, there being no external division or mark to separate the eastern portion of the church from the western; but internally the chancel and the aisles were anciently divided from the nave by screens. The lower part of what was the rood screen is still remaining, and contains some good spandrils, very delicately carved: it also has the remains of painting and saints in the panels. The aisles were divided from the chancel by screens, as chapels. The nave piers are good, and of lofty proportions. The roofs are open, but very plain and rough. There is an enormous west gallery; yet behind it there is a vacant space large enough for an ordinary church, where the parish-engine and ladders are kept: here, too, near the south door, is the font, enclosed by a wooden railing, having a very good carved oak cover.

The south porch, the subject of the present engraving, is of a later character than the main body of the church, being of good perpendicular design. It is of a great size, and is open to the roof, never having been divided into two stories, as was frequently the case in large porches of this style. The part which is blocked up above the archway was, probably, a niche. The panelling on each side, and in the gable, buttresses, and plinth is filled in with the squared flint-work, so common among the churches of Norfolk. The flank has two windows, divided by a buttress, but they are bricked up as high as the springing.

The tower of the church is large, situated at the west end, and was of a great height, but is now in ruins. It was struck by lightning about a hundred years ago, since which time it has been gradually disappearing. A few years ago a great portion was obliged to be taken down. There is still, however, sufficient standing on the side next the church to stop the roof of the nave.

JAMES K. COLLING.

We append the following additional items of information.

On the north side of the chancel, near the east end, is a mural monument to the memory of Sir William Paston, knight., a native of the town, founder of the Grammar School, and ancestor of the first Earl of Yarmouth. It was erected during his life, by John Key, a freemason of London, who, by agreement dated 1607, undertook to fit up the tomb with an effigy of the knight in armour, 5½ feet long, for the sum of 20*l*. Sir William died a few months after making this agreement, aged 80 years. The church is dedicated to St. Nicholas.

The living is a vicarage, with the rectory of Antingham St. Mary annexed, in the archdeaconry of Norfolk and diocese of Norwich. King Edward the First, in his twelfth year, granted a licence to the Abbot of Holm to appropriate it, but this was not performed till December 9, 1338, when Anthony, Bishop of Norwich, appropriated it to the Convent of Holm, and it was to be transferred on the death of Roger de Hales, the then rector. On this event taking place the vicarage was formed, and the patronage was settled to be in the Abbot of Holm. The Lord Chancellor has the gift at present, and its annual value is estimated at 33*6l*.

The town of north Walsham is situate on the high road to Norwich, and consists of three streets, diverging from a central area, in which stands the church. It is about 15 miles N.N.E. from Norwich, and 124 N.E. by N. from London. When the last census was taken it contained 2,655 inhabitants.

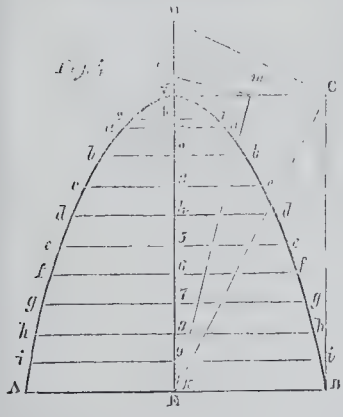
THE CONIC SECTIONS

CONSIDERED IN REFERENCE TO THEIR PRACTICAL APPLICATIONS.

The Parabola.

At page 493 of the present volume of THE BUILDER, we gave a method of describing the curve of a parabola by means of points, which points were obtained from a series of ordinates computed by the rule to equation (A), or that to equation (C), both these rules being applicable to the same purpose. This method of construction is sufficiently satisfactory in practice, and practical men adopt it in preference to other methods, in consequence of its being easily understood, and more in accordance with their usual routine of operation; it is, however, attended with greater mental and manual labour than could be wished for, since the ordinates have first to be computed numerically, and afterwards successively applied to a scale of equal parts, before the positions of the several points through which the curve has to pass can be assigned, and if these processes be not performed with considerable accuracy, the resulting figure may be very far different from the true one. In order, therefore, to avoid the errors incident to this mode of construction, we shall effect the operation in another way, by which the computation of the ordinates is dispensed with, as well as the application of the computed results to a scale of equal parts, and thence to the several ordinates which are supposed to be previously drawn. By this method it is necessary that the parameter of the axis and the position of the focus shall both be known, or rather, the position of the focus, and that of a point in the axis produced, through which the directrix of the curve is made to pass; but since both these points depend on the parameter, the magnitude of that element must first of all be ascertained. Now, it has already been stated, page 463, that the parameter of the axis is a third proportional to any abscissa and its corresponding ordinate, and we may here add, that the distance between the focus and vertex of the curve, and also the distance between the vertex of the curve and that point in the axis produced, through which the directrix passes, is equal to one-fourth of the parameter, hence the method of determining the positions of these points is obvious, and is as follows:—

Let AB, fig. 4, be the base of the required parabola, and let AB be bisected perpendicularly in E by the straight line ED, and make EV equal to the axis of the curve. Upon the axis EV, and the semi-base EB, describe the rectangular parallelogram EBCV, and draw



the diagonal EC; at the point C, erect the perpendicular CD, meeting the production of the axis in the point D; then is VD the parameter of the curve to the axis, EV.

Bisect VC in m, and at the point m erect the perpendicular mn, meeting the production of the axis in the point n, and make VF equal to Vn; then is F the focus and n the point in the axis through which the directrix of the curve must pass.

Since the triangle ECD is rightangled at C by the construction, and CV perpendicular to ED, it follows from the eighth proposition of the sixth book of Euclid's "Elements of Geometry," that the triangles ECV and CDV are similar to one another, and consequently the homologous sides are proportional; thus we have

$$EV : VC :: VC : VD = \frac{VC^2}{EV},$$

so that VD is a third proportional to the abscissa VE, and the ordinate EB; but by the definitions the parameter of the curve to the axis VE, is a third proportional to any abscissa and its corresponding ordinate; consequently, VD is the parameter; this far, therefore, the construction is accurate.

Again, since the triangle Emn is rightangled at m, and mV perpendicular to En, the triangles EmV and mnV are similar to one another, and their homologous sides are proportional; hence we have

$$EV : V\,m :: V\,m : V\,n = \frac{V\,m^2}{EV};$$

from which it appears that Vn is a third proportional to EV and Vm; but Vm=¼ VC by construction, consequently $\frac{V\,m^2}{EV} = \frac{1}{4}\,VC^2$, and by substitution it is Vn=$\frac{VC^2}{4EV}$; so that Vn and VF are each of them equal to one-fourth of the parameter VD.

Through the point F draw the straight line rs parallel to AB, and make Fr and Fs respectively equal to Fn, or one-half of VD; then r and s are points in the curve, and rs is the parameter to the axis VE.

Let the axis VE be divided into any number of equal parts in the points 1, 2, 3, 4, &c., the more numerous the points of division, the more correctly will the curve be delineated; and through the several points thus determined, and parallel to the base AB, draw the series of double ordinates aa, bb, cc, dd, &c.; then from the focus F, with the several distances n 1, n 2, n 3, n 4, &c., intersect the ordinates both ways in the points a, a; b, b; c, c; d, d, &c., and these will respectively be points in the curve; then with a fine pen and a steady hand let a line be drawn through all the points, and the line thus traced will be the curve of the parabola.

Having thus effected the delineation of the curve, it may be instructive to shew the method of calculating the parameter and the other quantities dependent on it, and for this purpose we must recur to the expression VD=$\frac{VC^2}{EV}$, an expression which, given in a specific form, becomes

$$parameter = ordinate \times ordinate \div abscissa \ldots\ldots\ldots\ldots\ldots (E)$$

And when this equation is brought into the form of a rule, it is as follows:—

RULE.—*Multiply the semi-base or given ordinate by itself, and divide the product by the axis or abscissa, and the quotient will be the parameter sought.* Or more briefly thus:—*Divide the square of the ordinate by the abscissa for the parameter required.*

Example.—The axis and base of a parabola are each 30 inches; what is the parameter, and what is the distance of the focus and the directrix from the vertex of the curve?

Here the abscissa is 30 inches, and the ordinate or semi-base is 15 inches, consequently by the rule, it is

$$parameter = 15 \times 15 \div 30 = 7{\cdot}5 \text{ inches},$$

and the fourth part of this is 1·875 inches, the distance between the vertex and the focus, and also between the vertex and the point through which the directrix passes. It therefore follows, that if the axis be divided into ten equal parts of 3 inches each, the several radii by which the points in the curve are determined, are 4·875, 7·875, 10·875, 13·875 16·875, 19·875, 22·875 25·875, 28·875, and 31·875 inches respectively.

There are various other methods by which the parabolic curve may be described, but the best and most expeditious of all is that in which it is generated by continued motion, and one mode of generating it in this way is as follows:—

Let AB, fig. 5, be the base of the parabola and EV its axis; find the points F and n as in the last case, and through the point n so found draw the straight line PP, parallel to the base AB, and in consequence at right angles to the axis VE. Along the straight line PP let a ruler be fixed, and let one side of the square DCG, be brought into close contact with the lower side or edge of the ruler; then let a thread or cord FpG be taken equal in length to nE, the straight line which is made up of the axis VE and one-fourth of the parameter Vn, and let one end of this thread be fixed in the focus at F, while the other end is fixed at G, the lower extremity of the square DCG, the side CG being equal in length to the thread FpG. This being done, let CG, the side of the square, be made to coincide with nE, and let DC, the other side, be made to slide upon the ruler PP, while the thread is kept tight and close to the side CG, by means of the pin or pencil p; then the curve VpA, which is thus described, is one-half of the required parabola, and by only turning the square about, and causing it to slide in the opposite direction and on the other side of the fixed line nE, the curve VmB, which is traced

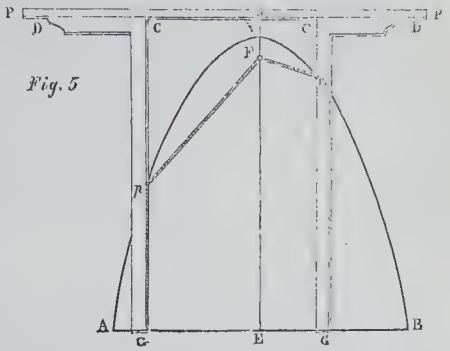


Fig. 5

out by the pencil at m, will be the other half of the parabola.

We have now to prove that the curve described by this motion is the common or conic parabola, and for this purpose we must suppose the square to slide along the rule PP until the points G and p become coincident in the point A, in which case the thread pF will be the hypothenuse of a right-angled triangle, of which the base is AE and perpendicular FE.* Now the length of the thread being by construction equal to nE=VE+Vn, the hypothenuse of the right-angled triangle just alluded to, must be equal to the same quantity: but VF is equal to Vn, consequently FE=VE—FV, and by the property of the right-angled triangle, we have,

$$(VE+V\,n)^2 = AE^2 + (VE-FV)^2.$$

and from this by expanding and transposing the terms, we get

$$2\,VE \cdot V\,n + 2\,VE \cdot FV = AE^2;$$

but FV=Vn by construction, therefore by substitution it is

$$4\,V\,n \cdot VE = AE^2,$$

and since Vn is one-fourth of the parameter, the equation is

$$parameter \times abscissa = ordinate \times ordinate,$$

which, as we have already seen, is the equation of the common parabola.

There is another method of generating the curve by continued motion, which we think proper to introduce in this place, not that it is superior to the method just described, but because the same principle is applicable to the other sections also, thus reducing the system of conic construction to one uniform principle, which is beautifully calculated to shew the mutual relation of the several sections to one another.

Let AB (fig. 6), be the base of the parabola, and VE its axis, exactly as in the two cases preceding; upon the semi-base EB, and axis VE, describe the rectangular parallelogram

* We have omitted drawing a straight line from A to F in the figure, but the reader can easily supply it in his copy, which will render the steps of the reasoning more easily understood.

EBCV, and draw the diagonal EC; at C, the extremity of the diagonal EC, erect the perpendicular CD, meeting the axis EV produced in D, then is VD the parameter of the parabola to the axis VE; through the point D, and parallel to the base AB, draw the indefinite right line nP, which in this case will be the directrix of the curve.

Then, if the straight line nF be moved in a direction always parallel to the axis VE, and in such a manner that the extremity n, thereof, may always be in contact with the straight line Pn, and carry along with it the side Vn of the right-angled triangle mVn, of which the right-angle is moveable about the point V; then it follows, that the continual intersection m, of the straight line nF, with Vm, the other side of the triangle, does by this motion generate a conic parabola.

This method, it will be observed, determines

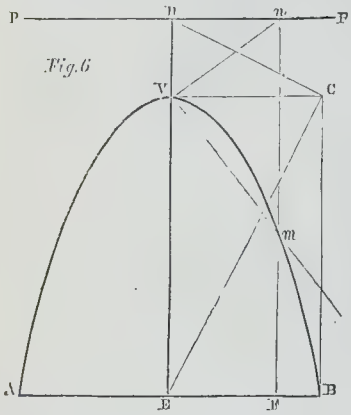


Fig. 6

the curve independently of the focal point, and it is only necessary that the parameter should be known for the purpose of fixing the position of the directrix Pn, along which the describing line must be carried; for in no other position will the moveable line intersect the curve, and the other side of the generating triangle in the same point.

If the moveable line nF be carried along parallel to itself, until the points m and F do each coincide with B, the extremity of the base, then will Vm become the hypothenuse of a right-angled triangle, of which the base is EB, and perpendicular VE; and this triangle will manifestly be similar, in that case, to VnD or VCD*; hence we have

VE : VC :: VC : VD.

But when the point F coincides with B, the semi-base EB is equal to VC, and, by construction, VD is equal to the parameter of the axis; hence it is,

abscisse : *ordinate* :: *ordinate* : *parameter*;

and, by equating the products of the extremes and means, we get

parameter × *abscissa* = *ordinate* × *ordinate*;

which is also the equation to the conic parabola; hence the truth of the construction is manifest. There are various other methods by which the curve may be generated; but since those which have now been exemplified are sufficient for every practical purpose, we shall not insist longer on the subject, having done enough to prepare the practical man for the important applications which are to follow.

T.

* The reader should connect the points F and B by drawing a straight line in his copy, such being omitted in the figure.

The Louvre Exhibition for 1846.—The annual exhibition of the works of modern artists at the Louvre will be opened on the 15th of March next, and closed on the 15th of May. All works intended for exhibition must be sent in between the 1st and 30th of February.

Rome and London Compared.—The subject for the English essay at Trinity College, Cambridge, this year, is "Rome in the time of Augustus compared with London in the nineteenth century."

FOREIGN ARCHITECTURAL AND COLLATERAL INTELLIGENCE.

The "Cloaca Maxima" of Rome and the Egg-shaped Sewers of London.—If any thing can prove to us, that the very *structure* and aspect of ancient and modern times were different, the above two constructions can. In the first instance, we perceive a very small town—old, stern Rome, wherein a king (Tarquinius Priscus) considered it the scope and object of his life—or nearly so, to erect a structure, which, for ages to come, would afford cleanliness, and therefore comfort and salubrity (vitality) to his native city. The thing is done, and done thus, that the ultimate expansion of the capital of the world does not outstrip the *first*, primordial plan; and the *Cloaca maxima* of Tarquinius suffices for the Rome of Cæsar and Augustus,—even now, 2,400 years afterwards, a monument of admiration for every sensible beholder.—In modern times we manage things differently; we run after all and every sort of *private* comfort and ease, but whatever belongs to the province of public utility is a matter of chance, if not of corruption and jobbing. The subject of sewers, however, has been, in its main features, so ably managed by other hands in this journal, that it does not behove us but to make a few *comparative* observations relative to the Roman work. Calling to our minds what we have seen of the Cloaca maxima, we do not believe that its inner surface (brick) was *glazed*. There was no necessity for it, at any rate. Every one who has seen Roman (aye, even mediæval) bricks, knows what they are—stone, nay, *better* than stone, combining hardness with toughness; moreover, the mortar of the same kind, so much so, that nothing but (modern) gunpowder, or the crowbar and pick-axe will dissever or break this ancient *material* of building. To dilate on this would be to speak of things unattainable, or *nearly so*. But one thing has come out of late here, and one certainly not neglected by our Roman masters, viz. that sewers, like any brick and mortar structure, must have time to set, to dry, and to solidify, if they are to be *solid*. This, as a matter of course, has its physical, if not its chemical reasons. The watery portion of the carbonate of lime has to evaporate before it is capable of entering with the grit and sand, and altogether with the stone or bricks into a firm agglutination, or perhaps (chemical) amalgamation. The Roman king was, therefore, right in building his sewers *without* the bustle and the astounding *harass* and traffic of a capital of the world; and, consequently, there was no over-hurrying required, and the thing could go on in its natural and timely progress. But *our* sewers can *not* remain accessible to the influence of the air—the thing is impossible. They can neither dry, nor settle, but *must* be filled up, there and then. This anomaly has been clearly exposed, of late; but we fear that no remedy has been hitherto proposed, which can or would be resorted to, as there is no spare time at hand, either in Fleet-street, the Strand, &c.

Curious Appliances of the Cathedral of Orvietro.—A curious *solemnity* is yearly celebrated in the *interior* of this beautiful cathedral, in the Roman states, viz. the letting off of a huge set of fireworks. To crown this inconvenience, there are some exceedingly interesting old fresco pictures in the choir, by an unknown painter of Siena, as well as those, more known, of Signorelli, which, being acted upon in this *vandalian* manner for centuries past, have been coated with soot and dirt. Fortunately, two German painters, Messrs. Baltz and Pfannenschmidt, have of late applied themselves to cleanse these beautiful works; and thus it may be presumed, that this splendid old structure will no more be injured by the explosion of crackers and squibs.

The Paving of the City of Vienna.—The corporation of that metropolis have arrived at that persuasion, that most *solid* works are the cheapest. An exceedingly costly mode of paving has therefore been carried into effect, which, however, is calculated to last at least *a hundred years*. It consists of solid cubes of granite, about a foot square, all whose six sides are grooved, logitudinally and transversally, for preventing the slipping of horses, &c., thus ready for use on every side. It is calculated that as any of these get either worn out on one side, or even broken at a corner, it will be heaved out, and turned on the other side, and as the granite used at Vienna (similar to that mostly used here) is very hard, the experiment is sure to succeed. The expense, however, to pave in that manner, even the small city of Vienna, amounts to more than a million of florins (100,000*l.*). The only thing yet indispensable is the strong *ramming* in of these cubes, as it is well known that if merely one of the paving stones of a certain surface gets shakey, the whole connection is broken, and the *disease* will spread to a large extent. As, however, Vienna is unlike London, not so astoundingly *undermined* by a vast number of sewers, and water and gas pipes, the ramming in can be done with the necessary force and solidity.

Reorganization of the Royal Society of Belgium.—A recent decree of the king completely re-constructs the above learned body, which, the fine arts being now added to it, will henceforth take the appellation of "*Royal Academy of Sciences, Literature, and the Fine Arts of Belgium.*" The Society will form three classes, viz. Physical, Mathematical, and Natural Science; Class of Literature, and Moral and Political Science; and Class of Fine Arts. Messrs. Roelandt and Suys are the new members of architecture; Geefs and Simonis of sculpture, &c. (*Novus ab integro nascitur rerum ordo.*)

Paris Guildhall.—Twelve statues representing Art, Industry, Science, and Commerce, have been of late placed on the balustrade at the top of the Hôtel de Ville, facing the Rue de la Tixéranderie; and three of the façades of this building are now ornamented in that way. When the Paris Guildhall is completed, it will contain about 500 statues, busts, and allegoric medallions.

An Art "voice" from Dresden.—Artists now complain of the want of encouragement; we ought rather to do so, of so *much* wrongly applied—because, when ever was it before, that cartoons, never to be executed, or oil-paintings, without a spark of thought and feeling, exhibiting, moreover, an utter lack of technical knowledge, have been paid for so highly as they are now? It could be therefore proved to a nicety, that beside the narrow-mindedness and the mere trade feelings of most German artists—it is especially the surfeit of indiscriminate encouragement, and the state of the academies, which drag down art, and make it proceed within the most narrow and commonplace limits. Amongst the Dresden painters, there is but *Schwind* who can be said to be possessed of that astounding rapidity of technicism, by which those great stars of mediæval Italy were so conspicuous. It is useless to dream of, or pant after geniality, as long as the merest A B C of composition has not been attained.—*Kunstblatt.*

A Pentonville Model Prison at Berlin.—This huge building is now approaching its completion, surrounded by high walls and turrets. There will be room for 520 prisoners, and a complete, very complicated, separation has been effected; but the building has turned out a very expensive one, so much so that the mere *interest* of the capital expended will bear a proportion of 20 dollars (4*l.* 10s.) for each prisoner.

Art-Museums in the German University Towns.—According to the programme of the Bavarian University of Erlangen, the Art-museum is open twice a week, *one* hour each time. The libraries, also, are restricted within the same narrow limits—but then students and others may take books home.

Erection of a New National Gallery at Dresden.—The huge, albeit unseemly building, the Picture Gallery of Dresden, endeared still to any sensible person, as the, for so many years, shrine of such sacred objects, as the Madonna del Sisto of Raphael, and other incomparable works, is now likely to be replaced by a building more in accordance with the demands of our age. It was his Majesty of Saxony's *Government* which, on its own free will, brought the necessity of this improved building before the Chambers, which, no doubt, will assent to it cheerfully. The costs are estimated at 350,000 thalers, about 37,000*l.* English coin, but equivalent to 70,000*l.* in Dresden. As that kingdom has a surplus of revenue, 200,000 dollars will be taken from that source, and the remainder placed on the budget of next year.

Sliding-scale in the Payment of Public

Officers.—A very curious regulation—the first in its kind, but of the most striking depth and justice—has just been enacted by the King of Bavaria; certain additional per centage being granted to the *minor* Government officers for the present period of apprehended scarcity and want, of from 10 to 25 per cent. But this is regulated by a sliding scale, viz., the *greater* the salary, the *less* the per centage; and least but not last, this increase is also graduated as far as it concerns bachelors, or married men, or widowers with children, &c.

Completion of the Works at the Jardin des Plantes at Paris.— The *Journal des Débats* gives the following list of the above works, for which the credit will be asked at the next meeting of the Chambers. Foundations and iron railings for inclosing all the parks—building of a new park for the lions—the building of a *locale* for the amphibious mammalia and the reptiles — new and expensive fosses for wild boars. A new foot-path is to be laid all along the walls of the gardens between the Quai and Cuvier-street.

French Officials disclaiming any Connection or Concern with Private Companies.— Mr. Hericant de Thury, Inspector-general of Mines and Councillor of the State, has addressed the French official journals in a very tart letter—saying that his function as a Government officer does not *permit* him to be the member of any company, as has been erroneously stated. J. L——y.

CHRIST CHURCH, PLYMOUTH.

This fabric being completed, though not yet consecrated, we avail ourselves of a description of the building from the *Plymouth Journal*:—The general disposition of this edifice is the same as was adopted by Mr. Wightwick in Trinity Church, his object being to put his employer to the expense of no more ground than is actually occupied by the building, and to avoid the cost of any external ornament beyond that which gives architectural character to the street-front, the sides and back of the church being concealed by adjoining and surrounding houses. Of course there are no windows in the outer side walls, the main body of light being obtained by means of *clerestories* over the arcades of the nave. The architect is known to be averse to the use of internal pillars where they can be avoided, but in this case (as at Trinity), where there is a great lateral extent and galleries are imperative, they would have been necessary, even if the building had been insulated. The west front exhibits a lofty gabled centre, flanked by octagonal turrets 64 feet high, and winged by two lower gabled compartments, having angle pinnacle buttresses, reaching a height of above 40 feet. The octagonal turrets terminate with open lanterns, surmounted by crocketted spirettes, resembling those of Magdalene College, Oxford. The three doorways, respectively seen in the central and wing compartments, are adapted from the beautiful originals seen in Tatershall Church, Lincolnshire. The tracery of the great east and west windows is from Aylsham Church, Norfolk. Over the wing doors are long and narrow single-light windows, with quatre-foil apertures above, and over the large west window is a loop opening, ventilating the roof. All the carved work of the west front is of Caen stone, the plain portion of the masonry being of our local limestone. The front is 72 feet in extent, and 50 feet from the pavement to the top of the gable. The style is Tudor Gothic.

Internally, the church exhibits a nave of five arches in length, surmounted by a clerestory of coupled windows, the lower timbers of the roof being left open to view, so as, in a general way, to resemble that of St. Mary's at Cambridge. The width of the nave is 31 feet; the height is nearly 40 feet; the aisles (including the thickness of the pillars) are 18 feet 6 inches wide, and the galleries within them are so kept back, as to leave the ascent of the pillars unimpeded. There is also a gallery at the west end, with staircase on either hand, occupying the depth of one arch of the nave, which is therefore a blank. At the east end of the nave an arched opening 32 feet high and 16 feet broad reveals the communion recess, which, from the confined space of the ground, is necessarily only 9 feet deep. The pulpit is of novel construction, approached by a door from the vestry lobby. The font (of Caen stone) is near the western midentrance. The church has been completed, including 35*l.* for extras, for 6*l.* 3*s.* 6*d.* above the architect's estimate—the total cost of the building being 3,475*l.* The accomm dation is for 1,120 sitters, of whom 35 may hereafter have to make way for an organ. The clear internal dimensions of the church are, from east to west 87 feet, and from north to south 68 feet.

WESTMINSTER COURT OF SEWERS.

On Friday, Dec 5th, a Court was held. The collectors presented their reports, and the clerk declared the cash at the banker's to be 17,176*l.* 2*s.* 7*d.* Mr. Phillips was ordered to present to Mr. Dowley a report of the most faulty sewers in his districts to which he alluded in his report in the Book of Informations.*

A long discussion took place between some applicants for leave to enter a sewer built by Mr. Ponsford, who produced to the Court his account of the cost to him of the sewer, 592 feet, 811*l.* 10*s.* 6*d.*; the digging he charged at 3*s.* a cubic yard, the brickwork in mortar at 15*l.* 4*s.* 6*d.* per rod, and the brickwork in cement at 17*l.* 3*s.* 6*d.* per rod. The Court thought his claim excessive, and ordered the surveyors to measure the work, and the question was adjourned to a future day.

The question as to works likely to be done and materials to be required, was again discussed, and Mr. Allason having assured the Court that Mr. Bird had had sometimes two and sometimes three establishments, Mr. Leslie carried the Court with him, by shewing the vast amount of the works above 50*l.*, already provided for by special contracts, the expense of cleansing sewers and gullies in the antiquated way, without a check on the expenditure, amounting to 2,000*l.* per annum, and deducting this, included in his plan as a labour account, from the works above 50*l.*, it left a comparatively small amount of works to be done by the new establishment, and which it was still further proposed to reduce by a tubular system of gullies. The honourable commissioner stated, that every foot of the present gully drains took twenty bricks, and the average cost was one penny per brick. The surveyors' report was then read, without the schedule of materials, and Mr. Leslie moved, and was seconded by Mr. Thomas Leverton Donaldson, "That the surveyor be authorized to procure the necessary materials and other matters contained in his report, from time to time, and report at each meeting of the Court the amount so supplied." Carried *nem. con.*

Mr. Wm. Donaldson's motion to prevent the clerk from printing any paper without the order of the chairman then came under discussion, in the midst of which it was moved and carried that the Court do now adjourn.

Lighting Mines by Electricity.—M. Delarive has succeeded in obtaining a brilliant light for lighting mines by the galvanic battery. His pile is composed of several concentric cylinders, of copper or platina, separated by porous cylinders, and forming a series of four or five couples. An amalgam of liquid zinc, or, what is preferred, an amalgam of potassium, is the positive metal; and a solution of sulphate of copper, for copper cylinders, and a chloruret of platina, for platina ones. The difficulties in maintaining constant light have been overcome by employing small hollow cylinders of coke, similar to those used in Bunsen's pile, but smaller, and arranged like the wicks of a lamp. A ring, or disc, of metal is placed above these, and of the same diameter; and the electric current thus passes between the two. The current must be made to pass from the coke cylinder, that the particles of carbon which are carried off may fall again with their own weight. The whole is placed in a glass globe, which must be hermetically sealed. There is no occasion to form a vacuum in it, as the small portion of oxygen is so soon absorbed; but it must be carefully excluded from the outer atmosphere. The pile is fitted with two metallic wires—one communicating with the cylinder of charcoal, and the other with the metallic-conductor.—*Post.*

* Vide *ante*, page 493.

CHELSEA IMPROVEMENTS.

Sir,—I observe that you are in the main favourable to the proposed improvements in Chelsea, and intend keeping your eye on them, in order to give us the advantage of some observations hereafter.

My object in writing is, to say there are strange whispers abroad, that many of the alterations are projected solely with the view of improving the estate of my Lord Cadogan, and that parish money will actually be spent in doing that which his lordship would himself do for his own benefit. There are several things which seem to confirm this, and I do hope, for the sake of numbers of the ratepayers who read your now influential journal, that you will inquire into this matter.

Chelsea. A Church Trustee.

SOME EFFECTS OF THE RAILWAY MOVEMENT.

We find the following suggestive remarks in the *Railway Review* of the current month:—

"We are not opposed to railways or railway enterprise. On the contrary, we hold that the present railway movement, reckless as it is, will produce a revolution in this country as comprehensive, as sweeping, as important, as any political, moral, or economical revolution that yet has been enacted in the world. An entire new race will spring up with the entirely new *genera* of roads. A new opening for the exercise of intellect, a new road to eminence, and an infinity of space and *materiel* for the employment of men's energies will be, nay *is* created, by the new system. We are present at the birth of a new aristocracy. And as force was the patent by which the old won and held its lofty position, so in these days of ours, will a similar, a virtual position, far more influential, be won and held by the controller of force—Intellect. Wealth, possessions, unassisted by mental power, if only of the lowest order, is in the descending scale, while comparative poverty, backed by wit, intelligence, and that quality which will, if it exist, manifest itself in whatever it be employed on—Genius, is rapidly ascending. The director or chairman of a board must gain and maintain his rank by talent, or he is soon discarded. He must know and do. He must think only in-so-far as it shall lead to profitable action, and not enter the regions of impalpable speculation. He must work hard if he do his duty, he must act honestly if he would preserve his reputation. He cannot uphold himself in the company in which he has thrust himself by acting idleness. There all is bustle, activity becomes absolutely necessary to self-preservation; if he be inert, he will be infallibly crushed among the cogs and swift-whirring wheels in that scheme of perpetual motion, which he has attempted to erect, guide, and sustain: No; shrewdness, application, and perseverance are the requisites of this new order. We will say nothing of lawyers employed in railway matters, they abound in all things, float in all degrees of density. They necessarily form important adjuncts to all our affairs. They have provided a complication so complicated, that as fast as one unravels another confuses it, thus furnishing themselves with an endless but profitless(?) employment. A far more important class is created in engineers and surveyors; that is, taking our view of the railway revolution—namely, as conducing to the progression of man, and furnishing wholesome and elevating occupation for the mental energies and powers. This is an outlet, not for the sons of our aristocracy, like the church and the army, but for the aspiring and intelligent among the poorer middle classes, and the humblest poor themselves. Here no patronage, but that of genius, no influence, but that of known and experienced ability to do his work, can obtain the man of science employment, reputation, and substantial reward. Here no backstairs intrigue, no factious and party interference can avail. That man who is the most *able*, he who carries about him the most weighty and legitimate qualifications for office, honour, and its ultimate rewards, *he* is the man who will triumph over conventional rank and conventional influence. Hence then there is hope for the young man who would live a life of labour in the full exercise of his intellectual faculties; who would rather have employment at half the value, if it be but ob-

tained by his own ability, than twice the sum gained by the intercession of another, for doing nothing but that which is level with the commonest capacity. It is in this point of view that we estimate so highly the potent influence for good in the railway revolution. It promises intellectual exercises and labours for our population. It is mind that is evoked by the spread of steam communication. It is mind, though not of the highest order, that will rule the new confederacy. It is mind, nature's darling, her highest effort, that is, and will be called into play to an extent hitherto unequalled. It is stirring even the country squires; exciting the more active, but still plodding citizens of the country towns. They are anxious, fevered, agitated, and at present unequal to the hour. Hence many are the prey of swindling cormorants, who, thanks to the evanescent nature of dishonesty which cannot long retain one form, will be a short-lived race."

RAILWAY INVESTMENT.

Under this head, the *Westminster Review* for the present December has an article which will be read with much interest by the hundreds who are at this moment contemplating the state of the share market with fear and trembling. The object is to shew that the cry of "Where is all the money to come from," is unnecessary and easily answered, and that the present depression must be temporary.

"Let us note," says the writer, "that from whatever cause they may arise, the alternations of confidence and distrust in affairs of commerce are as constant and certain as the ebb and flow of the tides. Success has always led to overtrading, sometimes in tea, sometimes in tallow, and now in railroads, and overtrading and panic have succeeded each other at intervals of scarcely five years apart, we believe from the days of the merchants of Tyre and Sidon down to our own. It may, therefore, be assumed as an axiom, that a panic is the safest time for investment. Property bought at a price greatly below its average value can hardly fall lower, and may, indeed in many cases must, gradually rise. A knowledge of this fact is the secret of the success of large capitalists. They buy when there are no other buyers; and when all the world are eager to buy, they keep their heads cool, and sell. At the present moment, it may seem a bold thing to recommend railway property as securities, but we have no hesitation in doing so, and in adding our opinion that an investment in lines well selected, at existing prices, would ultimately be found a far more prudent step than the purchase of 3 per Cent. Consols at 94.

There is but little analogy between South Sea and Mississippi schemes and railway projects. Let us clearly understand our position. We have arrived at a new epoch in the history of the world. A new element of civilization has been developed. As was the invention of letters, as was the printing-press, as was the steam-engine, so is the railway in the affairs of mankind. It is a revolution among nations. A moral revolution as affecting the diffusion of knowledge, the interchange of social relations, the perpetuation of peace, the extension of commerce; *and a revolution in all the relations of property.*"

We have already pointed out the following important fact (so far as we know we were the *first* to do so), but it may, nevertheless, be usefully repeated:—

"The change now in progress is that of superseding stone roads by iron roads. The first road was a track; the second one made with hard and rough materials, sometimes paved, and more frequently thrown loose upon the ground; the third a macadamized road; and the number of private Bills applied for between 1829 and 1833, for roads of this construction was 340.* There are 27,000 miles of turnpike-roads in Great Britain alone, and the public roads of all kinds (including both cross country roads and turnpike roads) in Great Britain and Ireland extend to a length of somewhere about 150,000 miles! We have now to convert these stone roads, or the greater part of them, into iron roads as speedily as may be practicable, and possibly (as the disposition to travel increases with facilities of travel) find room for twice the number. This is the work Englishmen have set themselves to do, and in this generation, or the next, they will do it."

* Porter's Progress of the Nation, vol. iii., page 159.

BUILDING STATISTICS.

Sir,—Will you have the goodness to state how many bushels of cement, and how many bushels of sand, are consumed in a rod of 272 feet of brickwork, reduced to 1½ brick thick.

When cement only is used; when cement, two-thirds and sand one-third; when cement one-half and sand one-half, or in equal proportions; when cement one-third and sand two-thirds.

Several books name the quantity of cement to a rod, but all that I have seen are useless, from not naming the proportion of sand on which the calculation is founded. Builders differ so much in their statements, and some are so exaggerated, that it would be more satisfactory to your readers to have data on which they can place more reliance. A few of these sort of particulars, *provided the data may be implicitly depended on*, would be of great use in estimating; such, for instance, as the following:—The number, length, and scantlings of pantile laths in a bundle; the number, lengths, and sizes of single and double laths in ditto; the number, sizes, and weights of various materials in certain known quantities of work: the lengths, sizes, and weights of hoop-iron per bundle for bond and iron tongues; the weights and sizes of nails, spikes, and screws, 6d. 8d. 10d. &c.; the quantities of lime, hair, and sand, in one coat render or lay: ditto in a yard of floated work, one coat and two coats, and in hods; weights, sizes, and qualities of tiles, slates, &c.

These, and others, would be extremely useful in a tabular form. But at present I seek most for information as to cement and sand.

Dec. 6, 1845. An Old Subscriber.

TOWER HAMLETS COMMISSION.

TENDERS FOR SEWERS.

Sewer from Hackney Wick to Grove-street; 4 feet by 2 feet 6; length, 4,450 feet.

Stewart	£3,860	0
Munday	3,695	0
Livermore	3,629	0
Crook	3,498	0
Ward and Son	3,465	0
Redding	3,357	19
Smith	3,347	0
Curtis	3,294	0
Lee	3,292	0
Edwards	3,250	0
Jay	3,187	0
Blackburn	3,115	0
Hill and Son	3,086	0

HOLBORN AND FINSBURY COMMISSION.

Haggerston-road; second size sewer; length, 600 feet.

Hill	£480	0
Smith	472	7
Johnson	425	0
Jay	417	0

Museum of British Antiquities.—In reply to Mr. Hawkins' letter to the Institute of Architects on this subject, and which appeared in The Builder, the following resolution was passed by the council at their last meeting:—"That the council have received with much satisfaction the communication from Edward Hawkins, Esq., the keeper of the antiquities in the British Museum, in which the assistance of the members of the Institute is solicited in preserving antiquities found in this country. The council, fully recognizing the importance of the object advocated in the letter of Mr. Hawkins, and heartily concurring with the views entertained by the committee of the Archæological Institute and at the British Museum, recommend to the members of this Institute to exert their influence, individually as well as in their corporate capacity, to prevent the destruction and dispersion of antiquities in all cases of discovery that may fall under their notice; and, further, it is the desire of the council, by this resolution, to call forth from the members of the profession in general that public expression of interest in the promotion of archæology which may best meet the wishes and suggestions conveyed to them in Mr. Hawkins' letter.

New Books.

The Archæological Album; or, Museum of National Antiquities. Edited by T. Wright, M.A.; illustrated by F. W. Fairholt, F.S.A. Chapman and Hall, Strand.

This elegant volume has attained considerable notoriety from the fact, that it was the cause of the late unfortunate difference in the British Archæological Association. Independently, however, of any adventitious celebrity, it has sound and legitimate claims on public attention, and is well calculated to carry out the Dedication (to Lord Albert Conyngham), which says it was "compiled with the hope of making more popular" antiquarian science. "Compiled" is too modest a word; inasmuch as it contains a great deal of original writing, and exhibits much varied learning.

It commences with an account of the meeting of the British Archæological Association, at Canterbury in 1844, with a notice of the various antiquities in and round that city; and concludes with a brief mention of the meeting at Winchester, in August last. The titles of other papers given are as follows: Ancient Bedstead in Turton Tower; Obsolete Punishments; Old Mansion in Houndsditch; History of Art in the Middle Ages (a very valuable paper); Symbolism in Ecclesiastical Architecture; Burgh Castle, and the Round Towers of Suffolk; Ancient Street Architecture; Patine in Cliff Church; the Early Use of Fire-arms; the Romans in London; Silchester; Burlesque Festivals of the Middle Ages; Monument of Joane, Prince of North Wales; The Fabulous Natural History of the Middle Ages; The Moat-House, Ightham, Kent; Early Use of Carriages in England; Saxon Barrows; and Illustrations of Medieval Antiquities, from illuminated MSS.

Mr. Wright's well-earned reputation as a scholar is widely spread, and led to his election some time since, as corresponding member of the Institute of France. In the present volume he has shewn, that amidst abstruse studies, he has not neglected the art of conveying information pleasantly, and of rendering what have been termed "dry" matters entertaining and attractive. The volume is profusely illustrated with etchings and woodcuts by Mr. Fairholt, who is taking a first place in his profession as an antiquarian draughtsman: nor is he only a draughtsman; a long series of papers on Costume, published in the *Art Union*, and which it is to be hoped will hereafter form a volume, shew that he is an industrious and intelligent antiquary. The title-page of the *Album*, "Specimens from Illuminated MSS," is a beautiful sample of chromo-lithography, executed by Hanhart.

Correspondence.

DRAINAGE IN PRIVATE HOUSES.

Sir,—Seeing in the pages of The Builder some remarks as to the construction of sewers and drains, I am induced to make a plain statement of facts as connected with drainage in many of the back streets and courts, now very densely populated, of which I think some remedial measure ought to be speedily adopted. I mean in regard to the drainage of old buildings as well as new buildings, over which a very great portion of the occupiers have no control, being in some cases disabled or incapacitated by poverty, and in others not able to get at the evil in consequence of its proceeding from the bad state of the cesspool or drains of the adjoining property. I myself am in this situation. Having been very unwell for the last two or three years, my medical adviser recommended me to have the drains cleansed and trapped, to keep back the smell. I have acted upon his advice at, to me, a great expense. I now find the evil to be in the adjoining property. I have applied to the landlord, but get no redress. I have also applied to the parish authorities—they cannot interfere, it being a private, and not a public nuisance; on the same plea the magistrate cannot assist me, I can go to the sessions, but having no funds, I am at a stand-still; and I assure you, Mr. Editor, that this is by no means an isolated case. An incoming tenant can have no idea of the nuisance until he is fairly in it, and then he is a ruined man, as the lodgers on whom he depends to make up his rent, &c.,

are chiefly weekly, so that they are no sooner in than, finding the evil, they quit. Not so with the tenant of the house; he is booked for a year certain, or if he have taken a lease, he must stop the term, or transfer the lease to whomsoever he can get to take it, with all the benefits belonging to the same. Or, as is the case in many instances, it makes a rogue of a once honest man.—I am, Sir, &c., J. S.

*** We have received several urgent complaints against the state of the drains in the neighbourhood of Lincoln's-inn-fields.

Miscellanea.

The Cathedral and Parish Church of St. John's, Antigua.—The ceremony of laying the corner stone was performed on the 9th of October, by his Excellency Sir Charles Fitzroy, the Governor-in-chief of Antigua, in the presence of allarge attendance, including many persons of distinction. *Felix Farley* gives an extract from the *Antigua Mirror*, saying that the cathedral will be in the form of a cross, and equal to accommodate 2,200 persons. The entire length, 156 feet from east to west, and 50 feet in width. The length of the transept, 104 feet from north to south, and width 46 feet. Two towers will be erected at the west end, each 70 feet high, crowned with cupolas. The interior ceilings of the aisles will be flat and panelled, and that over the nave will be coved and panelled, and supported by 64 columns and pilasters; the height of ceiling 30 feet. The building will be of freestone, with an inside frame of hard wood, lined with pitch pine, the whole of which will be varnished. The windows will be glazed with stained glass; the seats will be of pitch pine; the pulpit, lectern, bishop's throne, and stalls will be of mahogany; the style of architecture, Roman. It is the opinion of Mr. T. Fuller, the architect (son of Mr. Fuller, of Bath), that should nothing impede the progress of the work, the building will be ready for consecration in two years from the present time. The building committee wisely imported twelve carpenters and eight masons from England, by whose assistance the work will be much accelerated. The workmen employed amount to 170, and are under the superintendence of Mr. W. Roue, of Bristol, clerk of the works.

The Cathedral at Fredericton, New Brunswick.—The Bishop of Fredericton, on the occasion of laying the foundation-stone of the Cathedral at Fredericton, writes as follows:—"In ancient times the cathedrals of Old England, which are still the glory and ornament of that country, and are now more visited and admired than ever, were built by the bishops of the respective sees, assisted by the multitude of the faithful, who rejoiced to pour their offerings into the treasury of God. In faith the work was begun: the builders died, and left their work unfinished, but others took it up, and by God's help brought it to an end. But the colonies of England, though everywhere dispersed, knew no such glory; and for a long season the gathering in of the 'unrighteous mammon' seemed to be the sole end of colonization. At length the note of preparation is heard, and in more than one colony God's servants think upon the stones of His Church, and 'it pitieth them to see her in the dust.' New Brunswick is one of the first colonies in which the foundation-stone has been actually laid; an event the more remarkable, when we reflect that no such work has been begun since the Norman conquest, that is, for the last 700 years; a work in which the goodness of God is manifestly made known towards us." The day on which this occurrence took place was the 15th of October, and nearly 3,000 persons took part in it.

Bridgewater House.—We understand that the rebuilding of Lord Francis Egerton's mansion, in Cleveland-square, formerly belonging to the late Duke of Bridgewater, is to be commenced early in next March. Mr. Barry, the architect of the new Houses of Parliament, is intrusted with the erection, that gentleman having designed the plan of the intended new mansion. A paragraph has lately appeared in a morning paper, asserting that the Hon. Mr. Liddell, son of Lord Ravensworth, was the architect. Such, however, is not the fact, that gentleman having only made a model some years back, which was not adopted.—*Herald.*

Engineers' Almanack.— Simpkin and Marshall have just published for the author, Mr. Jabez Hare, a very useful illustrated sheet almanack, containing, in addition to the usual information of the calender, a variety of engineering statistics, of considerable importance, and which will be most useful for reference—such as a table to find the areas and circumference of any circle, from 1 to 100 inches, of which the diameter is given; a table of the pitch of wheels, breadth, and thickness of teeth, and strength in number of horses' power, going at the rate of three, four, six, and eight feet per second; a table for calculating the pitch of a toothed wheel, when the radius and number of teeth are given. Specific gravity, strength, cohesiveness, stiffness, and resilience of various woods from Tredgold. Hardness and specific gravity of various stones, weight of iron, number of bricks to any piece of work, relative value of British and foreign road measures, expansion of air and water by heat, &c.

Vacant District Surveyorship. — A vacancy has occurred in the district of Shoreditch and Norton Falgate in consequence of the death of Mr. Matthew Warton. Two candidates are already in the field, viz. Mr. Robert Warton, son of the deceased gentleman, and Mr. H. E. Kendall, the present surveyor of the district of St. Martin's-in-the-Fields, and St. Anne, Soho.

Greyfriar's Church, Edinburgh.—The restoration of the new Greyfriar's Church, Edinburgh, is being proceeded with.

Tender.

For building a Fever Hospital in the Land of Promise, Hoxton, for the parochial authorities of St. Leonard's, Shoreditch; Mr. Wm. Tress, architect.

Turner	£2,500
Trego	2,268
Henry Johnson	2,256
Gerry	2,187
Norris	2,177
Jay	2,169
Smith	2,130
Wood	2,095
Lawrence	2,094
Merser	2,092
Barr	2,080
Curtis	2,044
Reeves	2,003
Cotsworth	1,998
Ward and Son	1,994
Hatswell	1,951
Cooper	1,947
Ed. Carter	1,918

The lowest tender was accepted.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For performing the bricklayer's, carpenter's, slater's, plumber's, painter's, and glazier's work at the St. Marylebone Workhouse for the year ensuing.

For the execution of works on the Newcastle and Darlington Junction Railway, being a length of about 5 miles; also for an extension of the same line to Monkwearmouth, being about three-quarters of a mile in length.

For the execution of the works on the Auchinleck and Ayr Branch of the Glasgow, Paisley, Kilmarnock, and Ayr Railway, in length about 14 miles. To be divided into two or more contracts.

For the execution of the works in connection with an extensive excavation at Edge Hill for the Grand Junction Railway Company.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At Smockington, a quantity of capital ash and larch poles; also of ash, elm, and beech timber trees.

At Withybrook, a quantity of ash poles, and ash and elm timber trees.

At Willoughby, Warwick, 300 valuable oak, ash, elm, and other timber trees, now growing.

At Sandy, Bedfordshire, a fall of very choice straight larch and Scotch spires.

At Audley End, Saffron Walden, about 400 timber trees, consisting of oak, ash, elm, beech, and sycamore, also a quantity of larch and ash poles.

At Halstead, numerous elm, ash, oak, willow, and fir trees.

At Brentwood, Essex, about 600 capital ash, birch, oak, elm, and alder poles and seconds of handsome growth.

At Madingly, near St. Ives, 300 lots of oak, ash, and elm timber trees, some of which are very large, also a quantity of useful poles.

At Highfield Waresley, Huntingdonshire, 260 elm and 120 ash trees, &c.

At Meldreth, Cambridgeshire, about 70 ash, elm, and other timber trees.

At Hinxton Hall, Cambridgeshire, a quantity of ash and other timber trees, including a palm tree, &c.

At Besford, near Pershore, a considerable quantity of very capital timber, consisting of oak, elm, and ash trees, of large dimensions.

At Chewton Keynsham, Somersetshire, 768 maiden oak, ash, and elm timber trees, of very superior quality and mostly of large dimensions.

At Horningsea, an extensive fall of ash, elm, willow, and poplar trees, also a quantity of excellent ash poles, elm and other spires, &c.

At Halse, Somerset, about 250 capital maiden oak, ash, and elm timber trees of long lengths and large dimensions, now growing.

TO CORRESPONDENTS.

"W. P. R."—*The one arbitrator cannot appoint the umpire, nor proceed further in the reference. When two arbitrators are named with power to appoint an umpire, the first step should be to make that appointment. No act on their part is binding until that be done. Something of course will depend on the wording of the submission. Should the matter be brought into a court of law, the refusal of the one party to appoint an umpire after agreeing to the reference would tell strongly against his case.*

"Puzzolana."—*A correspondent wishes to know present price of puzzolana, in natural state and screened.*

"J. L." (Bond-street).—*The plan does not seem to have much advantage over Dr. Arnott's valve, and is much more difficult of execution.*

"A. T. K."—*It is impossible yet to say how the referees will view buildings brought under provisions of the Act, by not being completed before January 1st next. We are inclined to think that where they are found perfectly safe, and not directly contrary to the spirit of the Act, no great alterations will be called for. To his second inquiry we will give attention.*

"L. O."—*A district surveyor could refuse to permit use of artificial stone for external walls; although we know some have allowed its introduction. If the material be sound, the referees on application, would doubtless authorise the use of it.*

"S. Henry."—*The subject on which he has written is now less attractive than it was, and may be discontinued. We like his new proposal. If he will send us a specimen, we will then say how often we could receive it. Communications should reach us on the Wednesday.*

"Architectural Modelling."—*W. Burgess, of Oundle, models specimens of ancient architecture in stone, and offers his services to the Archæological Societies. If he will send an example to our office, it shall be made public.*

"E. M."—*Rev. J. W. Pugh, Llandilo.*

"Egg-Shaped Sewer," and "Court of Sewers"—*Several useful communications on these subjects are unavoidably put aside, as they would occupy more space than we are able to devote to one subject.*

"E. S." (Wisbech).—*Thanks. It shall be engraved.*

"X. Q. Z."—*There is an Act in existence to prevent onnoyance from the smoke of engine-chimneys; whether or not it would apply to our correspondent's case we cannot judge from his letter.*

"C. C."—*The term "ashlar" applies to common or free-stones as brought from the quarry, of different lengths and thicknesses. Also to the facing given to square stones on the front of a building.*

"H. A. W." (Blackburn).—*We will look to the work in question.*

"D. E. J."—*We have great confidence in the cement named. Before using it, it is absolutely necessary that the work be dry.*

"C. W. F.," "W. P.," "A. J. G." (Sudbury), "Freemasons of the Church," *next week.*

*** Correspondents are requested to address all communications to the Editor.

Correspondents should bear in mind that The Builder is published early on *Friday* morning. Communications which reach us later than Wednesday cannot appear till the following week.

ADVERTISEMENTS.

THE GENERAL WOOD CUTTING COMPANY, TIMBER and DEAL SAWING and PLANING MILLS, Belvedere-road, Lambeth, near Waterloo-bridge.—SAWING in all its branches executed with the greatest precision and despatch. PLANING by the most approved Machinery, reducing the Boards to a parallel width and thickness, and grooving or matching with undeviating accuracy. The operation economizes time, money, and material.

MUIR'S PATENT PLANING MACHINERY.

SAW MILLS, GILLINGHAM-STREET, PIMLICO.

TIMBER of any Size, PLANK, DEALS, and BATTENS, &c. Sawn on the most approved principle. Boards, &c., Prepared, Matched, and Grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor-canal. Goods fetched from the docks and carted home free of charge.

Address to HENRY SOUTHAM,
Saw Mills,
Gillingham-street, Pimlico.

GRAINING COLOURS AND LIQUID WOOD STAINS.

HENRY STEPHENS begs to call the attention of Architects, Builders, House Decorators, Painters, Cabinet-makers, and all those engaged in the erection of churches where the appearance of oak is desirable, and those also who are employed in the revival of old carvings, faded furniture,or other ornamental wood work, to his GRAINING COLOURS and LIQUID WOOD STAINS.

The graining colours are prepared in a damp state, and upon so true a principle, that the workman cannot fail in obtaining the natural colour, nor of giving to the work the same effect and appearance at all times. The difficulty of producing a true colour and of preserving the same uniformity with the admixture of earths and oxides, which are the ingredients used in graining, has long been acknowledged. This difficulty is at once removed by these preparations, and the grainer is enabled to confine his attention to his art in graining, without being perplexed in proportioning and mixing his colour.

The LIQUID STAINS are solutions of colours which not only carry additional stain on to the various woods on which they are employed, but when used on the particular wood whose object it is to revive, it combines with and heightens the natural colour inherent in the wood, and is therefore a valuable acquisition to the DECORATOR and to the RENOVATOR of old oak or other carvings. They are also capable of giving colour to the sappy and defective parts of veneers and fine woods used by cabinet-makers and others.

In the decoration of churches, castles, baronial halls, and mansions, in which are often found beautiful specimens of ancient carvings; when the colour of the wood is changed and faded, these liquid stains will be found particularly serviceable.

They also impart to woods of inferior character and of soft texture, such as beech, birch, pine, deal, &c., the colour and appearance of such woods whether oak, mahogany, rosewood, &c.) as it may be designed to imitate, and thus save the expense of more costly materials.

The above preparations for graining and staining for purposes of imitation and of revival, are prepared by HENRY STEPHENS, and may be obtained at 54, Stamford-street; of Mrs. ROWLAND, Painter and Glazier, 3, Broad-street, Golden-square; and at the Office of "THE BUILDER," 2, York-street, Covent-garden, at which places specimens of their application may be seen.

BRITISH and FOREIGN SHEET GLASS, for Horticultural purposes, Sky-lights, &c. may be had at JAMES BROMLEY'S 315, Oxford-street, London, at the reduced prices, also Microscopial Glass, French Shades, Plate and Crown Window Glass. J. B. will be happy to furnish Lists of Prices, or any other particulars that may be required.

DUTY OFF ORNAMENTAL WINDOW GLASS.

CHARLES LONG begs to inform his Friends and the Public, that he can now supply Ornamental Glass from 1s. 3d. per foot superficial; and borders from 9d. per foot, run; and having just built two of the largest Kilns in London, is enabled to execute extensive Orders with unprecedented dispatch, 1, King-street, Portman-square.—Terms, Cash only.

TO THE PLATE-GLASS TRADE.

THE BIRMINGHAM PLATE and CROWN-GLASS COMPANY beg to call the attention of the Trade, that their LONDON WAREHOUSE, 141, Fleet-street, is now open for the sale of their Crystal Plate-Glass, which for Brilliancy and Colour will be found to stand unrivalled by any other manufactory.—All orders, addressed to R. MOSS, London warehouse, or to the works, Smethwick, near Birmingham, will be promptly attended to.

UNION PLATE-GLASS COMPANY,
26, Soho-square, London.

ALFRED GOSLETT, Agent for the Union Plate-Glass Company, begs to inform Architects, Builders and the Trade generally, that the extension of the Works at Pocket Nook, St. Helen's, Lancashire, being now nearly complete, he is in a position to deliver any quantity of silvering or glazing glass, within one week from date of order. A. Goslett begs to assure the Trade that the present manufacture of the Company cannot be equalled for either quality or brilliancy of colour.

BUILDERS, PAINTERS, GLAZIERS, and others supplied with every article used in the trade, wood, the most wholesale terms.—Address to R. COGAN, WINDOW GLASS, LEAD, and COLOUR WAREHOUSE, 5 Princes-street, Leicester-square, London, for complete lists, priced, of dry and good Colours, Brushes, Pumps, Closets, Plumber's Brass Work, and all materials.

COLOURED and ORNAMENTAL GLASS of every description at the very lowest prices.

BRITISH and FOREIGN SHEET for Horticultural and all other purposes, as low as any house in the kingdom.

LAMP SHADES AND GAS GLASSES.

Gas Contractors, Fitters, Glass Merchants, and others supplied with any description. Lists of nearly 100 patterns, with prices affixed, sent to any part of the kingdom gratis.

CLOCK MAKERS, ALABASTER FIGURE MAKERS, ARCHITECTS, MODELLERS, and others, supplied with FRENCH ORNAMENT SHADES,

for covering Models of Public Buildings, Geological Curiosities, &c., &c., of all sizes and shapes. List of Prices may be had on application. Bee Glasses, Striking Glasses for Nurserymen, Fish Globes and Confectioners' Glasses, &c., of every size and description.

SASH, SHOP-FRONT, AND HOTHOUSE MANUFACTURER.—ESTABLISHED UPWARDS OF 70 YEARS.

87, Bishopsgate-street Without.

THOS. MILLINGTON begs to inform his Friends, that he still continues to manufacture the above in the same manner, and using only the best materials, that have given so much satisfaction for many years past. Every article will be made in the best manner, and the very lowest price charged. Lists may be had upon application. Drawings prepared.

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PLUMBER'S BRASS WORK, WATER-CLOSET PUMPS, &c.—These articles require the greatest attention and care in the manufacture, and will be found superior and cheaper than at any other manufactory. Best Pan Water Closets, 34s.; 2½ Lift Pumps and Planks, 4l. 10s. 0d.; 3-inch Pumps, 5l. 10s. 0d.; 2-inch Bill Ball and Stop Cocks, 30s. per dozen, and every article in this branch equally low. Every article warranted.—Address, THOS. MILLINGTON, 87, Bishopsgate-street.

VARNISH.

THOS. MILLINGTON begs to inform the Trade, Builders, Painters, and others, that this article can be had at his Manufactory, of the best quality and at the very lowest price. T. M. has long been a manufacturer, and has devoted much time and attention to it, using only the best of gums, and sparing no expense in the manufacture. Fine Pale Oak or Wainscoat Varnish, per imperial gallon, 10s.; Fine Carriage Varnish, 12s.; Copal, 18s.; Body Copal, 24s.; Gold Size, 10s; White Hard, 18s.; Brown Hard, 18s.; French Polish, 18s. per gallon. Paint, Dryers, Colours, ready and ground, and every article in the trade. If quality is taken into consideration, this will be found the cheapest house in London. Address, 87, Bishopsgate-street Without.

VARNISH.—It has long been a desideratum amongst the consumers of Varnish to obtain a good and genuine article; brilliancy, facility of drying, hardness, and durability are the qualifications necessary, but these are seldom if ever found united. The experience of a life-time devoted exclusively to the manufacture of this article, the great and important discoveries of modern chemistry, and the daily improvements in machinery, have enabled Messrs. George and Thomas Wallis to produce Varnishes (both oil and spirit) unrivalled in every respect, and they confidently recommend them to the trade, as deserving of notice both in price and quality.

Builders, Coachmakers, Painters, and others may depend on being supplied with a genuine and unadulterated article. Fine Oil Varnish, from 10s. per gallon; best White Spirit Varnish, 21s. ditto; Best Spirit French Polish, 20s. ditto; White Lead, Oil, Turps, and Colours of every description at the very lowest prices.—WALLIS'S Varnish, Japan, and Colour Manufactory, 64, Long-acre, one door from Bow-street. Established 1750.

WALLIS'S PATENT LIQUID WOOD KNOTTING.—This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; a boy can use it as well and effectually as the best workmen: it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20s. per gallon.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application to MANN and CO., SOLE AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOUR STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the suction, thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, produceable by no other Paint whatever. It is cheap in its application,—and may be used by any Painter, in any climate, even in the most exposed Marine situations.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

Agent for Liverpool, Mr. WYLIE, 56, Gloster-street; ditto for Manchester, Mr. J. THOMPSON, Back King-street; ditto for Chester, Mr. J. HARRISON, Linen Hall-street.

ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architectural and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

PORTLAND CEMENT, which does not vegetate, and requires no colouring, is perfectly hydraulic, and resists the action of Frost. The cost of the material and of working it is about the same as Atkinson's Cement, Manufactured by J. B. WHITE and SONS, Millbank-street, Westminster, and sold at their Warehouses:—

Druce's Wharf, Chelsea,
Bell's Wharf, Paddington,
Earl-street, Blackfriars,
Albion Wharf, Deptford-bridge,
by Salmon and Co., Dublin,
and at 36, Seel-street, Liverpool.

KEENE'S PATENT MARBLE CEMENT.

WITHOUT noticing CAUTIONS, which are as absurd as they are uncalled for, or disproving assertions, which carry with them their own refutation, the patentees of KEENE'S CEMENT venture to believe, that this material will very advantageously stand the test of comparison with any cement of a similar nature, however INVALUABLE, now before the public. They derive this opinion from its all but exclusive use in the new buildings north of Hyde-park, on the Brompton estate, and in many other public and private edifices, both in London and the country. Amongst others may be mentioned the works recently executed at the Colosseum, Regent's-park, where its hardness and beauty of appearance have caused it to be extensively used for skirting and other mouldings, in place of wood, for columns instead of marble, and as a substitute for stone in paving the floors of the corridors and conservatories.

Patentees and manufacturers, J. B. WHITE & SONS, Millbank-street, Westminster,

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CAUTION.—Messrs. STEVENS and SON, Patentees, beg to caution their friends and the trade generally against confounding this invaluable Cement with others, erroneously said to be of the same description. S. and S. pledge themselves, that MARTIN'S CEMENT is totally dissimilar in composition and manufacture from every other, and, being a neutral compound, is not only free from chemical agency upon any substance with which it may come in contact, but completely resists the action of the strongest acids. They feel it a duty to direct attention to the following properties, which it exclusively possesses:—

1. It rapidly acquires the hardness of stone.
2. Unlike other internal cements, its hardness is uniform throughout its entire thickness.
3. Its surface (which may be made equal to that of the finest marble) NEVER THROWS OUT ANY SALT, and will receive paint in four days, without peeling, when put upon dry work.

It is peculiarly adapted as an internal stucco for walls, skirtings, architraves, mouldings, and enrichments of all kinds, to all of which purposes it has been extensively applied by Mr. Thomas Cubitt on the Grosvenor estate, &c.

For the above purposes, it possesses great advantages over wood, being more economical and durable, resisting fire, damp, and vermin.

For the floors of hall and fire-proof warehouses, its lightness, durability, and uniform surface give it an immense advantage over stone, being, at the same time, much more economical. The most satisfactory references can be given. To be had of the Patentees, Plaster of Paris and Cement Manufacturers, 186, DRURY LANE.

Agent for Liverpool and Manchester, Mr. R. PART, 28, Canning-place, Liverpool.

POLONCEAU'S BITUMEN PAVEMENT for paving Foot walks, Terraces, Garden walks, Stables, Coach Houses, Granaries, Corn Stores, and Salt Warehouses. For the exclusion of Damp and Vermin in Basements it is particularly adapted, and for Roofing Dwelling Houses, Porticos, Balconies, and Sheds.

Price 3s. 6d. per square yard.

BITUMEN for covering the Arches of Bridges, Culverts, &c. &c. on Railways and other places (with instructions for laying it down), may be had at the rate of 45s. per ton, by applying to JOHN PILKINGTON, 15, Wharf-road, City-road.

TO ARCHITECTS.

IN consequence of many complaints having been made to the Company, by Architects, of a spurious material having been used in the execution of Works where the SEYSSEL ASPHALTE had been specified for, the Directors, with a view to ensure the fulfilment of any such specification, have authorized CERTIFICATES to be granted to Builders where the

SEYSSEL ASPHALTE

has been used. For the purpose of securing the use of the Genuine Article, Architects and others are recommended to insert in their specifications the "Seyssel Alphalte, Claridge's Patent," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used, gas-tar and other worthless and offensive compositions have been introduced. I. FARRELL, Secretary.

Stangate, near Westminster Seyssel Asphalte Company, Bridge, Jan., 1845.

Books of Instructions for Use may be had at the Office of "The Builder," and of all Booksellers in Town and Country, price 1s.

*** In proof of the necessity of the above advertisement, it may be mentioned, that it has come to the knowledge of the Directors, that in certain works which have been executed by Messrs. CURTIS, builders, of Stratford, a spurious material has been used by them, contrary to the specification, which expressly mentioned, that "Claridge's Asphalte" was to be used.

Also in the case of a work at Lewisham executed by Messrs. ROBERT and DANIEL YOUNG, of 10, Crown-row, Walworth-road, where Seyssel Asphalte was specified for, a spurious article was nevertheless laid down by them.

The Builder.

No. CL.

TURDAY, DECEMBER 20, 1845.

N Saturday last, a cause was tried before Lord Denman, in the Court of Queen's Bench, having considerable interest for the architectural profession. Mr. George , the architect, was plaintiff, and Mr. Ward, ntleman of fortune, residing in the Isle of ht, was defendant. The action was brought cover a sum of about 511*l.*, alleged to be rom the defendant to Mr. Mair, on account rvices rendered in his professional cha- r.

opting the substantially correct, abstract s case that was given in *The Times*, it red from the evidence that the defendant me years ago employed Messrs. Morgan ee to construct a mansion upon his de- at Northwood, and that those gentlemen rnished the original design for the build- nd superintended the construction of the s of the house. The defendant, however, red very minutely in all the details of oceedings, and Mr. Lee found his time h occupied by this particular case, that obliged to resign. In these circum- s, Mr. Ward was introduced to Mr. then, in 1838, a young man who had ut a few years in the practical exercise rofession, but who enjoyed a high repu- among his professional brethren. Mr. aving undertaken the conduct of the roceeded to perform all the duties of tion up to a recent period; when he d the engagement, in consequence of a ce between himself and his employer as rinciple upon which he was to receive sation for his services. It did not appear y contract, either expressed or perhaps , had been made between the parties is important subject. Mr. Mair alleged ectation to be that he was to receive a sion of 5 per cent. upon the whole sum ight be expended in carrying his own into execution, together with his tra- xpenses to and from the Isle of Wight, ompensation of two guineas a-day for actually occupied in going and return- r. Ward, on the other hand, supposed compensation in all departments of it, e nothing but what his own judgment pprove and his "generosity" bestow. me when the final difference and sepa- lok place, he had given to the plaintiff sums of money, amounting altogether 1,100*l.*, beyond which, the plaintiff labout 500*l.* more.

harge made was 5 per cent. on 23,000*l.*; hd 540*l.* for travelling expenses, time, ey expended for the defendant.

laintiff produced a number of witnesses he performance of the works, and that ciples on which he claimed payment eversally acted on by the whole archi- rofession; these included Mr. George Mr. Tite, Mr. Shaw, Mr. Little, Mr. hd Mr. Scoles, who all bore testimony xcellence of more than 400 drawings d been made for the works. Mr. do had seen the progress of the build- ne would not undertake to make the for a thousand pounds, and Mr. Tite, to whom the plaintiff is much indebted for powerful assistance, declared they were worth 1,400*l.* The works had been in hand several years, and the greatest attention had been paid to the matter by the plaintiff during the whole time. It may be well to mention, for the full understanding of the case, that the defendant had refused to allow an examination of the premises, so that the plaintiff's witnesses were compelled, in order to judge of the fairness of the charges, to obtain from the drawings the cubical contents of the buildings, and put such a sum per foot as they thought just.

The Attorney-general, on the part of the defendant, called no witnesses. Lord Denman, in summing up, told the jury, as he had previously urged during the trial, that, although the architects had all deposed to the existence of a custom to pay a *commission* upon the outlay, such custom could not bind the defendant, unless at the time of making the original engagement he understood that such were the terms upon which compensation was to be made. His lordship's argument was, that this mode of charge induced dishonesty, by making it to the interest of the architect to swell the sum as much as possible, for the sake of his commission! It might be custom, he said, but it certainly was not law. The question, then, for their consideration was, whether the plaintiff was in justice entitled to a larger sum than that which he had already received for the services which he had performed. After a short consultation, the foreman of the jury said: "We find a verdict for the plaintiff for *the whole amount claimed*;"—without any reference, so far as we can learn, to the question of per centage.

The uncertainty which exists as regards architects' charges is embarrassing and hurtful, and calls for removal. Custom is strong: next to law the strongest; but in the face of the opinion expressed by Lord Denman, few would go into court with the view of enforcing a per centage, unless able to shew, by the time occupied, or the actual worth of separate services performed, which is not always practicable, other grounds for the charge. Lord Kenyon ruled, long ago, that a per centage could not be recovered; and Lord Ellenborough, in the matter Chapman, Gardiner, and Upward (architects) *v.* De Tastet, tried in 1817, ruled, that it *could* be; and the jury gave damages after the rate of 5 per cent. upon the total amount of the bills."* In "Starkie's Reports" it is said, relative to this case, that evidence was given that this was the usual mode of charging for the description of business done, and that Lord Ellenborough left it to the jury to say, whether this mode of charging was vicious or unreasonable; and if they thought it was, to deduct accordingly. Mr. Scarlett, on the part of the defendant, urged that it was unreasonable to suppose that a surveyor could be entitled to a remuneration fixed upon the amounts of the bills which he himself was to regulate and settle. It was his interest to swell the sum as much as possible for the sake of his commission; and therefore, he contended, that the plaintiff's demand was not founded in justice.

The assumption of Mr. Scarlett then, and of Lord Denman now, is in reality worth nothing: it is absurd to suppose, that any architect would waste a hundred pounds of his employer's money, and sacrifice the feeling of having done his duty, for a trumpery five pounds. A real objection to this mode of charge would seem to be this—that an architect's ability or standing in the profession goes for nothing. Mr. Brown, Jones (no Inigo), or Robinson, who makes drawings and superintends the erection of a huge warehouse, costing ten or fifteen thousand pounds, and Mr. William, of Wykeham, who designs and carries out a gem of a chapel with an expenditure of a tenth of that sum, are paid very differently by this system: the latter might require scores of drawings where the former needed one, saying nothing of the higher order of mind exhibited, while the remuneration would of course be but a tenth part. Not that a true artist,—one who loves his profession,—would ever think of this, or hesitate a moment between two such works if the choice were offered to him; still this is the pounds, shillings, and pence state of the case, and does not seem to be wholly correct.

Without, however, proposing any alteration in the mode of charge usually adopted, it does appear to be very desirable that its legality or otherwise should be set at rest. The custom is general, and the public know it. Lord Denman says such custom will not bind, unless at the time of making an engagement with an architect, the employer understand that such are the terms upon which compensation is to be made. It is not the custom to enter into an agreement with an architect when his services are required any more than it is with a solicitor, but the mode of charging being universally known, we must consider, with all deference to his lordship, that it *is* understood by an employer if no other terms are stipulated.

The newspaper report states that the jury gave a verdict for the sum demanded, with intimation that it was not founded on a right to the commission, but upon the general value of the services which the plaintiff had performed. This, however, we venture to doubt,—certainly nothing was said by the intelligent foreman in delivering the verdict to induce this belief.

A committee was appointed by the council of the Institute of Architects, last session, to inquire into various points of professional practice. We cannot help thinking it would be advantageous, although we know others view the question differently, if this committee were to state the ordinary charges of the leading architects for different services. That a difference of opinion exists on various points in this respect (without reference to the charge of five per cent. on amount expended, for certain understood services), was shewn in the case before us. Mr. Mair claimed, in addition to the five per cent., the travelling expenses, and two guineas a day for the time occupied in the journeys. All allowed the first, as a matter of course, but with respect to the latter, the practice of his witnessses differed.

We will venture to say, there is not an architect in practice who has not desired to know, at one time or another, what was the ordinary charge of other architects for some particular service.

We shall be glad to assist in supplying this want, and therefore solicit members of the profession to favour us in confidence with a memorandum of their customary charges, and any remarks on the subject that may occur to them,—not to be put forward in their names, but as materials for some general deductions.

* Quoted in Elmes's "Architectural Jurisprudence."

SUPPLY OF WATER.—A local paper says, the directors of the South Shields Water-works purpose, if three thousand families will agree to take the water, to supply the working classes of the town with water *ad libitum* at the rate of a penny per week.

THE PUBLIC HEALTH.

Dr. Guy, in a lecture on the Unhealthiness of Towns, recently published by the "Health of Towns' Association," gives the following summary:—

"1. That the districts inhabited by the poorer classes are badly drained and badly cleansed.

2. That in the houses of the poor there is a great want of all the conveniences which contribute to cleanliness and decency,—an ample supply of water, efficient house-drains, and places for the reception and discharge of refuse matter.

3. That the rooms inhabited by the poor are over-crowded and ill-ventilated.

4. That the shops and workshops of the poor are also very imperfectly ventilated, and in other respects extremely unwholesome; and that these evils are often greatly increased by long hours of work.

5. That in the districts inhabited by the poorer classes there is a great want of open spaces for exercise and recreation.

6. That the evils attendant upon scanty supplies of water in the houses of the poor are exaggerated by the want of cheap baths and washing places.

7. That the several evils enumerated in the six foregoing propositions, and the excessive liability to sickness, high rate of mortality, and curtailment of human life, specified in the first four propositions, stand towards each other in the relation of cause and effect.

The economic results of the circumstances just detailed are the following:—

1. Great pecuniary embarrassments among the poor themselves, arising from loss of work or of situation, and the expenses attendant upon unnecessary sickness and premature death. To which may be added, the increased contributions to benefit societies, rendered necessary by excessive sickness.

2. A heavy annual expense entailed upon the community in the shape of large contributions to hospitals and dispensaries, and the general charities of large towns, and of increased assessments to the poor-rates.

3. A loss sustained by the Government, in consequence of the diminished physical power and greater liability to disease of recruits raised from among the inhabitants of large towns. To which must be added the expenses necessarily attendant upon the crimes springing out of the unfavourable physical circumstances, and consequent moral degradation of the poor.

The moral and religious effects of the circumstances already detailed are:—

1. The sacrifice of self-respect, and the formation of bad habits, among which the vice of intoxication holds a prominent place.

2. An absence from schools and other places of instruction, from places of innocent recreation and amusement, and from places of worship, from a want of the means of cleanliness and of decent clothing.

3. A large amount of crime, directly produced by over-crowding, and the admixture of persons of both sexes, and of all ages, in small and confined rooms.

The remedies for this fearful combination of evils, physical, economic, and moral, are partly in the power of the sufferers themselves, partly in that of landlords and employers, partly in the power of associations, and partly in the power of Government alone.

The remedies which the labouring class have at their own command are these:—

1. The disuse of intoxicating liquors, and the careful avoidance of the temptation to drink them under whatever shape it may offer itself.

2. The disuse on the part of mothers and nurses of Godfrey's cordial, children's quietness, and every preparation of that class, whatever be its name.

3. Scrupulous cleanliness as far as the means of cleanliness are provided; personal cleanliness by the occasional use of warm baths; daily washing of the entire surface of the body with cold water; washing of the hands after work, and of the face, hands, and feet before retiring to rest; a frequent change of body and bed-linen; and household cleanliness.

4. The prompt removal, as far as it is practicable, of all slops, and every kind of refuse matter.

5. The practice of ventilation at all seasons of the year, by opening the doors and windows the first thing in the morning, and thoroughly airing the bed-clothes for a short time before retiring to rest; the introduction into the window of a perforated zinc plate, or other cheap and effectual means of admitting fresh air, without occasioning too much draft; and leaving the chimney open.

6. The choice, where it is practicable, of a large and lofty room, preferring the higher stories of the house; and where it can be done without inconvenience, choosing a residence in the suburbs. When there are many in a family, making any sacrifice to secure two or more rooms.

7. When there is a choice of employments, to avoid sedentary occupations, and those offering the greatest temptation to drink; where there is a choice of masters, preferring the one whose rooms are largest and best ventilated, and whose hours of work are most moderate; in those cases where work may be done either at home or at the workshop, to do it at home.

The remedies which are in the power of landlords and employers are these:—

1. The landlord will best consult his own pecuniary interest, at the same time that he will discharge a bounden and most grateful duty, by keeping his houses in good repair, supplying them with water and all proper conveniences, and securing, as far as it is in his power, efficient cleansing and sewerage. He should also whitewash the rooms at least once a year; and should take care that, after the visit of any contagious disorder, they be thoroughly cleansed, fumigated, and ventilated. His pecuniary reward will be higher rents, and those rents better paid; and he will reap the joint recompense of justice and mercy.

2. The employer may do the same good on a great scale, and reap the same rewards, by giving his workmen room to breathe, keeping his chimneys open, selling his stoves, hot water and hot air apparatuses, and returning to the good old English open fire-place, with its true economy; conducting the foul air of gas-lights, if he use them, into tubes fitted for its discharge, and resorting to some efficient means of ventilation. In large establishments the open fire-place will entail too great an expense; heating by hot water is therefore to be preferred; but a free ventilation—a free entrance and free exit of air—is absolutely necessary. By paying his men on Friday, or on Saturday morning, and on his own premises; by adopting moderate hours of work; by encouraging, or, if he please, insisting on, the appropriation of a small part of his men's wages to insure them against casualties, he will be discharging high duties, and will see and enjoy their benefits.

The things that are in the power of associations may be stated thus:—

1. To promote inquiries into the actual physical condition of the working-classes, and the influence which the circumstances that surround them have upon their health and well-being; to instruct the public by lectures and cheap publications, and to urge on the legislature, by public meetings, petitions, and all constitutional means, the necessity of interference.

2. A very important kind of association for carrying out these great objects, is an association of the labouring classes themselves. Such an association has been recently set on foot, and from my heart I wish it all possible success."

The "Working Classes' Association" referred to has been formed in the metropolis for improving the public health, and seems likely to effect much good. In the "First Address from the Committee," just now issued, in reply to the question, "Why is there so much disease among us?" The answer is, "Because, in numbers of things, we do just what by our nature we were never meant to do. For example:—

1st. Man is intended to draw in *fresh* air every time he breathes. Almost all people, when in their houses, and the working people in their shops, breathe the same air over and over again.* To shew the necessity of allowing fresh air continually to enter living rooms, and the bad air to escape, it may be stated that every person during each minute of his life destroys a quantity of air twice as large as himself.

2nd. Man ought to breathe *pure* air at every breath. Our sewers and drains are so bad, that the vapours and foul gases rise, and we breathe them.

* It is a melancholy fact, that by far the greatest number of houses and rooms prepared for the labouring classes to live and work in, are most hurtful to the health, and quite unfit for human beings to inhabit.

3rd. Man was intended to take exercise in the open air every day. Neither his heart, his stomach and bowels, his liver, his skin, his lungs, his kidneys, nor his brain will act rightly without walking exercise every day. Most of us do not get any walk, or only a very short one, which is scarcely of any use.

4th. Man is formed to take simple, plain, wholesome, food. He eats all sorts of things, which not only do him no good, but do him harm, and he drinks large quantities of beer, spirits, and wine which hurt his stomach, and take away the proper use of his brain.

5th. Man ought to wash himself all over with water every day, so as to cleanse the pores of the skin, else they get stopped up, he cannot perspire rightly, and his skin cannot breathe. The majority of the people only wash their hands and faces every day.

6th. Man should wear clean clothes next to his skin, because the body gives off bad fluids. At present many people wear the same things day after day for weeks together.

7th. Man was intended to live in the light. Many, very many, have scarcely any light in their rooms.

8th. Man in this climate must wear warm clothing. Many have no flannel, and are clad with heavy and useless things."

Under the head "How are the Diseases to be put a stop to?" They say:—

"After thinking over what has been said about the causes of ill-health, it must be considered *how* the working-people can put an end to them, and it will be seen that the people themselves can do a great deal.

What can the work-people do?

1st. They can ventilate their rooms—the plans for ventilating them will be shewn in the Address on Ventilation from the committee.

2nd. They can claim assistance from the rich, so as to have good drainage in their houses, and to have proper sewers and those things necessary for the health and decencie of life.

3rd. They and their families can walk more and they can ask the Government and the rich people to provide them open spaces of ground for healthful exercises.*

4th. Working men can select wholesom food and avoid bad drink; and they can petition Government to provide officers to prever food and drink, which are adulterated, fro being sold.

5th. Working people can be more cleanly they can bathe and sponge themselves in the houses, and they can petition for a bett supply of water. They will also make use o the baths and wash-houses preparing for them instead of having the washing done at hom which causes every thing they have to mould and decay.

6th. The working classes can seek, and en deavour to obtain, more light in their home and they can improve upon the plans of cloth ing."

COMPETITIONS.

CAMDEN TOWN CHURCH.

Sir,—Perceiving advertisements from tim to time in the columns of your admirab Journal, calling upon architects to submit d signs in competition for various public buil ings, I think it my duty to direct your attentio to some circumstances connected with the la competition for a church to be erected Camden Town. I think the case will justi my intrusion; and perhaps a notice of it m be the means of preventing, in some degre a recurrence of the causes for complaint, an at the same time, inform my brother co petitors of the jeopardy in which their desig remain.

A limited number of architects submitt designs, by invitation, to the committee building the new church early in April la which designs were subsequently exhibited the board-room of the commissioners in Pancras. Having waited with some patien until the latter end of September, I made a r quest to two members of the committee for t return of my drawings; but as they failed comply with it, I wrote to the secretary,

* A petition is now prepared for signature praying vernment to secure Battersea fields as a place for health exercises. It may be reached by the work-people by steam from the densest parts of London for a penny or two pen if it is allowed to be built upon, one of the few remain sources of health to the work-people will be closed for ev

laining the great inconvenience I suffered by
eir detention. To this I received a polite
ply; but the drawings being still withheld, I
ent, in company with one of the members of
e committee, to the room, and *took possession*.
The drawings, when I was there ten days
o, were hanging just as I had seen them
ven months before, with this addition, there
ere lines stretched across the room over its
ole area, as if it had been metamorphosed
o a laundry! The windows were wide
en, and shirts, sheets, and architectural
awings were hanging out to dry! How often
poor perspectives had been damped and
ed I know not; but had poor Sidney Smith
n them, he would have entered into a face-
us calculation as to the number of washings
y had endured. Once a fortnight, he would
e said, is not too often to indulge in laundry;
so $7 \times 2 = 14$ would have been the
lt.

When I had taken down and *rinsed* my
tched-looking bit of stationery, I dis-
ered a large hole burnt in its very centre!—
und hole with a halo of *variegated scorch!*
thought me that the committee had per-
nture, in some excess of past anxiety,
ed out my drawing, and so completed the
ess.

dney Smith, when he was injured, rebuked
joke and pointed a moral. I think I may
ure to deduce from the foregoing facts,
advice profitable to our brethren. To
who have drawings at Camden Town I
d say, "Run and get them; for whilst I
they may be *in ablution*;" and to those
desire to join in future competitions I
l add (with a desire to save their hopes
drawings from a damper), "Frame and
your designs."

nclose my card as a voucher for the truth
se statements, and am, Sir, yours, &c.,
tsmouth, Dec. 10, 1845. C. W. F.

EIGN ARCHITECTURAL AND COL-LATERAL INTELLIGENCE.

"Arcades of Italy" and the Squares of n.—It hardly needs repeating, what is ized now-a-days by all sensible men, viz. e moderns are very much behind the ts and even *mediævals*, in most things ted with the *structural* of public and works. Look (to point again at *one* at the arcades of those mediæval —aye, and even larger Belgian and ian cities! *We* build sheltered walks s, greenhouses, &c.) for our own indi- and personal benefit — they did it for venience of *all*.* Thus Goethe says ly, that Italian democracy went so far to erect halls so huge, that they re- a *market-place* hemmed in and covered lls—such for instance, that splendid e, the *Salone* of the *Procurazia* at There, and under the shelter of ile-long arcades of Italian cities—met e who chose, the *nobile* and the *citta-* lawyer, physician, and artisan; all us combined, not into the lump of equality, but the wise equality of a gradations pre-ordained by Omnipo- such plans were required and deemed ntial in mediæval Europe—how much s us! These athletic personages, un- y exorbitant luxuries, ailments, and without end; moreover, under the y of Italy, mild sun and balmy air— ion of patients, with a northern sun y deigns to look at these lands. We owever, imagine and *project* many hich have only one defect, viz., they *effectable*. Thus, a plan has been late to overspread all (or at least ets of London with transparent ar- galleries. The thing is absolutely —considering the flood of people who ven in such spacious streets as the ford-street, &c.; on which account ere foot-passengers, but also persons ore or less bulky burdens, or even s of iron, &c., are to be taken into n. Fancy all these hemmed in narrow limits of an arcade! Why, nundless democracy of the middle dreamed of such convenience for the people—because it is *impossible*.

* not only the squares or *piazzas*, but almost ercaded.

There is a fact necessarily to be taken into account on the present occasion—viz. that one-*tenth* of our population, at least, are *subterraneous*—the dwellers in the areas, *vulgo*, the cellars; although the New Building Act has, very properly, curtailed the number of London moles and *hedgehogs*. And thus it would be required to *preserve* the present footpath (*trottoir*), and on the *inner* side erect those arcades—still transparent, as not to encroach at all on the ground-floor and area dwellers. The appliance of cast-iron pillars, stone pedestals, and (duty-free) glass panes, would make the whole an exceedingly convenient, wholesome, and tidy concern — invaluable for the invalid, and any one, who, by adequate free-air exercise and sociableness, even during our constant bad weather, wishes to *escape* the being numbered within this category. Plenty of *free*-air exercise would soon procure room for (the *fewer* number of) patients in the Free Hospital.

Naples.—We have been favoured with a sight of the work presented to the members of the late Scientific Congress, of which but a few copies have reached this country. It is entitled, "Descrizione dei Luoghi celebri di Napoli, e sue Vicinità" (1845, 2 vols. 4to.). It is published by order of the king, and contains a very deep-wrought description of the public edifices, monuments, &c. of the above capital. A list prefixed to the work contains the names of the different contributors, according to the different branches — as public edifices of the middle ages, art, and the like. It is illustrated by lithographs, representing the most important sights of Naples, which, although not masterpieces of execution, are respectable.

The Embellishments of Paris.—This notice could be almost *stereotyped*, just putting new heads here and there, as there seems, indeed, an energetic *system* at work, to make Paris the metropolis of modern architecture and art. The works for the building of the library of Ste. Geneviève, under the direction of Mr. Labrouste, architect, were so actively progressed with last season, that the façade on the street des Sept-Voies is completed. As the cold season approaches, and for the sake of protecting the blocks from the ravages of the frost, those not yet worked in have been *capped* with straw. Chollets-street will entirely disappear, and form an avenue common to the two colleges of St. Louis and Ste. Barbe, the approaches to which will be improved by the widening. The places around the Pantheon will also very soon be enlarged, and the owners of houses are already treated with for their property. From these, the *alignement* will be made towards the new library Ste. Geneviève.

Preparations for the Monument of Napoleon in the Invalides.—It is now decided, that the tomb of the Emperor will be surrounded by statues of twelve of his marshals. They will be colossal, and executed after the portraits and busts existing in the various art museums, and symmetrically placed around the imperial cataphale, thus to form a sort of funeral pageant around the monument. Government has just purchased twelve huge blocks of white marble, which are lying in the vicinity of Leghorn, and which are to be conveyed to Paris by water, for being employed for the sculpturing of the above colossal statues.—*Journal des Débats.*

Prizes for virtuous acts — awarded by the French Institute.—After the revolution of 1830, the French went, for a time, in the train of Ideality—to which sentiment we may ascribe the addition of a department of moral and political science to their Royal Academy of Literature, and the establishment of the above prizes; the latter cavilled at, still an acknowledgment for the artisan and other servants, *tempted* into acts of magnanimity. Mr. Dupin, president of the R. A., had to speak on the distribution of these prizes. He stated, that it was not the province of the Academy to decide on the doctrinal merit of good actions, and that it had endeavoured to reward actions, considered virtuous according to all codes of morality. The prizes consisted in sums, and medals of the amount, of 3,000 fr. (120*l.*), 2,000, 1,500, and several of 500 francs.—*Journal des Débats.*

Meeting of the "Society of Encouragement," at Paris. 26th Nov. Mr. Dumas in the chair.—This is one of the minor, yet very useful societies of the French metropolis, to be compared with our Society of Arts.—The artesian well at Monndorf (Luxembourg) was first adverted to, whose extraordinary low expense (vide BUILDER, p. 559) bids fair to make such wells exceedingly numerous in every part of Europe.—Princess Galitzin has sent to the society 1,000 francs, for preparing a prize on a monetary unity, more expedient than the high English pound, and the French centime. —Mr. Sorel exhibited a new apparatus of domestic heating, which consists in a lining of the chimney by a range of reflecting bricks. Mr. S. believes, that in burning coke, a saving of 60 per cent. on the present expense of domestic fires might be effected.—Dr. Boucherie read a paper on the artificial preservation of timber for railway purposes, by the means of chemical injections. Dr. B. states his experiments to be confirmed by a test of three years. The most important is, that, while hitherto merely oak was used in the construction of rails, Dr. B. says that *inferior* timber can be prepared by his process to do the same service.

Remedies against Pauperism.—This sort of national disease begins to attract much of public attention, and be matter of parliamentary discussion in several of the chambers in Germany. The following heads, adverted to in some of the late debates in Mecklenburg, seem to be worthy of notice:—Cultivation of *all* available soil in the most approved and scientific way; the undertaking of all and every sort of *public works*; an universal diffusion of a sound, *practical* education, and the publishing of *practical* tracts on material as well as moral topics; gymnastic schools (!) and public playgrounds; savings' banks—even in minor towns and less peopled localities; temperance societies; emigration.—*Allgemeine Zeitung.*

Progress of Art movement in Prussia.—A great number of artists, many of them first rate, have addressed a memorial to the Secretary of State for Public Instruction, drawing his Excellency's attention to the inadequate patronage bestowed on the arts in Prussia; and pointing, especially, at the backward state of monumental painting (fresco, encaustic or *stereochromic*) of the Prussian metropolis, compared with Paris and Munich. Mr. Eichhorn has received the memorial with extreme politeness, seemingly well pleased with the opportunity thus given to him, to bring this important subject under the notice of the king and the Council of State, in which a number of architects and other artists and literati have a seat. J. L——y.

MERIT IN HUMBLE LIFE NOT TO BE DISREGARDED.

SIR,—I find in THE BUILDER of last Saturday week, the article sent by me, and inserted by you in THE BUILDER of the 15th Nov. has at last been noticed by one of your correspondents, Mr. T. B. Lawrence, who, after referring to the case of ventilation so successfully adopted by an obscure country individual, requests to be informed by "A Working Bricklayer," what is the nature of the plan, which, he observes, at present appears somewhat doubtful. In reply, I beg leave to inform the gentleman, that the obscure country individual and the "Working Bricklayer" are one and the same person, and that after the opinion of an eminent M.D. was given, and rejected for its absurdity, the opinion of the "Working Bricklayer" was asked. He gave it; his system was adopted, and though more than six years have passed away, yet not one case of either fever or small-pox has occurred in the building, though in the town where it is situated scarlet fever has been very prevalent lately, and many have died. I cannot exactly understand whether Mr. L. means the plan is somewhat doubtful, or the success of the plan. If he means the latter, I can have testimonials from the most influential gentlemen in this town and vicinity. If he means the nature of the plan, it certainly was not stated by me what the plan or system was; nor do I intend it at present for the following reasons. Having known for some years a simple, yet certain, method of destroying the black damp, or as it is called, carbonic acid gas, in wells, vaults, vats, &c., I gave publicity to it; the first time was after the loss of two or three lives in a grave in Aldgate churchyard. I wrote to the editor of the *Globe* or *Sun* newspaper, I forget which, an article in order to prevent similar accidents. When the fatal accident happened at Barclay's brewery, about two years ago,

where two men lost their lives by attempting to clean out a large vat contaminated with the deadly vapour, I wrote immediately to the firm, but common courtesy was wanting; no answer was returned. Well knowing by practical experience the certain effects to be produced, I wrote to the Society of Arts and Sciences; they saw the infallibility of the means, and on the 2nd of June last, in the Society's Great Room in the Adelphi, the "Working Bricklayer" received from the hand of his Royal Highness Prince Albert, an honorary testimonial. After this mark of public approbation, several scientific gentlemen expressed their surprise that so simple and cheap a preventive should not have been almost universally known among men of science, and that a country "Working Bricklayer" should bear away the bell. It was not for want of publicity; I gave it publicity enough. It was prejudice, that deep-rooted prejudice, existing not in London alone, though it is much too prevalent there, but in other places, against any thing emanating from a plain country mechanic. Unless a man has the title of M.D., F.R.S., or some other, let his genius be ever so great, few are to be found to give him assistance. If he succeed in crawling up to public notice and public usefulness, it must be by dint of his own exertions. It appears as if science, or scientific men, were confined to the metropolis, and even there, to superior stations in society, but it is not so.

An ingenious young man from this town during the building of St. Paul's, went up for employment as a carver. When inquiring of the workmen, he was only laughed at by them, and called a "hedge carpenter," yet he persevered; saw Sir Christopher Wren, to whom he shewed a specimen of his abilities as a carver, and the carved work in the interior of the cathedral was executed by this countryman. The celebrated and almost inimitable painter, Gainsborough (the son of a little tradesman born in the same street in which I am now writing), is another proof, if any were wanting, that it is not the rich or great that alone possess the talent or scientific knowledge. These remarks are made not out of vanity, or ill-feeling, but to shew that genius or science is not confined to large cities or opulent men, But resuming the subject, having felt the effect of this too-much-existing prejudice in the case of preventing accidents in wells, &c., it operates as a bar to giving publicity to the simple method I have adopted. I am wellaware one system will not suit all cases, but the means must be adapted to the case, and according to circumstances. I have read of various plans in advertisements, and in other sources of information, devised and adapted for effectual ventilation; in particular that absurd one of Dr. Reid's, at the Central Criminal Court; but the more I read, the more I am convinced that the one simple idea on which effectual ventilation must stand or fall has not yet been mentioned or practised from in any accounts I have as yet read upon the subject. But in courtesy to Mr. Lawrence, I assure him, that though I decline informing him of the plans which have been adopted successfully by me, at present, yet if he will have the kindness to give me his profession or trade, I shall not have the least objection to correspond with him upon that or any other subject in which air and its effects are the principals. But for the reasons before named, I feel inclined to write again to the Society of Arts and Sciences, where its intrinsic merits will stand or fall, and where there is not that prejudice existing against those who are placed in humble situations, which too often exists in the breasts of many, especially against countrymen.

I read, Mr. Editor, with great pleasure, the manly, straightforward, scientific remarks at the concluding part of the article on the training school at Swinton; it is observed "every architect is able to receive valuable information from men of science eminent in their own walk, and is anxious to seek it:" this is very true in buildings, as well as ventilation or any other science, but it is very, very seldom practised by architects. Practical scientific workmen could, if requested, give architects much valuable information. The remark, "the ventilation must be adapted to the building, and not the building to the ventilation," is equally true. I also read with surprise the enormous expenditure bestowed upon ventilating the building; no less a sum than 5,000*l.* appears to have been expended upon it. I am no seer, but have my own opinion upon the system adopted. Should it be found to answer, I shall be greatly surprised. I think no man who understood ventilation would adopt the plan of having numerous holes drilled in the floors of the principal school rooms. I would ask Dr. Reid, I would ask any scientific man, whether a constant upward current, or rather currents of air will not rather be the constant cause of colds and sore throats, as in the case of the Central Criminal Court. No doubt fresh air will be admitted, but I should suppose at the hazard of the health of every scholar.

I am, Sir, &c.,

A. J. Green, Working Bricklayer.

Sudbury, Suffolk, Dec. 8th, 1845.

*** Without any desire to interfere with our correspondent's intention, to transmit the particulars of his system to the "Society of Arts," we would make this general remark—that the pages of The Builder are open to all who have real information to communicate, and that to the best of our ability we will judge if it be so or not, without stopping to inquire if it emanate from gentle or simple. We have the elevation of the operative classes sincerely and warmly at heart, and will do all in our power to advance it. If we can aid struggling merit, it will at all times be a satisfaction to us to do so.

BRICKWORK IN ASPHALTE.

Learning that the Seyssel Asphalte Company were engaged, under the superintendence of Mr. Mylne, in building, with asphalted brickwork, the interior of a new reservoir on Highgate Hill, we made a pilgrimage a few days ago to that now distant spot, which, measuring by time, has been removed, thanks to railways, as far from London as Windsor, for example, used to be. We found the reservoir nearly completed, and apparently a very satisfactory work. It is 100 feet square at the top, and 13 feet deep. The bottom was puddled with clay 18 inches deep, and laid with 9 inches of brickwork in mortar, with a course of bricks flat, in asphalte, on that, covered with asphalte half an inch thick. The sides (sloped at an angle of 45 degrees), consist of two 4½ inches of brickwork, in mortar, laid against the earth, with a third 4½ inches in asphalte, covered on the face with half an inch of asphalte, as at the bottom. The top of the brick sides is coped with asphalte sprinkled with grit.

The facing of asphalte was given to each brick before it was laid, by putting a number of them close together in a frame, and pouring over them the required thickness of asphalte. The bricks were then separated, and each laid with asphalte, the joints being afterwards pointed up with the same material. In laying the bricks care was required to keep the face even, and it was found necessary to hold each brick in its proper position about half a minute, till the asphalte had set. This application of asphalte, somewhat novel in this country, promises to be of considerable value.

Hedgerow Timber.—It has long been a question, whether a loss is not sustained in growing hedgerow timber. The following calculation, made by Mr. Isaac Foster, of Great Totham, Essex, a gentleman of much experience, appeared last week in the *Chelmsford Chronicle*:—

1st. The average value of timber on 100 acres of land in the county	£100	0	0
2nd. Let it stand 28 years, and the improvement in value will not exceed 50s. per year	70	0	0
	170	0	0
3rd. Sell the same now	100	0	0
Interest at compound ditto	300	0	0
4th. Tenant paying 2s. more per acre, with the interest and compound ditto upon the same	377	12	0
	777	12	0
	170	0	0
	£607	12	0

So that the proprietor of 1,000 acres loses more than six thousand pounds by letting it stand.

RAILWAY NEWS FROM PARIS.

[FROM OUR OWN CORRESPONDENT.]

The statutes or by-laws of the Strasbourg and Nantes railway companies have just been published. The capital of the former is fixed at 125,000,000 fr., divided into 250,000 shares of 500 francs each. More than one-third of the shares stand in the name of Englishmen but, in point of fact, Englishmen hold a much greater number, several of the largest French holders—Rothschild, Hottinguer, Laffitte, for instance—representing our countrymen. The capital of the Nantes company is fixed at 40,000,000 fr., divided into 80,000 shares of 500 francs each. Nearly 30,000 shares stand in the names of Englishmen, but, as in the case of the other company, they really and truly hold a much greater number. The adjudication which conferred these two railways upon the respective companies has been approved by royal ordinance, and nothing now remains to be done but a further approval by ordinance of their statutes, to give the companies all their rights and privileges, and to establish them as *societés anonymes*. Some of the Strasbourg companies, in rendering to the subscribers the sums overpaid as deposit, think right to deduct two, four, and even eight *sous* (4d.) per share, under the pretence of covering the preliminary expenses, as if the interest on the sums paid up were not amply sufficient for the purpose. One of them has even had the monstrous audacity to keep one *franc*, 5 *sous* on each share, to make up for losses, occasioned by Bourse transactions. Really one is astounded at the iniquity of such a demand when it is remembered that to presume to speculate at all with the money of the shareholders, was a most scandalous breach of trust.

One question remains to be settled before the Paris to Strasbourg railway can be handed over to the company—it is relative to the station at Paris. The inhabitants of different quarters contend with much vivacity to have placed in the midst of them; but, upon the whole, I am inclined to think that the site chosen by the Government is the best that could be adopted, all things considered. It is situated in a street of sufficient width, which can be made still wider; it is close to the two great mercantile streets of this capital—the faubourg St. Denis, and the faubourg St. Martin, and, above all, it is infinitely cheaper than any other site that could be proposed.

The day fixed for the adjudication of the railways from Paris to Lyons, and from Creil to St. Quentin is the 20th of the present month, and Friday before last was the latest day allowed for companies intending to offer for the concession of either line, to give notice to the Minister of Public Works. Similar "fusions" or amalgamations, to what were effected between the companies for the northern railway from Paris to the Belgian frontier, were expected, but the result has not confirmed the expectation. Eleven of the Lyons companies have united, dividing among themselves the capital in the following manner:—

	Shares.
Receveurs-Généraux	43,335
Messageries	43,333
Union	42,364
Ganneron	42,364
Calon	42,364
Laffitte Blount	42,364
Lapinsonnière	38,833
Griolet	27,500
Ardoin Verdian	24,209
Hottinguer	13,334
Rothschild frères	10,000
Total shares	400,000

The three companies of the postmen Française and Engineers have also united themselves into one company, each taking equal share of the capital. The Creil and Quentin companies were not able to agree among themselves as to the share which each should have in the capital; and according to fewer than five gave the necessary notice the Minister of Public Works of their intention to appear at the adjudication. The companies are as follows:—

The company represented by Rothschild Fréres, Hottinguer, Laffitte Blount; the company represented by Mr. Cordier, the Marquis de Dion, Baron D'Angré, &c.

company represented by Comte de Colbert, General Corbineau, &c.; the company represented by MM. Séguin, de l'Ousle, de Latena, Michelet, &c.; the company represented by the Duke of Vincence, Comte Lancosme, — Brèves, Comte Lagrange, &c.

Is not such a result to be lamented by the shareholders in all the companies of these two railways? They cannot all win, which is the first thing to be regretted, after having waited so long and spent so much money, and incurred so much inconvenience to have a share in these great mercantile undertakings. The next thing to be regretted is, that the winner will, by the competition, be compelled to accept the lease for a shorter period than could be desired, whereby the shareholders will not obtain so large an interest as they may have had reason to expect. Some people say, that the cause of the opposition that will take place for the Paris to Lyons Railway, was the refusal of the eleven amalgamated companies to admit the smaller ones into their body. But I know from excellent authority, that it arose from the extravagant pretensions of those little companies themselves, not one of which had the half of its capital (i.e. the half of the tenth part of the capital) paid up, but which, nevertheless, claimed to be considered equal, or nearly so, to such companies as that of Laffitte, the Union, and Ardoin, which possess some of the most wealthy and important mercantile men of England and France. But after all, people attach no very great importance to the threatened opposition,—it being thought that the opposing company will either be rejected by the Minister of Public Works, or retire at the last moment of its own accord. With respect to the Creil to St. Quentin companies, the matter is different. Some of them are of the very highest respectability and the most unquestionable substance. Hence it is feared that the competition will be very severe, it being of the utmost importance to them not to be defeated after all their trouble and expenditure; and it being also of the very utmost importance to the company of the Northern railway not to permit the Creil to St. Quentin line, which is an embranchment on its own main line, to slip out of its hands In fact, in the hands of a rival company the Creil to St. Quentin embranchment may be made a very formidable rival to the main line. The annual returns of the line from Creil to St. Quentin are calculated at 3,080,000 fr., which will yield 5¾ per cent. for the shareholders on the capital they will have to disburse for forming, stocking, and working the line.

The Lyons to Avignon Railway was announced by some newspapers for adjudication on the 15th of January; but I have the best authority for saying that nothing has yet been finally settled on the subject. The difficulties and disputes as to the *travé* are now under the consideration of the Council des Ponts, et Chaussés, and the Minister of Public Works.

The railways at present in course of execution are running a career of uninterrupted prosperity. The receipts of last week on the Paris and Rouen line were 125,516 fr., whilst those of the corresponding week of last year were 101,294 fr. The receipts last week of the Paris to Orleans Railway were 148,870 fr.; whilst in the same week last year they were only 123,216 fr. On the St. Germain and Versailles (right bank), the receipts for the month of November were 177,077 fr., whilst in the month of November last year, they were not more than 140,750 fr. On the Versailles (left bank) Railway, the receipts for November were 48,613 fr.; in the same month last year, 45,828 fr. In the month of October last, the Railway du Gard yielded 217,214 fr.; the same month of 1844 produced only 184,592 fr.

Our Bourse appears to have entirely recovered from the crisis which weighed upon it during the whole of the last month. On railway shares there has been a very general and a very striking improvement in prices.

December, 1845.

THE CATHEDRAL OF ST. DENIS.—The monument erected to the memory of Louis XVIII. in the vaults of the Cathedral of St. Denis, is about being completed, and, when finished, that of Charles X., his successor, will be proceeded with. When this is done, all the French Kings and Princes up to 1830 will be there represented either by a tomb, a monument, or a statue.—*Galignani's Messenger.*

FREEMASONS OF THE CHURCH.

DEC. 9TH.—Sir Walter James, Bart., M.P., Vice-president, in the chair. Mr. James Finn, her Majesty's new consul at Jerusalem, was elected corresponding delineator for that important locality. Mr. J. O. Halliwell, F.R.S., was elected an honorary fellow.

Mr. George Isaacs contributed two fine majuscules, illuminated on vellum in gold and colours, of the 14th century. Mr. W. H. Rogers exhibited a curious brooch of ancient Irish workmanship in brass; a chaseble button of the 15th century in silver; and the seal of Macarius, Bishop of Antioch in the 15th century, having in the centre a figure of St. Peter sitting upon a throne, on a pinnacle of which a cock is roosting: the handle terminates in grotesque heads. This seal was purchased from the collection of Mr. Till. Mr. Mayford exhibited an exchequer tally of the time of Edward III. Mr. E. B. Price exhibited specimens of foliated encaustic tiles from the ruins of Sunbridge Priory, Kent; Bradenstoke Abbey, Wilts; Reading, Berks; and St. Ann's, Blackfriars, Botolph-lane. The secretary, Mr. W. P. Griffith, exhibited a small sculptured female effigy, in stone, painted and gilt, from one of the religious establishments in Somersetshire; a very interesting relic in a perfect state of preservation. Its date is about the latter end of the 14th century. Also a painting of Harlington Church, Middlesex, by Mr. Vincent Figgins.

Mr. Cull then delivered an inaugural lecture on architectural acoustics. He began by calling attention to the science of acoustics as an important branch of physics, to the use of the science by physiologists to explain the offices of the several parts of the ear in hearing, and to the applications of the science by architects in the erection of buildings, so that the tones of the human voice and of music should reach to the whole of an assembled auditory unimpaired by resonance, and undisturbed by echoes. He regretted that many buildings were monuments of acoustical ignorance. Sound, he said, is not, as some philosophers describe it, motion, nor as others teach, resisted motion, but is a sensation *sui generis*. In all cases, however, the physical cause of sound is resisted motion. In common language we speak of noise, sound, and musical sound, to express distinctions in what we hear. "A quill," says Dr. Thomas Young, "striking against a card causes a noise, but striking successively against the teeth of a wheel, or of a comb, a continued sound; and if the teeth of the wheel are at equal distances, and the velocity of the motion is constant, a musical sound. The general terms, pitch, loudness, quality, and duration, embrace all the distinctions which are audible in sound, and which are skilfully adapted by the musical composer to express sense and sentiment in music, which may therefore be appropriately termed a tone-language. In common noises, we detect only loudness and quality; in sound we distinguish loudness, quality, and duration; and in musical sound we discriminate loudness, quality, duration, and pitch. Duration cannot be predicated of noise, because it is limited to the moment of collision, and is incapable of further extension. Mr. Cull described the physical causes of these distinctions in sound, and then explained the transmission of motion in the undulations of a stretched cord; of water disturbed by throwing a stone in it; of a field of corn, and of the particles of highly elastic bodies, in order to understand the conduction of sound by the air, which will form the subject of the next lecture.

After the lecture, it being the anniversary of the society's foundation, the secretary delivered an address, reviewing the progress made during the past year, which he considered the first year of active operation; noticing, also, the complete course of introductory lectures which had been read, as well as the assistance the society had given towards restoring objects of antiquarian interest (St. John's Gate, Clerkenwell), as an earnest of what the institution would do if sufficiently supported. The best thanks of the meeting were given to the vice-presidents, the treasurer, and the officers, for their zealous exertions during the past year, and they were re-elected for the year ensuing.

The next lecture was announced for Jan. 13, "On Ecclesiastical Design," by Mr. G. R. Lewis.

ANTIQUARIAN NEWS AND DISCOVERIES.

DURING the past week, a Roman tesselated pavement has been brought to light at Colchester. It is of considerable extent, and of the plain red description, without any variegated design. Remains have also been discovered, on the same spot, of fresco painted walls, and from portions of charcoal and other appearances, it is supposed that the building in connection with these remains must have been destroyed by fire. At Bungay, in Suffolk, during the execution of some repairs at the Grammar School, a stone was discovered in the front of the house, with the following inscription:—

Exurgit letum tumulo subtriste cadaver
Sic Schola nostra redit clarior usta rogo.
1690.

This date clears up a doubt as to the time when the present school was erected, the town having been almost entirely destroyed by fire on the 1st March, 1688.——On the 28th ult. the surface-ground in a paddock, at Orpington, suddenly gave way, and developed, at the depth of 16 feet, subterraneous arched chambers.——*Galignani* gives an account of the recent discoveries of eighteen Gallo-Roman tombs at Luxeuil (Haute Saone). These monuments go back to the first centuries of the Christian era, and the greater number would appear to have belonged to the Pagan priests, as far as may be judged from the cups found with the bodies, and the attributes of their functions, represented on the interior of the tombs. The names of several of the deceased are written in legible characters at their feet.

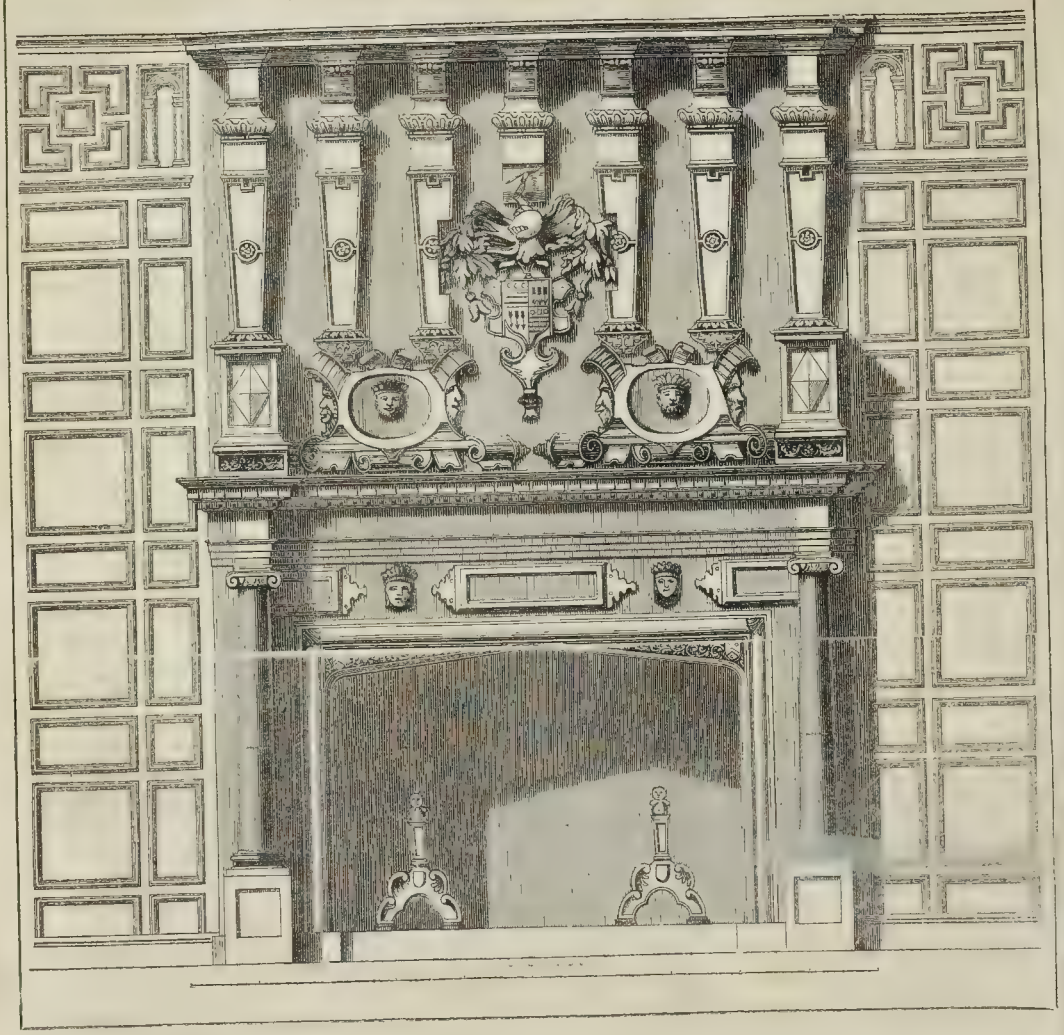
Mr. Hawkins, whose letter to the Institute of Architects relative to the proposed collection of national antiquities we recently printed, has addressed a letter to the chairmen of the several railways on the same subject. He also points out the high probability that, in the progress of the railways now in the course of formation, many very interesting antiquities will be brought to light: without some special interference for their protection, such objects are too often ignorantly destroyed by the workmen by whom they are found. He asks the directors to give orders for the preservation of antiquities found in making railways, and to afford facilities for the record of such discoveries, and for the inspection of the objects found. Mr. Hawkins remarks: "Antiquities can only be classified by the most extensive comparison of specimens; for such comparison is required the actual juxtaposition of the objects compared, a knowledge of the district to which they belong, and, as far as possible, of the circumstances of their discovery; if they are only partially preserved, or recorded, much of their value as evidence is lost, or, if *they are scattered in collections far apart*, the minute distinctions and resemblances on which their arrangement depends can scarcely be perceived, or, if perceived, rendered available to archæological research."—We are glad to learn that very satisfactory replies have been received.

BATHS AND WASH-HOUSES FOR THE LABOURING CLASSES.

ON Tuesday last the ceremony of laying the foundation stone of the first model establishment for baths and wash-houses for the labouring classes took place in Gulston-square, High-street, Whitechapel. The Lord Mayor presided on the occasion; there were also present Mr. Wm. Cotton, the chairman of the committee, Mr. Wm. Weire, as deputy chairman, the Rev. Mr. Quickett, &c. The stone having been lowered, the Lord Mayor went through the process of "laying the stone," on which was fixed a brass plate with the annexed inscription:—"The first stone of this building, erected for Baths and Wash-houses for the Labouring Classes, was laid by the Right Honourable John Johnson, Lord Mayor; the Right Reverend Lord Bishop of London, President; Wm. Cotton, Esq., Chairman; Wm. Hawes, Esq., Deputy Chairman; P. P. Baly, Esq., Engineer; T. Buller and T. Forrest, Esquires, Honorary Secretaries; and G. S. Griffith, Esq., Assistant Secretary." A glass bottle was also inlaid, in which were deposited the silver and copper coins of the realm, a dinner ticket, and the report of the committee.

In the evening upwards of 240 gentlemen celebrated the event by dining together at the London Tavern; the Lord Mayor took the chair. In the course of the evening donations were announced amounting together to about 1000*l.*

CHIMNEY-PIECE, NETLING-HOUSE, BATH.



CHIMNEY-PIECE IN NETLING HOUSE, BATH.

Whilst Sir Walter Hungerford was building this, his town residence, John of Padua was engaged at Longleat; at a house at Bradford, known as the Duchess of Kingston's; and at Claverton, all within a few miles of each other and of this. It is easy, therefore, to suppose, that the knight was aided by this celebrated "builder" in his undertaking; and as much of the detail in the "Duchess's House" very closely resembles this chimney-piece, I think it may be considered as a work of his.

The Hungerford family were possessed of immense wealth. Thomas Lord Hungerford married a daughter of "the Percy," Earl of Northumberland, and gave their only daughter and heir to Lord Hastings, with a dowry of no less than eighty-seven manors. This Hungerford has left us a fine specimen of the architecture of his time at Littlecot, in Wiltshire, near the town from which the family derive their name.

Sir Edward Hungerford, in the time of Charles II., dissipated all the estates of his ancestors. Amongst his recorded extravagances was the purchase, at the cost of 500*l.*, of a *blue* wig to appear in at the coronation of the king. Farleigh Castle and the estates were in 1686 sold, and can be traced through the Bayntum and Frampton families to the present possessor, Mr. Houlston; but what became of, or into whose hands fell, the town mansion, I am not able to find. It is at present in my possession, held under the Hospital of St. John; a charity of very early date.

The room in which this chimney-piece is situated, is occupied by the Bath and West of England Agricultural Society, and their annual meeting is held in it. The house has from time to time been dreadfully mutilated, and now but little else remains of the works of Sir Walter Hungerford and his architect than the chimney piece before you; but thinking it worthy of publication, and it having as yet escaped observation, you may, if you please, give it a place in The Builder, under the authority of your obedient servant,

Bath, 1845. Edward Davis.

COUPLAND'S PATENT FURNACE.

This furnace is the result of some of the many efforts that have been made to prevent smoke and save fuel. The possibility of avoiding altogether the nuisance of smoke, and effecting a saving at the same time, being almost universally admitted, the only question is the best means of effecting the desired end. In the furnace to which we are alluding the coals are supplied from below the fire, upwards, and there is at the same time a passage of atmospheric air passing through the fuel, by which means all the products of the coals pass through the incandescent fuel above, and are consumed, whereby smoke is prevented. This is done by lowering at pleasure and in a horizontal position, by suitable apparatus, a portion of the fire-bars sufficiently below the fire to enable a fresh supply of fuel to be placed thereon, and then raising them again to their former place, and retaining them there till the fuel is consumed and a fresh supply required, without interfering with the draught necessary for the combustion of the fuel while being so consumed.

An extract from the *Liverpool Health of Towns' Advocate* will exemplify the increased heat gained by burning smoke. Mr. H. Holdsworth, of Manchester, has shewn, that in the front flue of a furnace, of common construction, the thermometer seldom rose above 1100 deg. Fahr., and often fell below 940 deg., the mean being 975 deg., while in the same furnace, when consuming its own smoke, the mean temperature was 1160 deg. Fahr., ranging between 1400 and 1000 deg. The quantity of water evaporated by a pound of coal was *one-half greater* than when the smoke was not consumed.

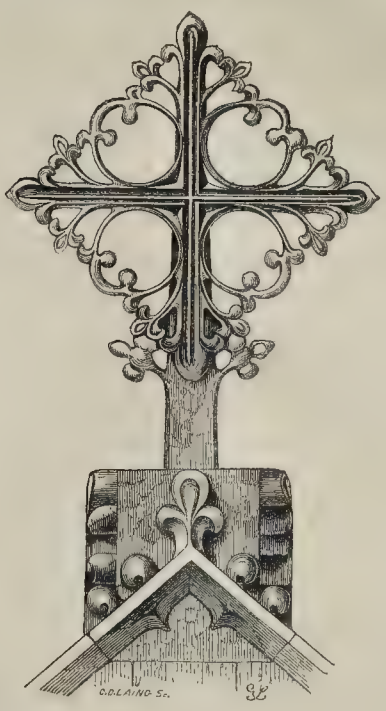
ROSS ON EAST GABLE OF ST. PETER'S CHURCH, WISBEACH, CAMBRIDGE.

THIS beautiful example of the taste and skill the middle ages having become dilapited by the changing seasons of several nturies, has lately been removed from its iginal position, and a new one, a fac-simile the former, has been substituted for it. he old cross is a fine example of the durality of the Barnack stone, the small stalks the foliage being only five-eighths of an ch in thickness, and yet it has withstood the eather in an exposed situation about five ndred years. (In the absence of documentary evidence, I presume it to have been ected in the former half of the fourteenth ntury.)

The new cross is of Ketton stone; it is ree feet four inches in height from the mmit to the cap-stone, and two feet eight ches in extreme width—the sketch is drawn a scale of one foot to an inch.

Wisbech, Dec. 4, 1845. E. S.

STONE CROSS, WISBEACH.



RAILWAY JOTTINGS.

The number of railway plans deposited at Board of Trade amounts to 788.——The ead of railway litigation has induced a mber of persons, to assemble, with Mr. D. hittle Harvey at their head, to see whether ne plan whereby an equitable arrangement ust demands can be devised.——The bridge r the Wensum above Carrow Abbey, conting the Yarmouth Railway with the Ely, s expected to be opened for the passenger ffic this week, but will not be ready for ut a fortnight, though the trucks and heavy ds will be able to run over it.——There l be 11 embankments and 10 cuttings on Brighton, Lewes, and Hastings line. Mr. by, the resident engineer, reports as follows the same:—Redditch embankment, which is med, contains 19,700 cubic yards; Redh cutting, completed, 11,800; Stonecross ing, 106,900, 54,000 removed; Westham ing, 14,700, completed; Pevensey Marsh ankment (3½ miles long), 50,000, 36,000 oved; Conden cutting, 13,000, completed: le Common cutting, 25,800, 4,000 removed; land cutting, 8,800, 4,000 removed; hill cutting, 71,800, 37,000 removed; ey Hill cutting, 52,500, 44,000 removed; verhithe cutting, 32,800, 27,600 removed. deepest cutting is that of Stonecross, ch is 40 feet, and the highest embankment ages 23 feet. The portion which passes ugh the ruins of the priory of St. Pan- at Lewes, is somewhat impeded by the exercised in the excavations. The works not much disturb any of the walls of the ———Connected with the localities of ay enterprise it appears that 83 prospecs were issued from Moorgate-street, involcapital to the amount of 90,175,000, and Gresham-street 20 prospectuses were d requiring the sum of 17,580,000*l.*——pperations to connect Richmond with the t North of England Railway at Cowton commenced, and a great number of excas are now employed in the neighbourhood t. Martin's, near Eastby Abbey.—— electric telegraph is now completed en Dover and Edenbridge, as well as en the latter place and Maidstone. It be continued from Edenbridge to the on Bridge terminus and the Bricklayers' s station.——The proprietors of the Lon- auction Mart have come to a resolution *ibiting*, on their premises, *the sale of railscrip*.——The great tunnel in the Shefand Manchester line, nearly three miles ngth, is nearly completed, and the opening s expected to take place in a few weeks. week a party, including the engineer and f the directors, passed through with an e.——There exists a prospect, amounting t to a certainty, that the Eastern Union ill be opened early in the spring. The mmences with the Colchester Extension astern Counties at Ardleigh, and, proing thence towards Ipswich, passes over and at Manningtree Valley, Dedham, rd, and over the river Stour. The quantity thwork removed has exceeded 700,000 yards, being two-thirds of the whole quanquired to complete a double road. Thirty ts and bridges have been built, six miles rmanent road have been laid, and thirteen miles of double fencing set up. The long timber viaducts over the Stour are almost completed; the foundations have proved satisfactory. There are several heavy cuttings and embankments, but most of them have been mastered.——The Brighton and Chichester line was opened for passenger's traffic as far as Worthing on the 24th ultimo. There was no ceremony, that being reserved until the line is opened throughout, which it is expected will be about March. At present only one line of rails is laid down, but it is intended to have a double line eventually. The Worthing station is situated about half a mile from the centre of the town.——The coast line of the South Devon, near Teignmouth, met with another mishap last Sunday night. The *Exeter Gazette* says that during a neap tide, the waves, which were large and very wide apart, broke over the doomed wall in succession, making light of the roadway of sand, and causing the wall to tremble with the repeated shocks. This was particularly the case at the large breakwater about midway between this town and the Parson and Clerk, where the sea was fast washing away the *permanent* road; and soon after church time, the wall to the eastward of it was seen to totter; and after several distinctly perceptible vibrations, about 120 feet in length fell into the sea, leaving about 20 feet standing adjoining the breakwater, which was protected by a projection.——The engineer of the Manchester, Huddersfield, and Great Grimsby, line has reported that, from experiments recently made, the practicability of the proposed tunnel under the Trent is placed beyond question.——The works of the Cockermouth and Workington line have been let to Messrs. J. and W. Ritson, who completed the contract between Workington and Maryport. They engage to make the line for 37,000*l.* and to complete the whole in nine months after obtaining possession of the land.——The Lytham and the Blackpool Branches of the Preston and Wyre Railway, the former 4 miles 6 furlongs in length, and the other somewhat less, are all but complete. The Lytham line is finished. There is no work of any magnitude on it excepting in the construction of the bridges, five in number,—three of wood, one of stone and the other of bricks. The quantity of earth excavated has been about 100,000 cubic yards.——About a quarter of the Oxford and Rugby line, which when complete will be 50½ miles in length, has been staked out, and excavators are at work upon it.——At Chester, on the line to Holyhead, two bridges are in progress—the one across the Dee, and the other across the canal. About 300 men are employed near Chester; about 200 more are engaged at Mostyn; near Conway the same number, chiefly in making the tunnel through the rock; and about as many in the neighbourhood of Bangor.——The different lines uniting at Leeds are reported to have agreed to contribute 100,000*l.* each towards the establishment of a central station.——It is estimated that since the prorogation of parliament 100,000*l.* a week have been spent in railway advertisements.——It has been suggested that the extremely unpleasant motion experienced by passengers in most of the English lines arises chiefly from the top-heaviness of the carriges, and the insufficiency of the base. In many instances the wheels stand on a base 8 feet 6 in. by 4 feet 8 in. the length of the body is 17 to 18 feet, and the height between 9 and 10 feet from the rail. That such a top-heavy construction could be steady at high velocities is almost impossible. It appears that in Germany six-wheel carriages nearly 30 feet long are used and are perfectly free of the inconvenience referred to. On some of the Irish lines 30 ft. carriages with six-wheels have been adopted, and given great satisfaction. In the United States some of the carriages are 80 feet long.——An immense number of workmen are employed on the Lancaster and Carlisle line. The embankments and cuttings are very heavy, and the process of blasting large quantities of stone that obstruct various parts of the line is still continued. The lengthened embankment near Carlisle is completed, and the viaducts at Gatthie are nearly formed.——Mr. Gravatt, the engineer of the Great Eastern and Western, has been charged publicly, by the directors of the company, with gross carelessness and culpable dilatoriness in the preparation of the plans, to an extent which

placed them in jeopardy, and he has been discharged from his office.——Part of the Furness Railway having to run along a marsh called Salthouse Marsh, which is covered by high tides, an embankment was formed whereon to lay the rails. The *Preston Chronicle* reports that, during the late gales, the sea has entirely swept away the whole of the embankment, doing damage to the estimated amount of 2,000*l*.——On the Eastern counties line, the erection of a new and enlarged station at Cambridge, nearly half a mile nearer the town, has been resolved upon. Improvements have been made at the Shoreditch terminus by the completion of a new suite of waiting rooms for the passengers. The new stations at Brentwood are almost completed. They are built of red brick, in the Elizabethan order.——The Barrow viaduct on the Lancaster and Carlisle line is nearly finished. The last arch was keyed in on the 29th ult. The viaduct spans the romantic valley of Borrowdale near its junction with that of the Lune, at an altitude of 68 feet, and is built of a light red freestone, except the interior of the arches, which is composed of brickwork.——The first contract on the Whitby Branch of the York and North Midland line has been taken by Mr. Reed; it is about seven miles in length, from Pickering to Raindall; and the works have been commenced.

UNDERGROUND ROOMS.

Sir,—Seeing by your valuable publication, there is some chance of the New Building Act undergoing a revision in the next session of Parliament, I beg to call public attention, through the medium of your pages, to Schedule K, which will render tenantless the underground apartments of nearly the whole of the small houses in London after July, 1846, *without* remunerating the owners for the loss of rent for the same, although each of these houses has been built agreeably to the old Act, and under the inspection of the several district surveyors. Therefore, Sir, I do think that should Schedule K be not entirely erased from the new Act at the expected revision, so far as existing buildings are concerned, some provision should be made to remunerate the owners of such property, who are generally small tradesmen and frugal mechanics, persons who ought to be assisted and not injured by Acts of Parliament. 20,000,000*l*. were not long since voted to remunerate the rich owners of human flesh, whose property in the same was prohibited by Act of Parliament, I therefore ask, upon the broad principles of justice, for remuneration for the owners of small houses that may be effected by Schedule K.

By inserting the above remarks in an early number, you will much oblige, Sir, yours, &c.,
Cumberland Market, Dec. 3rd. W. P.

CAMBRIDGE ANTIQUARIAN SOCIETY.

A special general meeting of the Cambridge Antiquarian Society was lately held at the Philosophical Society's rooms; the President, the Rev. Professor Willis, in the chair. The President opened the proceedings by reminding the meeting, that the Society had already existed for several years in this University, and had from time to time issued publications, on architectural and other subjects of antiquarian interest. It appeared that several of its existing laws would, if strictly adhered to, confine the Society's operations within very narrow limits, and that it had been proposed to offer some modification of these rules, in order to increase the efficiency of this Society. He considered that members of an University, highly educated as they are, coming as they do from all parts of the United Kingdom, periodically revisiting their homes, or travelling over the whole world, have greater opportunities for the collection and mutual communication of varied and curious information than persons in any other situation. Hence, the limitation of the Society's researches to Cambridge and its vicinity had been in fact practically disregarded. The well-known Society which lately occupied the field of architectural researches in this University having discontinued its meetings here, an opportunity was thus offered for the present society to extend its operations in that department, and for this purpose it was proposed to hold more frequent meetings, which taking place in the evening (and not as hitherto in the morning) might, it was hoped, assume a more attractive character than they had as yet possessed. He wished it to be clearly understood that, whilst giving to architecture a prominent place among the objects of its labours, the Society was desirous of confining itself to an historical and artistic view of the subject, not interfering with or giving advice for the erection or arrangement of new buildings.

It is stated that the subscription to the Society will in future be *one guinea* annually, and that the evening meetings will be commenced in the ensuing term. The President expressed a hope that he should be enabled at an early meeting, to lay before the Society an architectural account of the recent discoveries in the chapel of Jesus College.

DISTRIBUTION OF PRIZES AT THE ROYAL ACADEMY.

PROPOSED UNION OF THE STUDENTS.

On Wednesday, the 10th., sixteen medals, gold and silver, were distributed amongst the competing students in the various branches of art, including a gold medal with the discourses of Reynolds and West, to Mr. A. Johnson, for the best architectural design for a National Record office; and a silver medal, with the lectures of Barry, Opie, and Fuseli, to Mr. W. Walters, for the best architectural drawing of the Strand front of Somerset House.

Mr. Jones, the keeper, who took the chair in the absence of Sir Martin Shee, read an address to the students, written by the latter for the last distribution. It related principally to the importance which ought always to be attached to the choice of subjects in painting. On this point the president wrote with much earnestness, regretting that it was not always in the power of an artist, who was the most competent person to judge of his genius, to select his own subjects. Then followed some remarks on the general subject of composition, particularly the epic, which the president divided into three branches—the poetical, the classical, and the historical. The whole of these remarks were illustrated by reference to the best examples of the most celebrated painters. In the course of them the president strongly condemned the introduction of discordant objects into pictorial compositions. There were examples among the best painters of these inappropriate introductions, but they were not on that account to be imitated, but rather shunned. The address concluded with some glowing anticipations of the effect the judicious adornment of the new houses of parliament would exercise over art.

The day after the distribution, the students dined together at the Freemason's Tavern, which was chiefly noticeable for the announcement, that it is in contemplation to establish a monthly *conversazione*, so that the students may become better acquainted with each other. They are also about to form a museum of costume, which will be of the greatest utility to the student, and an establishment where any large work of art may be executed by any person who does not possess the required accommodation at home.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At an ordinary meeting, held on Monday evening last, Mr. Tite, vice-president, in the chair, a number of donations were announced, including Mountfauçon's Antiquities, from Mr. Foxhall (a handsome gift), and a plan and section of Wren's church, St. Benet's Fink, about to be taken down, from Mr. Edwin Nash. Mr. R. L. Roumieu, of Lancaster-place, and Mr. David Bryce, of Edinburgh, were elected fellows. The chairman then read an elaborate notice of the proceedings taken in building the original Exchange, by Sir Thomas Gresham, and the Exchange built after the great fire in 1666, as derived from the records of the Corporation of London and the Mercers' Company. Mr. Tite also gave an interesting account of the antiquities discovered in preparing for the foundations of the present building, and exhibited a number of the articles that were found. We hope to print the substance of this paper at some length next week.

MR. TITE *v.* MR. ROACH SMITH.

Sir,—The two letters which you have published from Mr. C. R. Smith would have received no further notice from me but for his expression, that I have "falsely" accused him: to this allegation I consider it due to myself to make a very brief and *final* reply. My principal design is, therefore, to re-assert, in the strongest manner, the truth of the statements I have already made, and which, it will be readily seen, are in the main proved by Mr. S.'s own admissions.

With respect to my power of enforcing my own orders; as the contractors were bound immediately to discharge any person from the works at my instance, it is evident that I could have had no difficulty. This power I should certainly also have exerted if the accusation made by Mr. S. had appeared to me (upon the inquiry made at that time in his presence) well founded.

As to antiquities being subsequently found after the rubbish had been carted away, surely Mr. Smith need not be told that, watched and cautioned as the labourers were, such a story was only to be regarded as a plausible mode of evading, on their parts, very serious legal consequences. If, however, the statement had been true, it would have afforded no justification for not restoring the articles so found to the proper authorities.

With reference to Mr. Smith's plea on the insignificant value of the Medalet, I reply, that the principle of property remains unaltered, and that I certainly did not expect such an answer from an antiquary.

At the close of Mr. Smith's letter, I perceive he uses the term "colleagues." If this has any reference to the members of the Archæological Association, whether collectively or individually, I beg, in the strongest terms, to deny any idea of connecting my charge against Mr. Smith in any manner with that highly respectable body. I regret, as every friend to archæology must do, the division into two Societies, but I have never taken part in either. I have valuable personal friends in both; and if, as I understand, the time or circumstance under which my original statement was made, gave colour to an impression that I had either the one or the other in my mind, I beg most distinctly and emphatically to disclaim any such intention. I am, Sir, &c.

William Tite.

17, St. Helen's-place, Dec. 17, 1845.

VALUE OF R... ORIG... AND AT PRESENT PRICES.

The following table, from the *Mining Journal*, will give some idea of the value of railway property for investment, as compared with the funds and other undertakings; it will be seen that, although none of them pay 5 per cent. at present rates, to the original holders, the dividend varies from 3*l*. to 10*l*. per cent.

Div. last half-year.	Railways.	Amount paid.	Per cent. on original price.	Present price.	Per cent. at pr sent price.
£ s. d.		£	£ s. d.	£.	£ s. d.
1 16 0	Birmingham and Gloucester	100	3 12 0	124	2 18 1
0 3 0	Eastern Counties	14⅜	3 0 6	13¾	1 10 9
5 0 0	Grand Junction	100	10 0 0	249	4 7 4
3 4 0	London and Birmingham	100	10 0 0	214	4 13 6
1 0 0	" and Brighton	50	4 0 0	61	3 5 7
1 17 0	" and South-Western	38⅜	9 10 4	75	4 18 1
2 18 0	Manchester and Birmingham	40	5 0 0	72	3 15 5
3 10 0	" and Leeds	75	7 12 7½	128	4 10 7
3 0 0	Midland	100	6 0 0	142	4 4 6
2 15 0	North Midland Manchester	100	6 0 0	147	4 1 6
2 10 0	York and North Midland	80	5 0 0	105	4 15 3

NOTES IN THE PROVINCES.

It is in contemplation to erect a bridge over the Mersey at Runcorn. Some idea of its magnitude may be formed when we state that there are to be five wet arches of 280 feet span, 100 feet above high water mark at spring tides, and 168 dry arches of 30 feet span, and 51 feet high, making a total of 2,480 yards of arching. When completed, it will be the greatest work of the kind in Europe.——At the same place, Lord Francis Egerton is about to erect docks of great extent, also a custom-house, the present edifice being found most inconvenient for this thriving port.——A subscription has been set afloat for the purpose of re-pewing and effecting other improvements in St. Michael's church, Coventry. The required outlay is estimated at 5,000*l.*——The works at the two new churches at Morton and Stockwith, near Gainsbro', are rapidly advancing; the roofs have been reared some time, and are nearly slated. The wood-work for the interior is in a state of forwardness, under the superintendence of the contractor, Mr. Wood, of Doncaster.——The Commercial Bank, and the new branch of the Bank of England in Castle-street, Liverpool, are both to be built of stone, brought from the Darley Dale Quarries, Derbyshire, from which also was procured the stone used in the erection of the Liverpool Assize Courts.——In Ireland, a decision has been at length come to with respect to the rival claims of Armagh and Belfast, for the site of the Northern College. The latter town has won the prize.——It is in contemplation, in the ensuing spring, to effect several improvements in the fine minster church at Wimborne; a substantial edifice is also to be erected for the endowed free school, in room of the present dilapidated building. ——Within the last fifteen years upon the property of the Marquis of Bath alone in Wiltshire no less than seven churches have been either rebuilt or newly founded, and nine schoolhouses erected, involving together an outlay of nearly 30,000*l.* —— St. Mary's Episcopal chapel, at Dalkeith, was consecrated last week. It is a Gothic building, and a local paper says, that "no expense has been spared in its decoration, so as to render it suitable, in every respect, for the reception of her Majesty should she again be a visitor at Dalkeith palace.—— Some new cells have lately been erected contiguous to the Ipswich station-house. They are built on the humane principle, sanctioned by the Inspector of Prisons, which is, that in constructing a place of confinement, due regard should be paid to the health of the accused, as well as to his security. They are dry, warm, and well-ventilated.——A plan for the extension of Folkestone by the erection of a considerable number of houses on Lord Radnor's land, was submitted, a few evenings since, to a public meeting of the town's-people, called by the mayor, G. Robins, Esq. The scheme, as explained by the originator, is on the principle of a building society, by the operation of which each member will, in succession, become possessed of a residence in eleven years.——A public meeting was held last week at Ely, having for its object the erection of a Corn Exchange there. The market hill will most probably be selected for the site, in which case an unsightly patch of old houses will have to be pulled down. The estimated expense is 6,500*l.*——The London and Birmingham Railway Company have publicly contradicted a report that they had altered their views with respect to the central station, which they propose to make near New-street, Birmingham. They further state that the proposal has received the sanction of the commissioners and governors of the Free school.—— The members of the Royal Southern Yacht Club are about to erect at Cowes a new Clubhouse, at a cost of 6,000*l.* The foundation-stone will be laid in a short time by the commodore, the Marquis of Conyngham.——Mr. Peto is preparing plans for the improvement of Lowestoft harbour, and there is a prospect before long of sea-borne vessels reaching Beccles through Lowestoft, its natural port. —— The extensive iron-works now in course of erection at Oakley, Fifeshire, are deserving of notice. The engine-house is built of stone from the new Carnock quarry, and is 40 feet below and 50 feet above the surface ground. There will be three or four windows in each front about 30 feet in height, each window being arched and ornamented with a moulding; and the whole building surmounted with a very rich coping. The lever wall, which runs across the building from the foundation to the top, is 90 feet, and about six feet in thickness. It is built of polished stones of enormous size, each block being three tons in weight. So extensive is the building, that in it there are deposited 60,000 cubic feet of stones below the surface of the ground. The next most conspicuous objects are the furnaces, two of which are far advanced, the chimney-stalks being each about 180 feet in height.—— Mr. Sotheron, the proprietor of Devizes green, is about to inclose the same, not with the view of excluding the public, but in order to make it more available and more useful to those who may be inclined to resort to it for air and exercise. New walks and ornamental plantations will be introduced to as great an extent as is compatible with its use as the fairstead.——The ceremony of consecrating a portion of the Edinburgh Cemetery Company's grounds, together with the little Gothic chapel erected thereon, near Inverleithrow, took place on Saturday last.——A syndicate is about to be appointed at Cambridge for the purpose of ascertaining in what manner a tax may most conveniently be laid on the members of the university with the view of forming a new botanical garden. Already several suggestions have been made, having for their object such architectural improvement of the town as the projected change will admit of.——The Committee of the Dock Trust, at Liverpool, purpose applying to Parliament next session for power to construct several large new docks on an extensive site, at present principally covered with buildings. The premises to be purchased number 643.

MR. BASEVI'S SUCCESSOR AT THE FITZWILLIAM MUSEUM, CAMBRIDGE.

The Fitzwilliam Syndicate conceiving that the great loss which the university had suffered by the lamented death of Mr. Basevi, the architect of the New Fitzwilliam Museum, made it proper for them to offer to the Senate a report describing the state in which the designs for the building are left; and to bring under the notice of the Senate the state of the engagements made with the contractors for the execution of the work, wrote as follows:—

The Syndicate find by an examination of the drawings left by Mr. Basevi (which have been sent for their inspection by his brother, Mr. N. Basevi) that the designs for the greater part of the work remaining to be executed are in a forward state; but they conceive that these designs not having been perfected, require, for the completion of the work, the assistance of an architect of the same order as Mr. Basevi in professional eminence and skill.

The Syndicate think it highly desirable that the building should be completed with a close adherence to Mr. Basevi's intentions, so far as they appear in a settled form in his designs.

The Syndicate have also ascertained by inquiry of Mr. N. Basevi and of Mr. Baker, the state of the pending engagements with Mr. Baker; and the results of this inquiry will be laid upon the Registrar's table.

The Syndicate, considering the high professional character of Mr. Cockerell, and the confidence already reposed in him by the University, beg leave to recommend that Mr. Cockerell be appointed Mr. Basevi's successor as architect of the New Fitzwilliam Museum, with instructions to adhere as closely as may be to Mr. Basevi's designs in carrying on the work to its completion.

St. John's College Lodge, Dec. 9, 1845.

There was a congregation on Monday, when a grace was offered to appoint Mr. Cockerell to be the late Mr. Basevi's successor as architect to the New Fitzwilliam Museum, in conformity with the recommendation of the Fitzwilliam Syndicate in the above report.

The Skew Arch an Old Invention.—"Now visit the Alcazar [Cathedral at Seville], but first observe a singular Moorish skew arch, in a narrow street leading [from the Cathedral] to the Pueta de Xerez; it proves that the Moors practised this now assumed modern invention at least eight centuries ago." — *Ford's Spain.*

RESTORATION OF THE HOLY TRINITY CHURCH, HULL.

The restoration of the interior of the nave of this venerable and interesting structure is now completed. From the *Hull Packet* we learn that the galleries have, with all the modern pews upon the ground floor, been taken away; the entire area of the nave cleared of every thing; and the stone-coloured paint removed from the lofty piers, their capitals, and arches. Upon entering the great western door, we find ourselves apparently in a comfortable porch, but in reality passing through the great organ, which has been constructed upon a grand scale by Messrs. Foster and Andrews, of this town, after an elegant design by Mr. Lockwood: representing to the eye, looking west, the appearance of a handsome gothic screen. The whole of the nave is now fitted up with oak stalls, enriched with poppy heads, carved by Mr. George Peck, of Hull. Most of them are executed from casts of existing models in Lincoln Cathedral, taken by Mr. Keyworth, sculptor, the Yorkshire Architectural Society's modeller. For some distance eastward from the font, the seats, or stalls, run transverse; so that the standards of solid oak (no other timber having been permitted to be used in the work), with carved "poppy heads," abut upon the aisles. About half way, however, to the arch which separates the nave from the transepts, a change takes place, and a change for the better it certainly is; here the church assumes the aspect of a cathedral choir, the stalls being arranged parallel to the aisle, and the standards and poppy heads meeting the eye to the greatest advantage. A portion of this part of the church has been fitted up with separate stalls, which the churchwardens, it is presumed, will carefully allot. Adjoining these stalls, to the eastward, are smaller ones, on either side, for the singing men and choristers of the church; these abut upon the pulpit and the lectern, which form the most conspicuous objects in the nave. The pulpit, which is of stone, is fixed, adjoining the third pillar on the south side of the nave. It is designed in perfect keeping with the style of the nave, and is highly enriched with a series of niches, which are, we understand, to be decorated with crimson and azure and gold. It is ascended by a winding staircase of stone, composed of fourteen steps. The reading desk is of oak; it occupies a position against the third pillar on the north side of the centre aisle of the nave. The front is composed of an oak screen of Gothic tracery, open, and supported by buttresses of the same; behind are three stalls for the officiating clergy. From this point to the tower the stalls continue to be placed as in a minster choir, the front towards the aisle being handsomely, though neatly decorated.

It is not, we find, at present the intention to pave the middle and side aisles with encaustic tiles, as was first intended; want of funds, we believe, is pleaded for this omission. The font, which is of Purbeck marble, and highly enriched, has been thoroughly cleansed of the many coats of stone-coloured paint which, up to a recent period, covered its sculptured ornaments, and it now occupies its proper position, near to the western door. We are sorry to find that it has not been restored in its original manner, for some reason or another that we cannot account. The eight small pillars that stood originally round the centre shaft of it have been omitted. We trust that the proper authorities will see to this matter, and not allow its ancient features to be altered.

The panels of the ceiling have been painted with ultra marine, whilst the members of the beams are "picked out" in colours, crimson and gold. The centre of the panels is studded with gold stars. In different parts of the roof are painted illustrations of the instruments of our Lord's passion, with monograms, &c. Some of the richly-carved capitals of the columns of the nave are decorated with crimson and blue and gold. The whole of the embellishments of the ceiling, &c., were done by Messrs. Binks and Son, of Hull, after the designs and under the superintendence of Mr. Lockwood, architect, to whose care was entrusted the entire restoration.

The cost which has at present been incurred is about 3,000*l.*, of which sum the churchwardens have taken upon themselves the re-

sponsibility of providing 1,200*l.*, which they expect to raise by the income from pew rents and from the sale of the vaults beneath the church. The rest of the sum has been guaranteed by a few gentlemen who have taken an interest in the subject, and who have performed their part with much spirit. The future contributions will be devoted to the restoration of the chancel. Several handsome donations were promised by various gentlemen present towards this desirable object. We trust that a vigorous attempt will be made to follow up this beginning, and that, the requisite funds being obtained, the restoration of the choir may be proceeded with.

ROUND TOWERS IN FRANCE.

At a late sessional meeting of the Cork Cuvierian Society, Mr. Windele read a paper on some ancient structures in France, which the antiquaries of that country regarded as resembling the Irish round tower, not only in form, but also in the mystery which hung over their origin and history, in which we have some curious speculation on this antiquaries' Sphynx. The French work from which Mr. Windele has extracted these remarks, transfers all the Irish round towers to England; and, as it will be perceived, that of Ardmore among the rest. The French are unlike the Irish towers. Those of the former are of various figures, principally octagonal and of very moderate height. The tower of Quineville called *Cheminée de Quineville* is one of these. It is situated within 8 leagues of Cherbourg, is hollow throughout, having neither stairs nor floors. It consists of a base circular within, and 17 feet high, constructed in that style called by the Romans *Opus reticulatum;* above this is placed a cylindrical column, 11½ feet in height and 20 feet in circumference. The external face is ornamented with Corinthian and Tuscan pilasters supporting an entablature, above which rises a dome, roofed in the form of a truncated cone. Some think that it has served as a Pharos, others, that it is an ancient belfry. But it is neither within view of the sea nor near to any church. There are, however, in France, isolated towers in the vicinity of churches. They belong to the middle ages. In the cemetery of the Innocents at Paris, is one of an octagon form, surmounted by a dome; it is 44 feet in height, and 12 feet in diameter. At Monthrau, near Martignon, is another octagon, 35 feet high and 16 in diameter. The door is 8 feet above the ground. In the cloister of the Monastery des Dames, at Fontevrault, is an ancient tower, 76 feet in height and 20 feet in diameter. The learned have long wearied themselves with conjectures more or less probable on the uses of these structures. But in 1790 (sic) M. Chas. Smith discovered, at London, a manuscript, which entirely cleared the obscurity of the subject. In that it was found that these towers were built in the 9th and 10th centuries, an epoch when singular practices often accompanied the exercise of religion, and that they served as penitential prisons: "*Inclusaria acti inclusoru.*" They have in England many of these towers, the best preserved of which is that of Ardmore, * which is 100 feet in height, &c. It is constructed of cut bricks! The opinion held, that the tower of Quineville was a funeral monument, appears to the French antiquary to be the most probable and reasonable amongst many other conjectures. The Unelli were the ancient inhabitants of the territory—Le Cotentin—in which it stands. It was conquered with difficulty by the Romans, and it was *doubtless* on the termination of some bloody contest, fought *probably* on this site, that they erected this tower, as a monument of their victory and of their dead. At Vic-le-Comte is an edifice much resembling that at Quineville. It is a massive circular structure, 25 feet in diameter, 29 in height. It serves as a chapel and charnel house to the Church of Sainte Chapelle de Vic. It is evidently of an age posterior to the Roman Conquest; its object that of a funeral monument, erected to the manes of warriors dead in combat; like the *Turris Magna* of Nismes, which has baffled the sagacity and erudition of many learned writers. These notices Mr. W. extracted from a work on the inedited antiquities of Gaul, a book not very accessible in this country.

* At Imore county Waterford, Ireland.

NEW CHURCHES IN THE WEST RIDING OF YORKSHIRE.

No fewer than four new churches were lately consecrated in this riding during one week by the Lord Bishop of Ripon. We obtain the following particulars from the Hull Packet.

On the Tuesday his lordship consecrated St. James Church, Meltham Mills. This church has been erected at the sole expense of the late James Brook, Esq., of Boston. Seven or eight years ago a large school-room, with a small chapel at one end of it, licensed by the bishop for divine service, and two houses at the other end was erected at a cost of no less than 4,000*l.* For several obvious reasons it was considered desirable to have a separate church, and the same benevolent individual directed a church to be built, principally from the materials of the former, and at an additional expense of above 2,000*l.* It is of the gothic style, in the form of a cross. At the east end is a painted window presented by Mrs. Brook, the widow of the respected founder. The pulpit and reading-desk, presented by C. Brook, Jun., Esq., are of carved oak, by Mr. Wolstenholme, of York. A carved oak screen for the Commandments, above the communion place, has been presented by Mrs. C. Brook, and two oak chairs to match it, by Mrs. W. Leigh Brook. Every other part of the church corresponds with these, and no expense or trouble has been spared to exhibit a handsome example of church architecture without introducing any of the novelties which are offensive to the feelings of some Protestants. It is designed to seat nearly 400 adults and above 250 children.

On Wednesday, his lordship consecrated the new church of St. Luke the Evangelist, at Miln's Bridge, near Huddersfield. This structure is a specimen of Norman architecture, from the design of Mr. William Wallen, architect, Huddersfield, and is calculated to contain 602 persons. It is built on ground liberally presented by Sir Jos. Radcliffe, Bart., by whom also an acre of ground has been given as a grave-yard, and an equal area for a parsonage-house and grounds. The building fund was raised mainly from the family of Joseph Armitage, Esq., of Miln's Bridge House, by one member of which (Miss Armitage, of Honley) 1,000*l.* was most munificently subscribed. The whole cost is about 2,500*l.*

On Thursday, his lordship consecrated a church which has been erected at Roberts' Town, a district in great need of such a provision. The fabric is simple in its design, but affords ample accommodation.

On the following Tuesday, the new church at Garforth was consecrated by his lordship. This is of the early English order, of the cruciform shape, with aisles to the nave. The nave, transepts, and chancel, are of equal width, diverging from the tower openings, which have lofty and deeply moulded archivolts. The tower rises from four massive and shafted piers at the intersection of the nave and transepts, and is surmounted by a spire sixty feet high. The sittings are all open and uniform, providing for upwards of 500 persons. The pulpits and font are of Huddleston stone carved; the glass of the windows is in imitation of the ancient cathedral glass, of amber tint, with the exception of the east window, which is of stained glass, executed and presented by the Misses Gascoigne of Parlington, and one given by Mr. G. F. Jones, of York, the architect.

ARCHITECTURAL AND COLLATERAL FOREIGN WORKS, LATELY PUBLISHED.

GERMAN WORKS.

Andenken.—Keepsake of the Third Meeting of German Architects and Engineers at Prague. Prague. 12mo., 3s. (Contains the History of Architecture in Bohemia, by Professor *Wiesenfeld.*)

Andeutungen.—Hints on the Scope of Evangelic Church Building. Hamburg. 8vo., 2s.

Förster, C. F. L., Bauzeitung.—Builders' Gazette, general. 10 vols. 8vo., with atlas in folio. Vienna. 1*l.* 15s.

Schultz, A., Populäre.—Builders' Gazette, the popular. 2 vols. 4to., with atlas in folio. Weimar.

Bericht.—Official Report on the General German Industrial Exhibition at Berlin, Berlin. 8vo. 1s. 6d.

Bericht.—Detailed Report on ditto. Berlin. 8vo., with a Plan of the Exhibition in folio.

Beschreibung.—Description of all Inventions and Improvements patented in the Austrian Empire. 2 vols., containing those of from 1836-1840. Vienna. 4to. with atlas in folio, each 12s. 6d.

Bibliothek.—Library, new, Technico-economical. Containing the whole of the Gilding and Silvering process, to which is added the Galvanic Process. Nordhausen. 8vo., 2s.

Blumenbach, W. C. W., Handbuch.—Manual of all the New Materials employed in Trades and Manufacturies. Parts I and II. Pesth. 8vo., each 3s.

Brommler, A., Anweisung.—Instruction for Drying Timber in the most expeditious way, so as never to shrink. Memmingen. 8vo., 3s.

Hütte and *Weinling*, Centralblatt. — Central Journal of Polytechnics. Leipsig. 8vo., new series, 5th and 6th vols., 1*l.* 5s.

Gerhardt and *Levy*, Dom.—Recollection of the Cathedral of Cöln, its principal Monuments. Cöln. folio, 7s.

Semper, Professor, Bau.—The Building of Evangelic Churches.

Erwiederung.— A reply to Professor Semper's Work. Hamburg. 8vo., 1s.

Gailhabaud, J., Denkmäler.—Monuments of Architecture of all times and countries. German Edition by Dr. *Kugler* and Architect *Lohde.* Hamburg. 4to., 72 parts of text, and 72 of plates, 7*l.*

Gebhardt, J. C. R., Erfindungen.—The Newest Discoveries and Improvements in the making of Bricks, as well as Burning Lime and Paris-plaster. Quedlinburg. 8vo., 3s.

Wilfer, M., Anweisung.—Instruction for making all sorts of Water-conduits and Water-pipes of Clay. Ditto. 8vo., with folio plates, 6s.

Gallerie.—Picture Gallery of the Royal Collections of Berlin. Lithographies of its Principal Works. Berlin. 12 parts, gr. folio. Copies on China paper, 9s. each.

Gerhard, E. Bildwerke.—Ancient Sculpture Work. Stuttgard. 4to., text and plates.

——, Spiegel.—Etrurian Specula. Berlin. 16 parts, plates, 4to., 8s. each.

——, Vasenbilder. — Selected Greek Vase-pictures, especially of Etrurian origin. Berlin. 4to., 210 plates.

Gewerbe Ordnung.—Code of Industry and Trades of Prussia of 1845, with the references of Older Laws. Magdeburg. 8vo., 2s.

Günther and *Weick*, Gewerbezeitung.—Journal of Industry. Leipsig. 4to., with cuts.

Zeitung.— Journal for Carpenters and Cabinet-makers. Leipsig. 4to., with cuts.

Gewerbspolizey.—Industrial Regulations of Bavaria. Munich. 8vo., 2s.

Goethe Denkmahl.—Goethe Monument at Frankfort. Ibid. 8vo., 3s.

Grohmann, Professor J. G. Ideen Magazin.—Magazine of Ideas for Architects, Artists, and Artizans. Leipsig. Gr. 4to., with plates. Second Edition. Each part 1*l.* 6d.

Gropius, C., Royal Decorator, Ornaments.—Ornaments in Various Styles of Building. Berlin. 4to., with plates, each part 3s.

Guggenberger, Capt., Transport.—The Transport System, for the easier Overcoming of Difficulties and Impediments in Railways, Roads, Canals, and Rivers. Gratz. 8vo., plates, each part 4s. 6d.

Gutensohn, J. G., Betrachtung.—Comparative Reflections on Railroads, and their Traffic by Steam or Animal Power. Munich. 8vo., 2s. Second edition.

Hagen, Dr. G., Superior Privy Building Councillor, Handbuch.—Handbook of Water-building. Vol. I. The Rivers. Berlin. 8vo., with atlas in 4to., 16s.

Hamburg's Neubeu.— Hamburg's New Erection. Ibid. Fol., with plates, each part 3s. (An important work.)

Hauenstein, G., Tabellen.—Cubic Tables for Round and Cut Timber, from half to 75 inches diameter, and one quarter to 60 feet length. Halle. 8vo., 5s.

Heber, F., Burgen. —The Castles, fortified old Mansions and Mountain Seats of Bohemia. Prague. 4to., plates and plans, each part 2s.

Heideloff, C., Ornamentik.— *Ornamentic* of the Middle Ages. Nürnberg. Gr. 4to., each part 5s. (German and French text.)

Hensolt, Pfarrkirche.—The new Parochial Church at Sonnenberg, erected by C. Heideloff. Nürnberg. Gr. 8vo., with plates.

Hertzog, C., Denkmahl.—Monument of Lewis of Darmstadt. Ibid. 8vo., with plans, 2s.

Hoffmann, F., Konstruktion.—Construction of oblique Brick Vaults, especially in Relation to Railway Structures. Vienna. 4to., with plates in gr. fol., 8s. 6d.

Hübbe, H., Bemerkungen. — Hydrotechnic Remarks during Travels. Hamburg. 4to., plates in fol., 5s. 6d.

Crelle, Dr. (superior Privy building Councillor of Prussia), Journal.—Journal of Architecture. Berlin. 4to., 21st year, each 18s.

——, Journal of Pure and Practical Mathematics. Ibid. 4to., 29th year, each 12s.

Hartmann, Dr.—Journal for Metal-workers of every kind. Weimar. 4to., each part 2s.

Dingler.—Polytechnic Journal. Stuttgard. 8vo., plates in fol. 95th—98th vol. (A work of great circulation all over the continent, and comprehending the practical portion of the whole sphere of polytechnic science.)

Kimbel, W.—Journal for the Carpenter and Cabinet-maker, &c. Frankfort. Obl. fol., each part 2s.

Fink, F., Anleitung.—Instruction for the Proper Using of the Hydraulic Cement, manufactured at Kuffstein (Tyrol). Inspruck. 8vo., 1s.

Krug, E. Mustersammlung.—Patterns for Building Carpenters. Munich. 4to., plates, each part 3s. 6d.

Langsdorff, Dr., Lehrbuch. — Manual of Elementary Mechanics. Stuttgard. 8vo., plates 4to., 3s. 6d.

Lefebure, Lehrbuch. — Manual of Descriptive Ge-

ometry, with an introduction on the Theory of the Plane and the Straight line. Translated from the French. Chemnitz. Gr. 8vo., with plates in 4to. 6s.

Correspondence.

EGG-SHAPED SEWER.

SIR,—The subject of sewers and drainage having at this time deservedly obtained much public attention, the most eligible form, combined with the least possible expense, naturally becomes a leading feature in the question; and believing the following may give some little force to the information already published, I beg to mention it to you.

I last year built about 1,500 feet run, of the egg-shaped sewer, with the small end downwards, for T. O. Tyndall, Esq., in his park at Clifton, Bristol, preparatory to letting the frontage for villas and other building purposes, that form of sewer being considered, after much careful investigation, the best for keeping the current in the most compact body, and therefore of giving it the greatest power to carry off the soil and prevent accumulations in its course.

With regard to expense, it did not in the above case amount to two-thirds of even the estimated cost of making a sewer with upright sides, containing the same superficial open space of water-way. Not having found it desirable to change my good opinion of the egg-shaped form of sewer, I have lately prepared working drawings and specifications for upwards of 3,000 feet run of sewer of a similar description, which is proposed to be made at a neighbouring watering place, Clevedon.

Should the preceding statement be of any service, you are quite welcome to use it.

I am, Sir, &c.,

Dec. 15th, 1845. CHARLES DYER.

Miscellanea.

BUSTS, &c.—In addition to the busts of distinguished statesmen, warriors, and divines, already presented to Eton college, Earl Howe has signified his intention to contribute one of his grandfather, "the famous admiral of the 1st of June, 1794." Mr. Behnes has been selected to execute it. Colonel Reid, the new member for Windsor, has also signified his intention of presenting one of George the Third, and has commissioned Mr. Woodington to execute the same. Mr. Behnes, the sculptor, having expressed a desire to present a bust, executed by himself, of the great Lord Chatham, the college authorities have willingly accepted his offer.—Mr. Park has recently completed a study of a head of Campbell, the poet. It is of colossal size, and intended for a bronze statue proposed to be erected in Glasgow.—A committee is forming in London for the purpose of getting up a British testimonial in honour of the lately deceased American judge, Story; it is intended to offer to the benchers of Lincoln's-inn a marble statue of that great jurisprudential writer.

ARTIFICIAL STONE.—A patent has lately been granted to Mr. Pryce Buckley Williams, of Llegodir, Montgomeryshire, *for certain improvements in the manufacture of artificial stone.* The patentee employs for the base of his composition, sulphate of barytes, reduced to an impalpable powder, and mixed with some flux, such as fluor spar, quartz, borax, &c. For the production of a fair specimen of white marble, we are directed to take of sulphate of barytes four parts by weight, crown glass one part, and dried borax about one-fourth of the weight of the crown glass; these are to be finely pulverised and intimately mixed, then placed in a covered vessel, trough, or pot, according to the size and shape required, placed in a furnace, and subjected to an intense heat. When it is required to produce grained, or veined marble, the patentee employs those metallic oxides which are not volatile, and which are used for the same purposes by porcelain manufacturers.

VACANT DISTRICT SURVEYORSHIP.—Since our last impression two more candidates have started for the vacant district surveyorship of Shoreditch and Norton Falgate. They are Mr. William Moseley, of Upper Albany-street, and Mr. Herbert Williams, Great Ormond-street.

FIRE.—A fire-alarm bell, of immense dimensions, has been placed in a tower at New York. It weighs no less than 8,125lbs.

NEW CHURCH AT HOMERTON.—The new church in the High-road, at Homerton, now building by Mr. Geary, under the superintendence of Mr. A. Ashpitel, architect, is making satisfactory progress. It consists of chancel and nave with one aisle on the south side, and a tower at the west-end of the nave. The walls, standing on concrete 5 feet 3 inches wide and 5 feet 8 inches deep, are formed externally of Kentish-rag stone, and internally of the "hassock," and the dressings of doors, windows, &c., are of Caen stone. It is built under the church commissioners.

PUBLIC MUSEUMS.—The inhabitants of Bury St. Edmunds, in public meeting assembled, have resolved upon establishing a museum, under the Museums in Large Towns Act.

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NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

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At Kneesworth, Cambridgeshire: a quantity of ash, elm, beech, plane, sycamore, and poplar timber trees; also 730 ash, elm, fir, and other poles and spires. The ash are straight, grained, and tough, and the beech fit for cabinet work.

On the White House Estate, Halstead: a quantity of ash, elm, fir, and other timber trees, &c.

TO CORRESPONDENTS.

"A Subscriber" (architects' commission) *will see the subject has not escaped us.*

"G. H."—*A. is unquestionably liable, and may be proceeded against by action at law. A weekly tenant is liable for any voluntary waste, broken glass, woodwork wilfully injured, &c. although not bound to do any repairs.*

"Puzzolana."—*Messrs. White and Sons, Millbank-street, could supply* 100 *tons at* 42*s. per ton.*

"A. P."—*Next week. Address J. S. Russell, Esq., Secretary, Society of Arts, Adelphi, London.*

"Tyro."—*The* Archæolojia *(pronounced Arkeyologea) is the title of the volume issued annually by the Society of Antiquaries, and consists of miscellaneous papers relating, as the name imports, to antiquity.*

"Fall of Houses, Wandsworth Road."—*Mr. Rogers, District Surveyor, informs us, with reference to our leading article last week, that the accident was caused by an improper excavation of the basement story below the foundations of the walls, without his knowledge, and that the jury expressed their satisfaction with the performance of his duty.*

"T. L. C."—*Plane geometry will suffice at present. Lose no time in acquiring perfect command of the pencil.*

"Colour to Bricks."—*A correspondent wishes to know "The material for giving a durable brown colour to bricks or tiles by burning it when they are made."*

"T. C."—*There are few evening schools in London for teaching geometry, geometrical drawing, and architecture; free-hand drawing, and design in general. We have at different times given the names of one or two private establishments, but cannot now refer to them.*

"T. B."—*The price book he has heretofore used will answer his purpose.*

"Surveyor."—*The communication referred to has not reached us.*

"F. W. M."—*We know no book that will make him a competent surveyor of house property between this time and March!*

"A Constant Subscriber" (Enfield).—*We do not place much confidence in the societies alluded to.*

"J. W." (Islington).—*The inquiry is out of our province.*

"F. R. L." *wishes to know how to take paint off oak panelling without scraping. Pearl-ash would effect it, but would blacken the wood.*

"A Novice."—*Thin paper will answer the purpose.*

"A Subscriber" (Canterbury) *will find some useful information on staircases towards the end of the second volume of the* BUILDER, *and beginning of the present volume. Peter Nicholson's work onstaircases, published by Taylor, is, perhaps, the best separate work on the subject accessible.*

"O. H."—*We know of no fuller account of the Temple of Juno Lucina, at Agrigentum, than those named.*

"H. A. W." (Blackburn).—"*The public works of Great Britain,*" *is now being reprinted. The price is* 4*l.* 4*s. in half morocco. It is a fine work.*

"E. H. R." *should submit his invention to the examination of some friend in whom he has confidence before incurring any expense.*

"Constant Subscriber," "Orphan," "Old Subscriber," *will find Bruff's* Treatise on Engineering Fieldwork, containing Practical Land Surveying for Railways, &c., *published by Simpkin and Marshal, a useful work. Pupils are required to provide their own drawing instruments.*

"Mr. Badger's" *communication reached us too late for the present number.*

Next week:—Report of special committee of Sewers Commissioners in reply to Mr. Beslie's pamphlet; "Manchester School of Design;" "R. C. L." "T. A. H."

Received:—"J. K." "J. S." "J. C." "T. E." "W. B." "Sporting Architecture," by George Tattersall: Ackermann, 191, Regent-street. "Mephystopheles," No. 2.

*** Correspondents are requested to address all communications to the EDITOR, York-street.

ADVERTISEMENTS.

NOTICE.—INVENTORS desirous of obtaining LOANS ON or of SELLING their INVENTIONS, or Patents, should apply to Mr. M. JOSCELIN COOKE, at the OFFICE for PATENTS, Warwick chambers, Warwick-court. Gray's-inn, London, where English and Foreign Patents are obtained, and Designs registered. An INDEX is kept for inspection of all Patents granted for the last century; also copies of every Patent of importance. Instructions to Inventors and a list of charges gratis on application.

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PEOPLE'S JOURNAL.

On Saturday, the 3rd of January, 1846, will be issued No. 1, price 1½d. of

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THE ART-UNION: Monthly Journal of the Fine Arts; the Arts Decorative and Ornamental; and Record of British Manufactures. Established in January, 1839.

To MANUFACTURERS, Decorative and Ornamental Designers, their Employers, and Artisans, and all who are interested in improving the Useful Arts by subjecting them to the influence of the Fine Arts, the ART-UNION Monthly Journal is recommended as supplying such practical information as may enhance the mercantile value of the various productions of British industry. In order to communicate facts so as to render them available as suggestions to the producer, the several articles are illustrated by explanatory Woodcuts. Thus, papers have been published with a large number of illustrations, on Cotton-printing Paper-staining, the Varieties of Lamps and Candelabra, the Manufacture of Porcelain, &c. &c.; and others are in preparation addressed to every trade in which taste can be brought to co-operate with the artisan; and the mercantile value of the Useful Arts be augmented by the aid of the Fine Arts.

The ART-UNION Journal, as its name imports, was instituted mainly to enforce the necessity of Union between the different branches of Art, and more particularly the intimate connection that exists between those Arts which have been regarded as entirely artistic, and those which have been deemed exclusively mechanical; the purpose being to shew that mind as well as hand is required in every branch of Ornamental and Decorative Art. The publication, therefore, is recommended to the attention of persons interested in the cultivation of the arts of Decoration and Ornament—in the furnishing of houses with taste elegance and judgment; and in the introduction of improvements in designs for British manufactures—from articles of high importance to the most trifling matters in general use, which may be made subservient to the judicious education of the eye and mind—a work in which every manufacturer is unconsciously taking an active part, and which he either advances or retards, more or less, by every article he multiplies and circulates among mankind. Thus we shall endeavour to give publicity, as far as our influence extends, to any improvement introduced into the external form and character of articles of British manufacture. The supremacy of our manufactures has, indeed, been long maintained, and is universally acknowledged on the Continent. While, however, the foreign producer admits our superiority in the very essential points of substance and durability, he generally refers with mingled triumph and scorn to the forms of our productions. Hitherto his sarcasms have been sufficiently just; but a time is approaching when we shall surpass the foreign competitor in design as much as we have hitherto excelled him in material.

In pursuance of our plan, therefore, we shall notice every improvement in manufactured articles where the influence of the Fine Arts has been or may be exercised; and, wherever our notices seem to require the aid of explanatory woodcuts, such woodcuts shall be associated with them. We shall thus hold out a sure encouragement to improvement, in giving to such improvement that publicity which rarely fails to secure substantial reward: while, at the same time, recompensing the party improving by according to him that "meed of praise" for which all good men labour; and, above all, we shall thus stimulate others to improve likewise. Hitherto the manufacturer has had no medium by which he could make known the improvements in taste and external form to which his productions had been subjected; for the public journals—in Literature, Science, and Art—although reviewing largely and continually, published books and prints, have completely overlooked the silent but powerful instructors which emanate from the factories of Great Britain.

ILLUSTRATED TOUR IN THE MANUFACTURING DISTRICTS.

Preparing for publication, in the Art-Union Monthly Journal,

A TOUR IN THE MANUFACTURING DISTRICTS OF ENGLAND AND SCOTLAND:

Extensively illustrated by Woodcuts, exhibiting the progress of design in manufactures, picturing the various articles of recent produce which manifest improvement, and reporting the systems pursued in the principal English and Scottish factories; those more especially of Manchester, Birmingham, Sheffield, Nottingham, Kidderminster, Stourbridge—the Potteries of Staffordshire, Worcester, and Colebrookdale—Glasgow, Paisley, Dunfermline, &c. &c.

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THE CHEAPEST HOUSE in LONDON for WROUGHT-IRON FIRE-PROOF SAFES.—JOHN LEADBEATER, many years Manufacturer for Messrs. Chubb, of St. Paul's Churchyard, Bankers, Merchants, Railway Companies, and the Public generally, are respectfully informed that he has constantly on SALE, at his Manufactory, 125, Aldersgate-street, City, a large assortment of very superior WROUGHT-IRON FIRE-PROOF SAFES, chests, boxes, and doors for strong-rooms or closets; the whole fitted up with improved detector-locks, throwing from two to twelve bolts, warranted of the best materials and workmanship, yielding a positive security to cash, books, deeds, plate, &c. against the destructive effects of fire, and the skill of the most experienced burglars, at considerably reduced prices. Made to order at the shortest notice, at his Manufactory, 125, Aldersgate-street, City.

REDUCTION IN THE PRICE OF BUNNETT AND CORPE'S PATENT REVOLVING IRON SHUTTERS.

THE validity of this Patent being completely established, the Patentees have much pleasure in stating that the very extensive demand, and the employment of improved machinery in the manufacture, have given them an opportunity (of which they gratefully avail themselves) of making a considerable reduction in the price of this well-knownand tried invention, thereby rendering them the cheapest as well as the best iron shutters in use. Every improvement suggested by practical skill and most extensive application has been adopted, and no effective REVOLVING IRON SHUTTER can be constructed without infringing B. and C.'s patent. The worm and wheel, as patented by them, being the only safe, durable, and efficient mode of raising and lowering such shutters, these shutters can be applied horizontally, either above or below the window, or vertically, as introduced by BUNNETT and CORPE, in some of the largest establishments: they are made with bent or corrugated laths, if required.

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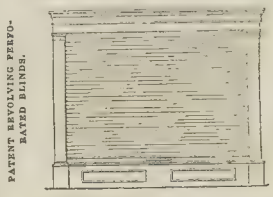
with their patent raising machinery, or with counterbalance weights, and with proper metallic hinges, without which no shutters can be safe or durable.

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The attention of Architects, Builders, Blind Makers, and the Trade generally, is particularly requested to the IMPORTANT patented IMPROVEMENTS in the above enumerated Articles, and inspection invited, at the Manufactory of the Patentees, R. HOWARD and Co., 115, Old Street, London; or at the Licensees.

Engravings and Prospectuses may be had at the above address, or will be forwarded on application.

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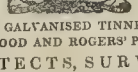
LAWRENCE and CO., 55, Parliament-street, and at York-place and Hercules-buildings, Lambeth, MANUFACTURERS of ZINC to Her MAJESTY the QUEEN DOWAGER, makers of malleable sheet and plate-zinc, rain-pipes, cistern-heads, eaves, gutters, nails, screws, &c.; drawers of tubes, sash and skylight bars; makers of zinc windows for churches, houses, &c; roofs, verandahs, hips and ridges covered with zinc; perforat d zinc for larders, safes, and ventilation; blinds of all kinds made complete; baths made to order, on hire, or sale; engravers of door and stall board plates, railway and map plates, improved wardian cases and portable hot-houses.

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T. W. BEALE begs to acquaint the public that he is prepared to lay roofing, plain or corrugated, fix pipes, gutters, &c. Also chimney-tops and ventilating cowls of every description; also water and oil cisterns, of this incorrodible and fireproof metal. He manufactures all kinds of baths, as hip, shower, Roman, open, slipper, sponging, foot, children's, and self-heating baths; also toilet-cans and pails, slop-pails, coal-scuttles, cash and deed-boxes, and fire-proof safes of every description, 10 per cent. cheaper than any house in London.

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ARCHITECTS, SURVEYORS, BUILDERS, and CONTRACTORS are respectfully informed they can be supplied with this invaluable metal for building purposes, of the best quality and lowest terms. It is superior in every respect to zinc, and two-thirds less price than 7lb. sheet lead for roofing, no woodwork being required, but iron rafters only, 21 inches apart, rendering the whole roof fire-proof. This mode of covering roofs is cheaper than Lead, Zinc, Tiles, or Slates. Parapet and other Gutters formed and fixed, also rain-water pipe, heads, eave gutter, baths, stove and funnel pipe, cisterns and water-closets fixed. The sheets are 6 feet long by 2 ft., 2 ft. 6 in. and 3 feet wide, and 9oz. to any required weight per foot, and can be had either plain or corrugated.

Please apply to CHARLES GELL, Junior, No. 5, Quick-set-row, New-road, St. Pancras, where references and testimonials of the highest respectability of extensive works already done can be had.

The Builder.

No. CLI.

SATURDAY, DECEMBER 27, 1845.

ADDRESS.

WITH the present number we close our volume for 1845. During the year that has passed since we issued our last address, we have striven earnestly to redeem the promises therein made, and to render THE BUILDER worthy of the encouragement and support kindly awarded to it by the public. In proof of this we are able, with respectful confidence, to appeal to the work itself, and venture to aver that it contains a body of information of the greatest value to a large and varied class. The public, we say it with pride and gratitude, have acknowledged our endeavours in the most substantial manner, and THE BUILDER is now the universally recognized organ of those who are engaged or interested in the arts of construction or design.

Self-gratulation is never becoming. If there be a time, however, when it appears less objectionable than usual, it is, perhaps, when justifying former professions, with the view of obtaining entire belief in those you are about to make; and we may therefore hope to be excused at this, the termination of the year, for the previous expression, and a further brief reference to what has been done during that time.

The volume contains 630 pages of letter-press, exclusive of advertisements and Supplements, and has 280 illustrations, — many of them of great excellence. Apart from the picturesque views, it will be found to contain, when looked at as a whole, a large number of Gothic details, practically useful, in the shape of decorated and perpendicular windows, doors, fonts and font covers, of various periods, bench-ends, &c., as well as many valuable examples of Elizabethan architecture and fittings.

"Improvement" has been our key note,— the improvement of the metropolis, the improvement of buildings in a sanatory and constructional point of view, the improvement of our operatives, improvements in ventilation, and improved form of sewers have been constantly urged by us with sincere zeal, resulting from a sense of their paramount importance.

Touching the Metropolitan Buildings Act and its administration,—our pages contain a large body of information not to be obtained elsewhere; in fact, it is not too much to affirm, that the volume, if on this account alone, will be found of essential value by all who are interested in house-property, within the limits of the act. With a view to that circumstance, amongst others, a comprehensive index has been prepared, and, together with the title-page, &c., to bind up in the volume, will be presented gratuitously with the first number for the new year.*

The new year! how numerous are the emotions to which this sentence gives rise, how important are the duties that it reminds us of. Is it beyond our province to urge our young readers, briefly and in passing, not to disregard its promptings, but to endeavour by industry and application, to supply the omissions of the past?

With the new year we shall again come before the public, with the determination to improve to the utmost the character of the journal, and to merit a further increase of public favour, and a numerous accession of readers: to our present friends and assistants we look with confidence for a continuation of their kind and valued support.

* Covers for binding THE BUILDER may be obtained at the office as usual, price two shillings; or the publisher will undertake to bind sets at three shillings per volume.

THE ARCHITECTURE OF FLORENCE.*

IN previous papers, illustrative of Italian architecture, we have endeavoured to indicate the materials for general history, to be deduced from the monuments of art. Had the pages of this journal been less devoted to matters purely professional, and momentary, than necessarily they are, we might have further excited the attention of our readers in a ground little trodden, and pregnant with interest. Let it suffice here to say, that to whatever phase of art we look, we need no lens to discover the impress of the age, which originated the work, the political and social state of the people. We have noticed the long dearth of art in Italy, previous to the influx of the Gothic style, as coexistent with internal commotion, and the decay of letters. We have examined the position of the art under the atmosphere of commercial prosperity in Venice, and Genoa; brilliant in spite of dissensions, internal as well as external; and, with the work before us, we now propose to speak of the peculiar influence upon, and character of, the architecture of Florence.

Not less distinguished for commercial greatness, than the other republics of Italy, Florence attained a remarkable eminence in art. Having acquired considerable wealth by attention to manufactures, its commerce was extended to all parts of Europe; and subsequently, the possession of a sea-port enabled the Florentines to compete with the Genoese and the Venetians, on the Mediterranean. Engaged in banking, the money trade of nearly all the kingdoms of Europe fell into their hands; and in several states, they were intrusted with the collecting and administration of the public revenues. But, that remarkable state of civil discord, into which all the cities of Italy fell, was nowhere more perceptible than in Florence. The rival parties of the Guelfs and the Ghibellines, and later, of the Neri and the Bianchi, kept the city in ceaseless commotion from an early period of its history to the time of the Medici. It was this very state of circumstances, which produced the peculiar style of Florentine architecture.

The influence of the Gothic style was felt in Florence until a late period. Though, in that city, probably the first advances towards the disuse of Gothic architecture were made, many of the old forms lingered in the principal façades even to the middle of the fifteenth century. In 1298, Arnolfo di Lapo, according to Vasari, but according to Molini, Arnolfo di Cambio da Colle, laid the foundations of the Cathedral of Sta. Maria del Fiore. This commencement was previous to what is generally understood by the "revival;" yet the building seems to have been conceived in an original style of architecture. Orgagna and others further advanced the cathedral, and greatly contributed to the alteration of style. But in 1407, the city called a meeting of architects to discuss the best mode of completing the cathedral, and Brunelleschi boldly offered to raise the dome. This architect at length succeeded in producing the earliest, and perhaps the most wonderful, cupola of the world. The influence, which Brunelleschi thus acquired, enabled him to work that change in the style of Italy, which he had learned to contemplate, whilst engaged in the examination of architectural works in Rome. His abilities were exercised in other cities of Italy, and he was employed by Duke Filippo Maria on the fortifications of Milan. He left a school of architects imbued with the principles on which he worked, who rapidly spread the change. Almost at the same time, the dukes of Milan, and the princes of Italy were actuated by love of art; Alberti produced his famous treatise,* and further carried out the native style; and Roman forms and principles were everywhere dominant.

The most striking characteristics of Florentine architecture are massiveness and severity. Large blocks of stone were easily procured in the quarries of Tuscany, and solidity and strength were in some measure demanded in a residence, which had often to answer the purpose of a castle. In the refinement of details, the Florentine school is inferior to those of Venice and Rome, but for bold, imposing masses, no city is equal to Florence. The walls are, almost universally, rusticated the entire height, and in some cases with pleasing variety in the treatment. The apertures in the ground floor are at some distance from the ground, and are square, and small in size. The cornices are frequently on a grand scale, and are, in the earlier buildings, provided with the means of defence. The line of front is generally unbroken, and the plans do not display the same ingenuity, as those at Venice and Genoa.—The buildings of Florence, says the work before us, appear to be not the work of ordinary men; we enter them with respect, believing to find them inhabited by beings of a nature superior to ours. Whether the eye is arrested by monuments of the age of Cosmo de Medici, or of times which preceded or followed it, all in this imposing city carries the imprint of grandeur and majesty. Frequent revolutions obliged the chiefs of parties to consider their personal safety, along with the magnificence of their dwellings. Externally, they are examples of the skilful union of grace with simplicity and massiveness, internally, models of exquisite taste. After Rome, Florence is the most interesting city to every artist.— The courts are often elegant, with fountains and gardens. The cornice is *sometimes* of little height, but great projection, with two modillions, ranged one over the other in a curious manner.—The Pitti palace has a balustrade, formed of small Ionic columns, supposed to be the earliest instance of that member. The rusticated archivolts are generally of small stones, the intrados semicircular, but the extrados a pointed arch. Up to the middle of the fifteenth century, the window with a central column, each light having a semicircular arch, the whole being covered by a semicircular head, was universal. Ironwork was much employed, and many of the buildings had lanterns at the angles, and rings suspended at intervals. About the middle of the fifteenth century flourished one Nicolo Grosso Caparra, an excellent worker in metal, and the cressets—"lumiere maravigliose," — are beautiful specimens of his work. It is said, though the evidence is not clear, that the right of affixing such cressets was a peculiar honour, granted to the families, who had distinguished themselves by the gown or the sword, and that those of less consideration were only allowed to illuminate the battlements of their towers.†

One of the earliest buildings of Florence is the Palazzo del Podestà. It is generally understood to have been built by Arnolfo di Lapo, but much resembles the style of Orgagna. It has a very decided Gothic character, and has the date 1250. The Palazzo Vecchio, erected by Arnolfo in 1298, had enormous battlements, and projecting machicolations. The building was greatly altered by Vasari, under Cosmo de Medici; and at that period gained the appearance represented in the work. The court is lavishly embellished with painting and sculpture, much of it of a later date. The "Piazza del Gran' Duca" contains many remarkable works of art. Passing by the statue of Cosmo the Great, a curious structure is the Loggia de' Lanzi. It is an excellent example of the transition from Gothic architecture; with much of the earlier style about the cornice and ornaments, it has semicircular arches rising from shafts composed of clustered pilasters. It was built in the year 1356: Orgagna was the architect. Omitting many churches of early date, which are very slightly noticed in the book before us, we come to the Palazzo Riccardi. This building was commenced in 1430, under Michelozzi: it is a noble specimen of the style. It is in three stories, each rusticated, and is surmounted by a massive cornice. The ground story is lofty, and has five large arches and

* Architecture Toscane, ou, Palais, Maisons, et autres édifices de la Toscane, mesurés et désinés par A. Grandjéan de Montigny et A. Famin, architectes, anciens Pensionnaires de l'Académie de France, à Rome. Paris, 1837.

* De Re Ædificatorii.
† Murray's Handbook to Northern Italy.

square windows. There are two ranges of semicircular headed windows above, seventeen in each; each window having a central column. The building is of great length.—The Pallazzo Pitti, of which Brunelleschi was the architect, was commenced in 1435; it is now the residence of the Grand Duke. The front, which is of great extent, is rusticated the whole height; the windows are all circular headed. The court at the back, and the Boboli Gardens, are much later; the former was the work of Ammanati, the architect of the Ponte della Trinità. He has employed columnar decoration, but retaining the rustics.—In the Pallazzo Ruccelai, built in 1460, the architect, Alberti, has employed three orders of pilasters; but the rusticated work, and the semi-circular headed windows are still preserved. The doors are of remarkably good character.—The Palazzo Strozzi is probably the finest example of the Florentine style; it was built in 1489 by Bandetta de Maiano, and Simone Pallajuolo, called *Cronaca*. The cornice is very fine. There are two ranges of windows, with circular heads, and square windows in the basement. The rustics are arranged with very pleasing effect, and there are few buildings in which the palatial character is so well attained.—The Pallazzo Gondi, built in 1490, by Giuliano da San Gallo, is of very simple character, and merely remarkable for the complete success of the design. Like most of the Florentine buildings, the basement is raised on a couple of steps, extending the whole length of the front; an arrangement not often obtaining in England, but here greatly tending to the dignity of the edifice.—The front of the Palazzo Bartolini is lavishly embellished with statues and trophies; the cornice is also very good. Here the angles are formed by pilasters, round which the strings and cornice are broken. It was built by Baccio d'Agnolo, in 1520.

We now approach the period when Florentine architecture underwent a change. The building just noticed had windows with pediments, and other features resembling the Roman school; but in the Pandolfini Palace, by Raffaelle d'Urbino, all the finish of the Roman school was imparted. It was built in 1530. All persons are aware, that is one of the most beautiful palaces of Italy, and that it has been imitated by Mr. Barry in the Travellers' Club. Subsequently, the architecture of Florence, in gaining greater resemblance to that of Rome, lost much of its distinctive character. In 1602, the Palazzo Roberto Strozzi was built by Scamozzi; it is remarkable for the arrangement of its windows, which are large and small in alternate perpendicular divisions.

The work under notice is in one volume, folio, and contains 109 plates, beautifully engraved in outline. There are plans, elevations, and some perspective views, and the illustrations include many buildings at Sienna, Pisa, and elsewhere in Tuscany, which we may have some further opportunity of noticing. The churches of Florence, an interesting collection of early remains, have not received much notice, but the illustrations of the other edifices will well repay an examination of the book. The copy in the library of the Museum is defective, and it would greatly increase the usefulness of that institution were *all* continental works generally accessible. E. H.

WREN'S CHURCH—ST. BENET'S FINK.

Sir,—It seldom occurs that a church, together with all its fittings, font, organ, and even to the fire-buckets, is consigned to the auctioneer's hammer, and more especially when it happens to be one of Wren's. It appears to me, if the church is to be removed, that it would be better to take it away wholesale, and transplant it to the suburbs, where it would far outshine in appearance, the lath and plaster, cement and stained wood, of our modern churches. I think that all Wren's churches are good models for Protestant places of worship; there are no sedilia and the other remnants of popery, which continually creep into our modern churches; putting this out of the question, it would be far better to build the church up again in its original form, than to scatter it piecemeal to the highest bidders. I hope these suggestions will cause a stir to be made about so desirable an object.

I am, Sir, &c., Oak and Stone.

London, Dec. 20th, 1845.

AWARDS OF THE OFFICIAL REFEREES.

DISTRICT SURVEYORS' FEES.

Mr. Entecott, of Deptford, having raised and altered a kitchen building attached to a dwelling-house of the third rate, Mr. R. P. Browne, the district-surveyor of Greenwich, required a fee of 1*l.* 5*s.*; and on his refusing to pay it, summoned Mr. Entecott before Mr. Trail, one of the magistrates of the metropolitan police courts. Mr. Trail, on hearing the case, expressed his doubts whether Schedule C, part 7, should not be taken in connection with Schedule L, and the attached building be taken of the rate to which it would belong if built by itself, viz. fourth-rate, and entitle Mr. Browne to the fee for additions and alterations to that rate, viz. 10*s*.

Mr. Browne contended, in support of his claim of 1*l.* 5*s*., that Schedule C, part 7, applied to construction and materials of attached or detached buildings only, and that Schedule L, so far as regarded the fees to be charged, is distinct, and that additions or alterations to attached or detached office-buildings are to be taken on the scale of the buildings to which they are attached, and that the building altered being attached to a building of the first class and third-rate, the fee was 1*l.* 5*s*.

Mr. Trail, refraining from adjudicating on the question, the parties sought the award of the referees, and Mr. Browne agreed to pay the charges and expenses of the referees.

The award was:—"That the fee charged by the district-surveyor for an alteration of an attached building, should be the fee appointed by the said Act to be paid for alterations of buildings of the rate to which such attached building shall by itself belong, and not of the rate of the building to which such attached building is attached."

ROOF-COVERINGS.

The referees have decided (on the requisition of Mr. M'Leod and Mr. Stow, of Camberwell), that asphalte of Seyssel may be deemed a proper substance for covering a roof or other structure, provided such roof or other structure be wholly composed of, and be upborne by, incombustible matter, or matter indestructible by fire.

EXTERNAL LINE OF FRONTS.

Several awards have been made preventing the erection of shops or other projections, on the fore-courts of buildings, as the same would have projected in the opinion of the referees "beyond the general line of the fronts of the houses."

SHOP-FRONTS.

Mr. Hodges, in altering the Weavers' Arms, public-house, William-street, Bethnal-green, formed the whole front, as high as the first-floor, in wood-work,—the brick piers between the doors and windows being covered with "1¼ inch deal to form rustic work." Mr. Hodges considered these might be deemed pilasters or wood-work, such as is by the Act permitted. The district-surveyor objecting, the award of the referees was sought, and was as follows:—

That these parts "are not to be deemed such pilasters or woodwork as are by the said Act permitted, but that any such pilasters, with the entablature above the same, must be executed of the same materials, as are by the said Act directed to be used for external walls, or of such other proper and sufficient materials as the said official referees may approve and permit, and so that the same do not overhang, encroach, or drip, upon any public way."

WIDTH OF STREETS.

Mr. Pownall, district-surveyor, having served Mr. Thomas Archbutt with notice that certain buildings in course of erection by the latter on the south side of Bainbridge-street, Oxford-street, were not more than 21 feet from the buildings on the north side of the street, instead of 40 feet, as prescribed by the Act, the opinion of the referees was sought. They awarded as follows:—

"That inasmuch as the roadway of the said Bainbridge-street, opposite to the buildings in question, has not been altered, and the thoroughfare of the said street has not been stopped, the said street is to be deemed to be an "already formed" street, within the meaning of the Metropolitan Buildings Act: and inasmuch as the buildings in question are being built not nearer to the buildings opposite thereto in the said street, than the previously existing buildings upon the site thereof, we do further determine and award that the same are not contrary to the said Act, so far as relates to the distance of such buildings from the buildings on the north side of the said street."

The costs, with the exception of those of certain adjourned meetings, caused by the building owner, were charged to the district surveyor. The costs of the adjourned meetings and 4*l.* 4*s*. to the district surveyor for his attendances at these meetings, and his expenses, to be paid by the building owner.

CONSTRUCTION OF THE TERMS "STREET" AND "ALLEY."

On a piece of ground at the back of a house and garden in High-street, Homerton, occupied by Mr. Birkley, the only access to which ground is by a roadway 11 ft. wide from High-street, Mr. Loader wished to build five fourth-rate houses, leaving a space of 40 ft. between the front of them and the fence belonging to Mr. Birkley. Mr. Charles Humphreys, surveyor, on the part of Mr. Birkley, contended that as "every street is required to be of the width of 40 ft. at the least, and every alley must be of the width of 20 ft., and have two entrances thereto, each being of the full width of the alley, it is clear that under the rules concerning 'alley,' the buildings cannot be erected; and that under the rules for 'streets' it is equally impracticable, which defines (in the 2nd section) the terms 'so far as such meanings are not excluded by the context or by the nature of the subject matter, the word street to include every square, circus, crescent, street, road, or place, row, mews, lane, or place, along which carriages can pass, or are intended to pass.' It is evident from the context, as well as the nature of the subject matter, that as an alley is required to have two entrances not less than 20 ft. in width, a street can be intended to have no less; and it must be a place along which carriages can pass, or are intended to pass. Further, that as the approach to the said buildings can only be 11 ft. wide, this neither falls under the denomination of street or alley, for which a greater width is required."

The referees decided that the houses could not be built unless a road, forming the approach, be at the same time made of the statuteable width.

Costs to be paid mutually, the case being one of reasonable doubt.

THE BRIDGES OF CHINA.

The stigma of inertness can, certainly, merely apply to this modern Eastern people, as we shall perceive that their ancient works (*very* ancient indeed) surpass *ours* considerably—nay surpass even the conception of what we have deemed hitherto possible. The name of a *De Guignes*,* from whose work most of this information is derived, precludes the possibility of mistake, at least in the main features.

The Bridge of Layang, over an arm of the Sea in China.—According to reports of travellers, the greatest bridge in the world. Erected in a similar way as the bridges of Babylon—but entirely of stone. Its length is said to extend to 26,800 Paris feet, and comprises 300 arches, or rather openings of pillars. These are not overspread by arches, but there are placed above them large slabs of stone, which form the roadway, 70 feet broad. The distance of the pillars is nearly 74½ feet, the latter being 70 feet high, and 15 feet broad, and strengthened with stone facings, of the form of triangular prisms, which extend over the whole height of the pillars up to the transversal slabs. The latter (of course more than 70 feet long) extend in breadth to fifteen feet, and have 9 feet in thickness. Other reports, however, assign no more than 43 feet, old Paris measure, to the distance of the pillars, and only 4½ feet to the breadth and thickness of the transversal slabs—by which, of course, the length of the bridge is reduced one-half. Even so, it would be an astonishing structure; being *six times* the length of the longest bridge in Europe, viz. the Pont de St Esprit, at Lyons. The parapet is, according to some reports, a railing, according to others, a ballustrade, and every pillar supports a pedestal on

* Voyages à Peking, Manille, &c., faits dans l'intervalle des années 1784 à 1801. Paris, 1813. 4to.

which a lion, 21 feet long, and made of one block of marble, is placed.

The Bridge of Fochen over the Min, in China.—Conjointly with the latter, the largest in the world, constructed in a simple, granduous style, similar to that of the best Roman structures. Its length is stated at 22,000 feet by 60. It consists of 100 arches, of a perfectly semicircular curve ,of 120 feet span. The pillars, nearly as broad as the span of the arches (about 100 feet), have no top-ramparts, and are sixty feet above the level of the water. The complete open width of the arches is, therefore, 120 feet, and the height 150 feet, so much so, that ships with all sails set (Chinese *junks*) can pass through. The parapet is of white marble, with Chinese ornaments, and reposes on a simple and beautiful cornice, which is supported by runners. On the top of the parapet, lay, on both sides above the pillar, lions of black marble, 21 feet long, hewn of one piece; and at the distance of every twentieth pillar, a triumphal arch is spread over the bridgeway. This stupendous work is constructed of blocks of white stone, 24—28 feet long, by 5 feet in thickness.

The Bridge of Menamkum is remarkable by the shape of its pillars, whose sides are steep like Gothic ones, with rounded tops. The length of this bridge is above 2,000 feet. It belongs to the bridges with mixed arches. The main arches are 20 feet high, and 24 broad, and alternate with arches of circular form, 49 feet broad.

The Bridge of Foo-hiang-hien, in the Tshekiang,—is remarkable for its likeness to the style of Roman bridges, especially with that of the Pons Janiculus, in Rome. Its length is about 150 feet. It consists of three semi-circular arches, of which the middle one may be 40 feet, the two outer ones 27 feet in width. The pillars, about 10 feet broad, are furnished with ornamented capitals, which end in the form of equilateral triangles. The spurs are very strong, and project far in the stream. On each side of the middle arch, between it and the shank of that adjoining it, is an opening in the shape of a semicircular arched-over passage, just as at the ancient Pons Janiculus. The whole bridge slopes down very steeply towards the two banks of the river, in form of a flat circle.

The new bridges of China are either of stone or of brick and wood, and not conspicuous for either boldness, design, or durability.

J. L——y.

THE PARTHENON ILLUSTRATED AT THE BRITISH MUSEUM.

In a recent number we described Mr. Lucas's able model of the Parthenon restored,* just hen completed and purchased by the trustees of the Museum for the illustration of the Elgin gallery. We have now the gratification to nnestion that a second model of this wonderful uilding, by the same artist, representing the emple as it appeared immediately after the xplosion in 1687, when the Athenian Acroolis was besieged by the Venetians under Morosini, has been bought by the trustees. n this model nothing is introduced that is not erfectly authenticated, and we have a faithful ranscript of the temple as it appeared in its nost melancholy aspect. The presence of these wo models has altered the character of the Elgin room, and quadrupled the value of its ontents, in an educational point of view. The immortal sculptures there deposited, forerly disjointed fragments, hardly to be unerstood by the multitude—are now brought nto one whole—and the spectator in the degree hat he comprehends will appreciate.

The models are at present screened from ublic inspection, but will be thrown open fter Christmas, when our readers should pay iem an early visit. The length of each model 12 feet, not nine, as stated in our first otice.

French Steam Hammer.—At the Paris cademy of Sciences, M. Morin described steam hammer which was shown at the st exhibition of National Industry. From te account given in the French papers, it is exact counterpart of Nasmyth's, which we ave on several occasions noticed.

* P. 593, *ante*.

ASSERTED ABUSES IN WESTMINSTER COURT OF SEWERS.

REPLY TO MR. LESLIE'S PAMPHLET.

On page 375 of the present volume of our journal, will be found some extracts from the letter addressed by Mr. Leslie to the representative vestries, charging the Westminster Commission with misconduct. Sir James Graham, our readers will remember, forwarded a copy of this letter to the commissioners, and required a reply. A committee to draw up the reply was appointed—consisting of Mr. Alderman John Johnson (the Lord Mayor), Messrs. Willoughby, H. Harrison, T. L. Donaldson, W. Hawkes, Frederick Crace, and John White,—and their report is now before us. We shall allow the commissioners to speak for themselves, as we did Mr. Leslie, and let the public judge between them.

The report commences by objecting to the interference of the vestries, and asserts that they have no more authority to discuss the management of the sewers-rate than the Sewers Commissioners have to question the disposal of the poor-rate by the vestries (?)

It continues: —"The pamphlet takes a range for its observations of nearly forty years, and combines sweeping allegations with some particular statements, and much personal imputation, and though there remain but eight acting commissioners of the early period, and the great body are of modern appointment, they are called upon to investigate the acts of their prodecessors, many years after the decease of the able and honourable chairman, as well as of the clerk and other officers, under whose respective authority and care the business was then conducted.

We cannot but think that the time of the court, and of your committee, might have been more justly, as well as usefully, passed in discussing present improvements, rather than past transactions."

The report denies that the commissioners are self-nominated. With respect to the *responsibility* of the commissioners, it says: "it may be shortly stated, that it is the same as with other courts, their proceedings are subject to the review of all the courts in Westminster Hall; and the law reports, as well as the records of the court, will sufficiently establish the fact that they are frequently made responsible. The commissioners, acting always collectively as a court, can, indeed, only be dealt with as a court, but individual misconduct, at all times, subjects the particular commissioner to the Chancellor's *supersedeas*.

It is important to bear in mind the constitution as well as actual composition of the Westminster Court of Sewers, in considering its individual members. The qualification of a commissioner is a freehold, and the commissioners are the representatives of the freeholders of the district whose property is subjected to sewers-rate. The choice of commissioners is, indeed, vested in the Crown, through the Lord Chancellor, as that of all justices is, because the commissioners have judicial functions to exercise; but they are not less the representatives of the freeholders on that account, and practically the commission has always embraced the great and principal proprietors of the district, as well as the professional and mercantile classes, so that the commissioners actually comprise the great proportion of the landlords within the limit of the commission; whilst in order to secure a due regard to the interests of the great proprietors, their chief professional agents (being also freeholders) are generally added to the commission."

"With respect to commissioners unduly pressing on the court their own interests, it must be remembered that it is the interest of the collective body to act on general principles, and that, in so large a number of commissioners, individual wishes are certain of being counteracted by the general sense, and it is practically found that the pressing of such individual interest defeats the very object intended."

"With respect to the allegations of the contracts being a long time in two families, it may be, in the first place, observed, that sewer work is a peculiar description of construction, and was more so formerly than since the introduction of railroads. That it requires a suitable plant and a class of workmen accustomed to the varieties of soil, and the difficulties of springs, &c.; and it is obvious that parties once efficiently provided for such operations would do the work cheaper and better, and with greater dispatch than ordinary builders."

"In page 5 of the pamphlet, complaint is made that the sewer across the Marquis of Lansdowne's garden cost 6,637*l.* 2s. 3d. Now the facts of this case deserve particular attention, not only as illustrating the advantage of employing permanent contractors in sewer work, but the occasional results of public advertisements for tenders.

Tenders for this work were received from Messrs. William Stewart, John Jones, and John Hughes for 12,700*l.*, and from Mr. William Whitehead for 8,798*l.* which so far exceeded the estimate of the surveyors that they were rejected by the court, and the work was eventually done by Messrs. Bird, their ordinary contractors, for 6,637*l.* 2s. 3d., including all extras.

With reference to the second allegation on the contracts, the point for consideration is, whether the tenders accepted were not the lowest, and if not, whether they were not preferred for a substantial and sufficient reason. In 1830, 1833, 1836, and 1841, the tenders accepted were the lowest; in 1822, Messrs. Bennett and Hunt's tender was preferred to Mr. Mansfield's; and in 1826, to Mr. Sowter's.

On referring to the minutes and proceedings of 1822, which are extracted in the Appendix No. 5, it will be seen what pains were taken by the court to obtain not only a respectable contractor, but the best materials. The pamphlet would lead the world to suppose, that the rejection of Mr. James Mansfield's sample of bricks was a sudden subterfuge to get rid of his tender: it will be seen that the bricks had been the subject of the court's especial care at the previous meeting, and that Mr. James Mansfield (who by the way was not of the firm of Wigg and Mansfield) 'having again produced such a sample of bricks as the court would not allow to be used on the works of the sewers,' his tender was not accepted, and Messrs. Bennett and Hunt's, being the next lowest, was accepted.

The question here is simply this, whether the allegation on the records was true. We should say, on the face of the whole transaction, as set forth in the Appendix, it manifestly was, but we have the express authority of Mr. Dowley, the surveyor at that period, for saying that the bricks offered by Mr. J. Mansfield were not 'such as the court would allow to be used on the works of the sewers,' and thus all the calculation of the pecuniary result of declining a lower tender with such materials at once falls to the ground.

In 1826, it will be seen in the Appendix No. 6, that Mr. Sowter had omitted from his calculation, 'the carting away of superfluous earth and rubbish.' Mr. Sowter not having, therefore, provided for an important item of work, his tender was rejected, and Mr. Dowley informs us that he has since ascertained that there was a similar omission in Mr. Mansfield's tender.

Now, here Mr. Leslie makes a self-contradictory statement, 'that Mr. Sowter knew well that more than three-fourths of all the superfluous earth and rubbish dug out of the trench are thrown again into the trench, and had not to be carted away.' But the fact is, what is thrown back into the trench is not superfluous: when a new sewer is built, or an old one enlarged, the space occupied by the new work displaces so much of previous earth and rubbish, and this constitutes the superfluity which must all be carted away, and which must in every such case form an important item in the estimate of labour. On the face of the minutes, it is obvious that Mr. Sowter had discovered the error of his calculation, and did not press his tender. The lowest perfect tender was again therefore accepted."

"It only remains in this place to consider the mode of obtaining tenders. There are two ordinary ways of effecting it—the one by public advertisement, inviting every one that chooses; and the other, by a selection of a few responsible and respectable parties, and writing to them individually.

The chief object of the first course is to obtain the lowest bidding.

The latter seeks first by selection to have the security of character, experience, and capital, that the work will be carried on to completion in a substantial and workmanlike manner,

and then to take the lowest tender of the parties so selected.

We apprehend the latter to be the best course for all important works, and emphatically so for sewer work, which is concealed from the public eye, required to be durable, and executed with dispatch; but we do not feel called upon to discuss this at large, for it will be sufficient for the justification of the Commissioners of Sewers to state that her Majesty's Board of Works adopts this course, and that most works of an important character are so contracted for."

"We now come to the comparisons drawn by the writer of the pamphlet between the works of this Commission and that of Holborn and Finsbury, and we at once repudiate the calling in question the proceedings of another Commission. Composed of able and honourable men, as the Holborn Commission is, we have no doubt that their proceedings are based on a sense of public duty and the public benefit. Having no power to examine into the transactions of that Commission, and furnished only with a few materials for checking the statements in the pamphlet, we protest against the members of this Court being called upon to institute the comparison."

"The comparison made between the works of the two Commissions will more strikingly illustrate the unfairness of the allegations in the pamphlet.

It will be seen, by the report in Appendix No. 8, that a Holborn sewer of 12 feet 10 inches, sectional area, with 10 feet 6 inches reduced brickwork, is compared with a Westminster sewer of 15 feet, with 16 feet 6 inches brickwork; and a Holborn sewer of 9 feet 10 inches with 9 feet 6 inches brickwork, is compared with a Westminster sewer of 11 feet 5¾ inches with 14 feet 4 inches brickwork.

But this is by no means all, as the following comparison of the sites will show:—

Westminster Commission.		*Holborn Commission.*
Albemarle-street, St. George's	with	Collier-street, Pentonville
Castle-street and Hemming's-row, St. Martin's	with	Parkfield-street, Islington, Battle-bridge, and Holloway-road.
Wellington-street and Bow-street	with	New-road, St. Pancras.
Berner's-street, St. Marylebone	with	Battle-bridge, and Holloway-road, and Bedford-square.

Now, here, the constructing of sewers, in a maiden soil, unincumbered with vaults, old sewers, or any of the extraordinary obstructions which present themselves in old streets, is compared with those old streets where such difficulties occur."

Relative to the great cost of the sewer in George-court, Piccadilly, complained of in the pamphlet, the committee say:—

"The great extra expense was not in the construction of the sewer, but in the difficulty of excavating in a narrow court without damage to the houses on either side. Mr. Leslie states that the 'original report' in this case has been altered, and does not correspond with the copy on the records. We have compared the two, and find that they exactly agree; and there is no reason to doubt but that the report is in the same condition now as when presented to the Court. We have also referred to the rough draft of his report, which has some alterations in it, made by the officer, as is generally the case with such papers; they do not, however, affect the *bona fides* of the transaction, and were evidently made at the time of settling the draft prior to engrossment.

This case, in fact, only affords one more illustration of the difficulty and expense of constructing sewers in the older parts of the metropolis, and that a comparison with a line of sewers in a new district cannot fairly be made."*

* Mr. Dowley says on this matter, Appendix No. 10: "I would state that the excess above the estimate arose from the peculiar situation and other circumstances attending the work in question. In the first place, I would remark that the width of the court between the houses does not exceed twelve feet. That the houses are very old and dilapidated, and that the front walls (which are built upon brest-summers, and supported by story-posts) are much out of the perpendiculer, and have a tendency, in the event of the foundations being disturbed by the slipping or falling of the earth during the execution of the works to the sewer, to fall outwards into the court. This necessarily occasioned great precaution to be observed for their security, for, had any part of the buildings given way, the result might have been of the most serious nature. To guard against such a casualty, it was deemed advisable to strut across the court from side to side, as also to put up raking shores to the two high houses next Piccadilly.

To accomplish this part of the work, the internal parts of the houses had to be interfered with, and to be afterwards made good and left perfect in every respect, even to restoring portions of the paint.

Besides these works, others, far more expensive, were obliged to be resorted to for the security of the buildings; for instance, when the ground was in progress of being excavated, it was found necessary in many parts to dig out and wheel away the same for the entire width of the court, in order to secure the foundations of the houses, in the course of which work, whatever brickwork was met with, forming areas, tanks, and cisterns, &c., had to be taken down, and re-constructed.

The great additional depth at which the new sewer was built below the basements of the contiguous houses, as also with the view of obtaining a solid foundation upon which to rebuild the areas, &c., it was deemed prudent to fill in at the sides of and over the sewer with concrete, and to leave in most of the struts and planks below the level of the paving."

What the Secretary of State will say to the reply remains to be seen; nor are we disposed to offer any supposition at this moment. One most important matter touching the public health, and involving in a great degree the question of the efficiency of the commission or its officers, is *the present state of the sewers;* and to this, on the part of the public, we feel ourselves under the necessity of calling the immediate attention of the Court. At a meeting on Friday, the 19th inst., when Mr. Dowley was called on for his report on the faulty sewers, pointed out by John Phillips, the clerk of the works, he said it was not ready, nor would it be in six months. This would seem inexplicable, but for what occurred afterwards.

Mr. Leslie stated that he had heard that Mr. Phillips, in pursuance of the order of Court, had reported 123 sewers in his district as more or less filled with offensive matters, and some completely obstructed! He thought it was a proper occasion to notice an occurrence of which he became cognizant that morning, in inquiring below what the labourers had been employed in. And this was one case not in Mr. Phillips's district, but in Mr. Morton's. The facts he had elicited were these: that about seven years ago 160 feet of second size sewer were built in the New-road, by the trustees of the Parochial Schools, communicating with the sewer into Devonshire-place. Mr. John White's house-drains, Devonshire-place House, New-road, having become stopped, he entered a complaint on the 28th November last. Since the complaint had been entered, out of the length of about eighty feet, *sixty-five loads* of silt, said to be Macadamised road-stuff, had been lifted up and carted away, and then about three feet in depth of the looser soil was washed down the Devonshire-place sewer.

Mr. John White said it was very extraordinary; the stuff appeared like putty, it was so tenacious.

The chairman, Edward Willoughby, Esq., tendered his resignation, which was accepted, and Capt. Bague moved, and Mr. France seconded, a vote of thanks to the late chairman for his past services.

RAILWAY JOTTINGS.

Mr. Gravatt does not stand alone among the engineers in having failed to satisfy the expectations, whether reasonable or unreasonable, of certain railway directors; the managing committee of the Dudley, Madeley, and Broseley Railway have met, and denounced Mr. Giles, their late consulting engineer, in consequence of his failure in effecting the deposits of the plans. They advertise that his services are dispensed with, and they contemplate takink such proceedings against him as counsel may advise. Mr. Blunt, another engineer, is severely denounced by his employers on the Derby and Manchester (Ashbourne) line, and was accused, at a public meeting, of gross neglect in his plans, which have been examined by Mr. Hawkshaw, and found wanting. ——It appears, from a list relating to the number of schemes for new lines, in which the principal engineers are respectively engaged, that Mr. Brunel is connected with 14, Mr. Robert Stephenson with 34, Sir John Macneill with 37, Mr. Locke with 31, Mr. Vignolles with 22, Sir John Rennie with 20, Mr. Rastrick with 17, Mr. Miller with 10, Mr. Gravatt with 10, Mr. S. Hughes with 9, Mr. W. Cubitt with 11, Mr. Gibbs with 12, Messrs. Birch with 7, Mr. Blunt with 8, and Mr. Braithwaith with 9.——On Saturday last the first sod was turned on the Bedford and Birmingham line, at Brogborough-hill, about the centre of the line. The ceremony was performed by the Duchess of Bedford, assisted by Lord Alford; the Duke of Bedford being unable to attend, having been summoned to London by Lord J. Russell. ——An experimental iron carriage is said to be now running on one of the Belgian lines, and it is thought that eventually it will be found cheaper than wood, and as good.——It may be mentioned, as a proof of the immense amount of business now being carried on by manufacturers of locomotives, that no firm engaged in the trade will contract to supply engines in less than three years.——The operations on that part of Messrs. Grahamsley and Reid's contract on the Newcastle and Berwick line, which is not sublet, have been stopped, in consequence of the workmen refusing to accept of the wages offered them, viz., from 14s. to 15s. per week. The men demand 18s., which have not been conceded.——The high tides of last week flooded and have interrupted the works on the Thames Junction line to such an extent, that the opening will be delayed. The portion near Bow-creek has suffered most.——A great number of men are already employed on the Trent Valley line, in the neighbourhood of Rugeley; the shafts for the tunnel at Shugborough are in a state of forwardness, and the general preparations are such as to justify the expectation that the line will be opened in eighteen months from the present time.——The Newcastle and Darlington company are about to commence their branch from Pelaw to Washington (five miles), and the extension of the line (three-quarters of a mile) to the proposed station at Monkwearmouth.——Mr. Stephenson, the English engineer, and Prof. Matteani have, at the request of Prince Demidoff and Prince Poniatowsky, who have obtained the grant for the railroad from Florence to Forli, been making surveys, to ascertain whether the said line is practicable. The result is decidedly favourable to the undertaking. The line, if carried out, will form a means of rapid communication between the Mediterranean and Adriatic seas.——The Great Western Railway Company have very recently provided baths, at one halfpenny, for their numerous servants and workmen at the Swindon station. On the first Saturday after the opening, fifteen thousand gallons of water were supplied to the baths, which were in constant use throughout the day. A laundry is in progress, and will shortly be opened by the company.——The great tunnel connected with the Edinburgh and Glasgow line is near completion; workmen are engaged at it night and day. It is nearly 1,000 yards long. Upwards of three-fourths of it is finished. The other tunnel, 170 yards long, is in a forward condition, and the rest of the line having been laid with the sleepers and rails, the company expect that it will be ready for opening by March or April. ——The opening of the iron bridge over the Wensum, near Norwich, and which connects the Norfolk line with the Norwich and Yarmouth, took place last Monday week. Its weight, including piles, which are of iron also, headed plates, &c., exceeds 323 tons. It is a swing bridge, so as to admit vessels navigating the river. The turning is effected by a windlass, and the arrangement is so simple, as to afford a single person full power to work it. The centre forms 16 arches of 33 feet in length, and on each side are the standards, forming piers, surmounted by gas lamps, shewing red and green glasses, according to the state of the tide.——Part of the permanent way of the Middlebro' and Redcar line is finished, and it is expected that the whole will be completed by the early part of the summer.

ANCIENT PAINTING IN CARPENTERS' HALL.

A VERY curious and interesting ancient fresco (?) painting has just been brought to light in the execution of certain restorations now in progress at Carpenters' Hall, London Wall. It is on the wall, at what may be termed the dais end of the Hall, and having been covered up from time immemorial, no one knew of its existence. The subject of it has reference to the craft of *carpenters*,—representing our Saviour and his father at that employment; likewise (as is conjectured) Solomon overlooking the erection of his temple, and Noah engaged in the construction of the Ark, in separate compartments. An artist employed by one of the archæological societies has been at work copying it, so that it will probably be engraved.

ARCHITECTS SIGNING THEIR DEEDS.

Sir,—I humbly beg leave to write you a few lines with regard to architects inscribing their names on their works, lately referred to in The Builder. Melrose Abbey having been likewise noticed more than once in the same journal, I take the liberty of forwarding (and which I hope will not be unacceptable to you), a copy of an inscription which an old mason pointed out to me in the interior of the abbey. I think it is on a door-head which leads up to the belfry on the south front, but I am not certain, as it is five years since I saw it:—

I, John Murdo, sometyme called was I,
Born in Paris certainelye,
And had in charge the mason werke
Of Sancte Androyes, the High Kirke:
Pray to God and Mary baith
To keepe this holy Kirke frae skaithe.

I am, Sir, &c., Adam Paterson.
Brockhamgreen, 16th Dec., 1845.

OPENING MEETING OF THE SOCIETY FOR THE ENCOURAGEMENT OF ARTS, MANUFACTURES, AND COMMERCE.

On the 17th inst. B. Bond Cabbell, Esq., F.R.S., one of the vice-presidents, took the chair, and an address from the council was read by the secretary. The council congratulated the society on the auspicious commencement of their *ninety-second session*. During the recess the society had undergone a complete reorganization, and the new system of management proposed by the council had been almost unanimously confirmed by two general meetings, so that the society being thus renewed in youth, would, it was anticipated, display all the vigour and energy of a new institution, combined with the stability and influence of an old one.

It was the intention of the council to add largely this year to the value and number of the premiums. In the fine arts, the mechanical arts, the manufactures, agriculture, and commerce of the country, rapid improvements were in progress, which it had been the peculiar province of this society for nearly a century to encourage and direct, and in which nearly 100,000*l.* had already been expended by it with great public advantage. In the present session many valuable subjects were about to be offered for competition by premiums; and so large a number of important papers were now coming forward for notice, that the council believed the auspices under which this session commenced were unusually bright, and they therefore had to congratulate the members upon the improved prospects of the society.

The first communication read to the society was a paper on certain improvements in constructing the locomotive engines and permanent way of railways, with reference to the question of wide and narrow gauge, by Mr. J. G. Bodmer, formerly of Manchester, now of London.

In this paper the author examines the question of the relative merits of wide and narrow gauge; he ascertains that the question is not one either of relative safety or danger, but that it resolves itself ultimately into this inquiry:—which gauge will admit of the most perfect means for obtaining high velocities with greater regularity and economy? At present, he admits, the broad gauge has the advantage in more powerful and speedy engines. But he then proceeded to shew that by placing the *cylinders outside*, and by *increasing* the fire box and flue surface in the manner he proposes, and by adopting the principle of compensation as in his double piston locomotives, high velocities may be obtained with security, safety, and advantage. In short, that as powerful an engine in every way may be placed on the narrow gauge as on the wide one, and one equally well adapted to high velocities. He then went on to shew how the chief limit to increase of power, and the corresponding increase of weight in locomotive engines, consist not so much in the construction of the engines as in obtaining a permanent way, suitable for the support of such enormous loads. By these loads travelling at high velocities, concussions are produced, which derange the permanent way, and are at present the chief sources of danger and cost, and the chief limit to the speed. He approves of the triangular sleeper originally invented by Reynolds, and he proposes to use a modification of that on a larger scale as a longitudinal bearing. He also proposes that the breadth of the rail should be so increased as to diminish the continual attrition so destructive to wheels, and procure greater durability. In the conclusion of the paper he suggests that an experimental railway ought to be constructed, either at the expense of the Government or of the joint railways, for ascertaining the best means for giving the increased velocity, which the public are beginning to demand, in the best manner. The paper gave rise to a long discussion, which elicited the opinions of engineers and scientific men present, on the merits of Mr. Bodmer's plan. The next paper read was a sequel to the former, by the same author, on improved crank axles and axle boxes, by which greater security and economy are obtained in railway trains running at high velocities.

CITY ANTIQUITIES.

MR. TITE *v.* MR. ROACH SMITH.

Sir,—It is, doubtless, much more convenient and easy to Mr. Tite to *assert* and *re-assert*, and to make a *brief* and *final* reply, than to substantiate and prove the truth of the statements he has made relative to my researches. If he imagine his charges are proved, or are capable of being proved, either by his own efforts to adduce facts to give a colouring to his assertions, or by any admission made by me, I suspect he is the only individual who has carefully read the last four numbers of The Builder, and arrived at such a strange conclusion.

He has not only totally failed in making out a shadow of a case to justify his conduct, but he has himself established, by most glaring and serious mistakes in dates, and in the consecutive occurrence of particular circumstances, his ignorance of the real state of the very matter in question. I not only said from the first that his charges were false, but I maintain that his own statements prove them to be so; and, had I not believed that he had been imposed upon, and had too easily lent his ear to idle and silly tales, I should have termed his charges *wilfully* false.

If Mr. Tite had given me an opportunity of meeting his accusations at the meeting of the Institute of British Architects, or had had the manliness to attend the meeting of the British Archæological Association to which he and six of his friends had been invited to hear my exposition of the monstrous absurdity of his assertions, and when, had they been true, he could easily have substantiated their veracity,—had he found it suitable to him to have attended, he would have heard some curious instances of the manner in which valuable antiquities have often been collected far from the place at which they had been disinterred. Mr. Tite's researches, I suspect, have not led him to ramble far from the site of the new Royal Exchange, or he would not disbelieve, or affect to disbelieve, the fact of such objects being often found many miles from the site of their exhumation, and often after the lapse of considerable time. A friend of mine, living in the suburbs of the metropolis, collected upwards of four hundred Roman coins, which had been deposited close to his house in dirt and gravel brought from London. Will Mr. Tite venture to say, that the industry and intelligence of this gentleman, which saved from utter destruction objects of interest to science and history, "would have afforded no justification for not restoring the articles so found to the proper authorities." The antiquities I obtained, under almost similar circumstances, were not procured by the agency of Mr. Tite's servants, or those of the Gresham committee, although Mr. Tite may find it needful to bolster up his case by the invention of such notions in order to condemn them as my "admissions." In short, Mr. Tite has propagated stories which I have exposed to the world as unfounded in truth; and he now tries, instead of honestly confessing his error, or taking some steps to prove his assertions, to concoct something agreeable to himself, and calls it my "admission!"

Mr. Tite still disputes my right to the leaden medalet, and talks about the "principle of property." Why does he not induce his patrons to institute an action at law for its recovery? Simply because he is well aware that the Joint Gresham Committee never possessed and never had any right to it. It became my legal property when it was presented to me by the legal owner, before, I think, Mr. Tite had any connection with the Royal Exchange, or any particular prospect of being appointed architect to the new edifice. It became both legally and morally mine, when from a dirty bit of worthless lead I created it an object of interest to the antiquary, and of envy to the illiberal and narrow-minded.

I beg leave to explain my meaning of the term "colleagues," which Mr. Tite seizes upon in order to make allusion to the British Archæological Association. In his speech to the Institute of British Architects, Mr. Tite laid strong stress upon the activity of "collectors," who secured all the city antiquities for their own collections, to the great mortification of "city authorities." The only persons who have collected, that is to say, who have understood and preserved the precious remains of antiquity, which for many long years, "city authorities" (*proper* authorities Mr. Tite terms them!) have regarded as "rubble and rubbish," are Messrs. Kempe, Gwilt, Newman, Chaffers, and Price, and these must be (including myself), the "collectors" Mr. Tite referred to. If not, who are they? These gentlemen I feel proud in calling "my colleagues." Our labours are partly before the public. If health and leisure permit, I hope before long to render such a complete account of our stewardship, as will not be discreditable to our exertions to preserve the city antiquities from the *vandalism* of committees, and the whole tribe of "city authorities," and from general profound ignorance and indifference. This account will include a full, and chronological detail of circumstances connected with the excavations, made on the site of the Royal Exchange, the length of which, even were not your patience exhausted, would be an objection, perhaps, to its insertion in your pages on the present occasion.—I am, Sir, &c.,

C. Roach Smith.
Liverpool-street, City, Dec. 20th.

CAMBRIDGE CAMDEN SOCIETY.

The committee of this society have just issued a report of the present state of its operations and prospects. From it we learn that they have appointed A. J. B. Hope, Esq., M.P., M.A., Trinity College, to be chairman; the Rev. F. W. Witts, M.A., King's College, to be treasurer; and the Rev. B. Webb, M.A., the Rev. J. M. Neale, M.A., of Trinity College, and Mr. F. A. Paley, M.A., of St. John's College, to be secretaries.

Among the presents received by the society, special mention is made of some original drawings and measurements of St. Helen, Bishopsgate, by Mr. J. B. Gardiner; and some interesting rubbings of brasses, lately executed by the Messrs. Waller. Reference is also made to the following grants voted by the committee: towards the restoration of the church of St. John, Croxton-Kerriel, Lincoln; of the Norman Tower at Bury St. Edmund's; and towards the re-building of the Church of St. James, Woolsthorpe, Lincolnshire. Other applications have been refused, the works not having appeared satisfactory, or the cases not being of sufficient urgency. A grant has also been made to encourage the publication of a beautiful series of drawings of the First Pointed Chancel of St. Leonard, Hythe.

The *Cambridge Advertiser* says:—"We are authorized to state that Mr. Scott Nasmyth Stokes, B.A., scholar of Trinity College, author of the 'Christian Kalendar,' formerly one of the secretaries to the Cambridge Camden Society, and one of the editors of the 'Ecclesiologist,' made a public profession of faith in the Roman Catholic cathedral of St. Chad, Birmingham, on Sunday last, after High Mass. It was this gentleman who gave to the church of the Holy Sepulchre the stone altar which occasioned so much litigation."

Parks in Liverpool.—Mr. Yates of Liverpool has given 50,000*l.* for the establishment of public parks in that town. When he appeared at the recent Anti-Corn-Law meeting, he was received with vollies of cheers.

GOTHIC DETAILS FROM YORK CATHEDRAL.



Fig. 16.

Fig. 17.





Fig. 18.

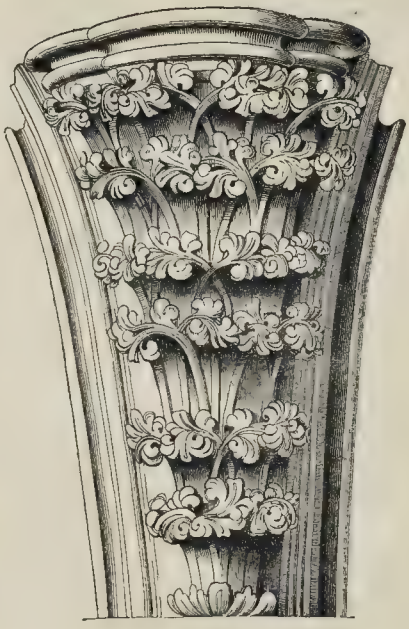


Fig. 19.

GOTHIC DETAILS FROM THE CATHEDRAL CHURCH OF YORK.

In the first part of the present volume,* a selection of details and ornaments from York Minster is given. The annexed engravings, of parts from the same building, will complete the selection, and afford useful studies for the young draughtsman and modeller.

Figures 16, 17, 18, and 19, are all from the south transept, and belong, as may easily be seen, to the first part of the 13th century. The crisp and flowing foliage of this period is particularly beautiful. The capital (fig. 16) is 1 foot 3 inches high: the projection is 7 inches.

Figures 17 and 18 represent two bosses in the sprandril of the arches, on the west side of south transept. These bosses are of different dimensions, being in diameter from 1 foot 5 inches to 1 foot, with a projection of 5 inches.

Figure 19 is a bracket 3 feet 7 inches high: the diameter at the top is 2 feet 4 inches, and at the bottom 6 inches, with a projection of 1 foot 4 inches. In the south transept there are four brackets of this size, with several of a smaller dimension in the side aisles to the same, but they are all composed of the same ornament.

Figure 20, on the next page, represents some of the mouldings round the arch of the principal west door, the work of a later period. The new doors recently set up are shewn on page 294 and page 306 *ante*.

* See pp. 90, 115, 139, 163, 175, and 259.

GOTHIC DETAILS FROM YORK CATHEDRAL.

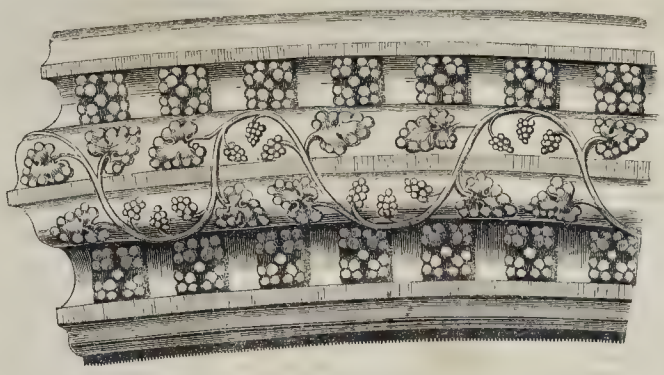
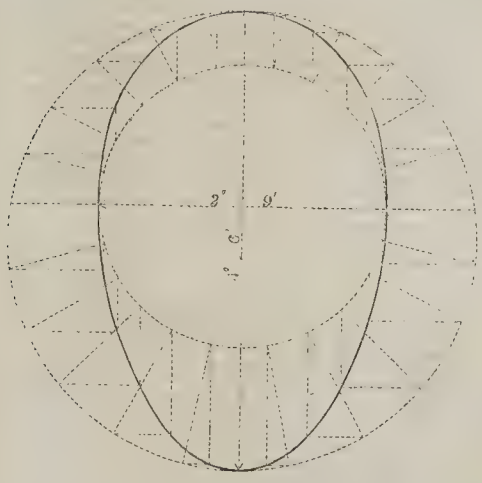


Fig. 20.

MODE OF OBTAINING EGG FORM FOR SEWERS.

Sir,—As it is a subject of some little professional interest, I have spoilt a pennyworth of time in making a few inquiries, and have found that "A. B. C." is wrong in calling the Walbrook sewer *egg-shaped*. It is not so, but only approximates to that form, as may be seen by any one who may choose to crawl into the mouth. Its dimensions are 6 feet 6 inches high, 4 feet 6 inches wide at the top, and 4 feet wide at the bottom. The arch and the invert are both as nearly semicircular as they can in such a section be made, but the sides are straight lines (?)



Upon the same principle, any kind of egg-shape (for the eggs of different birds differ much in form) or any ellipsis may be traced. But although none of your numerous correspondents have stumbled upon it, this is no new discovery; it was pointed out by *Serlio*, a few years before yesterday. Anent the best form of sewer. Is it not upon record, is it not notorious, that in all the metropolitan commissions, excepting that of Westminster, who are old-fashioned Car. 2. Act of Parliament—never builders, and who have not, until lately, refused to depart from the legislative wisdom of their country, that, beyond the memory of the last men now living, semicircular bottoms have been used? Does not every bricklayer's labourer know it as a grandfather's story? Is it not been put upon record that such things appear to have been used by the architect of "the Horse-guards?" And, after all, Neither is Mr. Roe's section, nor is that proposed by Mr. Phillips, *egg-shaped*. They are only nearer approximations than those used in the city, for they are specially directed to be struck with compasses from defined centres; and you well know, Sir, that forms so described are necessarily untrue; such lines do not, and cannot flow smoothly into each other.

Herewith is sent an egg-shaped section, adapted to a height of 4 feet 6 inches, and main width of 2 feet 9 inches, struck upon that true principle, which at once manifests itself to the eye. The bounding line cuts through ordinates obtainable at as many points as judgment or caprice may determine.

in what amount of perfection does the egg-shaped sewer exceed the oblong?

The same kind of reasoning which assumes the one to be better than the other, would prove, not only that a parabolic or hyperbolic curve is preferable to the oviform, but that a lancet arched, or even an acutely triangular invert, is better than either. If we, on the contrary, take the plea of the Westminster folk, "that segment bottoms are more convenient for walking in," to be of very great importance, that will, if carried a little farther, demonstrate the good old Roman flat bottom to be still more perfect.

Truth to say, each form has its advantages, and I am only surprised that one convenience of a segment bottom, long since remarked by an engineer of no mean note, when advocating its superiority over the semicircle, has not been publicly paraded. "If the bottom should be washed out, you can more readily and at less cost put in another, for your walls would not need support, two-thirds of them resting upon the earth," and, considerately reflecting upon the erosive power of running water, who is to say that a semicircular bottom will not in process of time be cut through? Are not some of the oldest semicircular inverts beginning to yield to the internal enemy?

Doubtless this will sound like a very heterodox notion now-a-days; but I do happen to know from an ear witness, that before a Committee of Inquiry of the House of Commons into the subject of sewage, one of the most eminent and largely experienced inquirers of the present day, himself well-practised in sewage, and knowing well that segment bottoms and upright walls were used in the district, said deliberately: "I consider the Westminster Commission to be head-quarters for all information with respect to sewers;" we, therefore, must not be much surprised at little doctors differing from little doctors, when such big-wigs have their odd fancies.

I cannot but think, Sir, that if you were to obtain all the reports of the respective metropolitan commissions in reply to the sweeping condemnation of the poor-law secretary, you would find something in them wherewith to refresh the public memory.

It is all very well to cry quack, quack, quack, and then to fancy that the wealth of heaven is to pour down at one's screaming; but I dare say that your correspondents E. E. E. and A. B. C. will be somewhat edified by reading at least Mr. Gwilt's sad confession, that once, and once only, when he was a much younger man, he did perpetrate an egg-shaped sewer, of which he was ever afterwards most heartily ashamed; and his experience and his opinions are not those of an every-day man, albeit he does not dub himself "civil engineer."

What are the sections of the Roman cloaca maxima, and of the emissarium of the Alban Lake? Did they not answer their purpose? What are the sections of Sir Christopher Wren's sewers under St. Paul's? Was he no mathematician? Did he know nothing of the laws obeyed by running water? Who made streamlets and mighty rivers? Are their channels portions of an *egg-shape*?

Again, Sir, we are told that egg-shaped sewers are stronger than any others. Your professional readers well know that form alone will not give strength—good materials and good workmanship are the main requisites of any structure which aims at durability; and had these been more attended to, we should have heard much less of mere form.

The world does talk of the necessity of all sewer builders being civil engineers, and being certificated as such. Will you allow an old man to tell you a little story, once punched into his napper-case, and now brought into recollection by poor old Dowley and his man

Doull, not answering some crabbed questions, so much *a leur aise* as might have been done by men of more brass, and, mayhap, less experience.

The Bristol merchants once established a board for the examination of merchant captains. Well, that all looked very nice and as it ought to be; but mark the result—a vessel needed a captain; a man offered himself, and, after a few puzzlers, was rejected as unqualified for taking charge of a vessel. But this poor ignorant chap had a friend, possessing a good memory along with some modest assurance. He crammed well, presented himself, swallowed all the puzzlers in a jiffy, passed a most splendid examination, and was duly dubbed captain. When all was done, he said: "Now, gentlemen, am I to consider myself master of this ship?" "Certainly." He rejoinded, "And a pretty set of fellows you are. I am a tailor. I never set my foot in salt-water in my life; I never saw salt-water but from the pier-head, and you have passed me as fit to be a captain, but have rejected my brother, who is a thorough old mariner,—has been to the South Seas and every part of the globe, and never once ran his ship upon a rock."

So ended the Bristol merchants' board of examination.—I am, Mr. Editor, with my most humble duty. X. Y. Izzard.

FOREIGN ARCHITECTURAL AND COLLATERAL INTELLIGENCE.

Ruins of an Ancient Town in the Caroline Islands.—For the sake of better understanding the importance of this (albeit not yet averred) discovery, a few words on the *systems* or ganglia of civilization — as appearing in architecture and other radii of social life, may be premised. Amongst the most extended systems of civilization is the Buddah-Indian, the Buddah-Chinese, the Greek-Egyptian, Tolteque, &c.; all of which are also mightily and strongly typified in their respective styles of architecture. But it must be borne in mind, that if ruins exist in the Caroline (or other South-Sea) Islands, they would belong to *none* of the hitherto known systems of civilization—thence their very great importance. We extract the following from some Sydney periodicals which have come to hand. "Among the Caroline islands is *Ascensio*, about 11° north lat., discovered some years ago by H. M. S. *Raven*, and not yet properly laid down in maps. A gentleman who subsequently staid there for several months—reports the following:—'On this island, perhaps on others of the same group, the language of the aborigines is more harmonious than in other islands of the Pacific, a great many words ending with vowels.—There are at, a place called *Tamen*, ruins of a town, now only accessible by boats, the water reaching up to the steps of the houses. The huge walls are overgrown with bread, cocoanut, and other ancient trees, and the ruins occupy a space of several miles. The stones of these edifices are laid *bed and quoin*, exhibiting a considerable degree of art. Some of the hewn stones are 20 feet long, by 3 feet 5 inches, and no cement or mortar uniting them was observed. The walls have door and window places, and the material seemed to be different from the rock in the immediate neighbourhood. There is a mountain in the island, the rock of which is covered with symbolic figures; and more extensive ruins than the above are said to exist in the interior. The habits of these islanders exhibit traces of a different social system, water being carried about after meals for washing hands, &c. When asked about the origin of these buildings, they say, that 'they were built by men now above.'" —Nothing more has been, of late, ascertained about this curious discovery, or rather assertion, than that drawings of them are now on their way to England. A few concluding remarks on *philosophical architecture* may find here a place. The first relates to the observation, that "the waves reach up to the steps of the houses." With our present geological knowledge, it is by no means required to suppose (for the sake of explaining the fact), that a general flood of the Pacific has taken place since these structures were erected. It is the columns of the Temple of Serapis, near Puozzoli, which will lead us to the plain explanation of this fact in another way. It has embarrassed archæologists and others for a long time to explain, whence these *lithodomi* and other *marine* shells came, which had fastened on the surface of these columns, at a height of 46 feet above the level of the Mediterranean—of course, since they were erected. It has been, however, since ascertained, not only by geological *induction*, but by written *documents*—that the Temple of Serapis (and the surrounding terrain), has been first submerged *under*, and, after centuries, again upheaved *above* the level of the sea; a fact mentioned also in Prof. Lyell's "Geology." In how far this has also been the case with the South Sea Island ruins, we are, of course, not able to know. A second observation of the kind may conclude our remarks. If men have existed before our historical times—as it seems existed before our historical times, and if they possessed arts and civilization, architectural ruins may yet come within our reach; but merely by *excavations*, or by the *geological upheaving* of terrains, submerged under the level of the sea.—[In recommending this notice to our distant readers, and those connected with the South Sea Islands, we beg to remind them, that if these ruins exist, there is a *fame* to be obtained by their accurate elucidation. But even the ascertaining that they are merely basalt rocks—or do not exist at all, would be a service to science.]

The German Antiquarian Societies.—There is scarcely a German state (some of them very small), where one of the above societies has not been established of late; many receiving even a fixed yearly income from the state, which—to say it by-the-bye, pays and supports all or most public establishments, as hospitals, polytechnic drawing schools, &c. These societies, moreover, have a wider scope than the English hitherto had, calling themselves mostly, "Society for antiquarian and historical knowledge—*Gesellschaft für vater lündicshe Geschichts und Alter thums Kunde.* As such, every thing relating to the art, history, and the social condition of antiquity or the middle ages comes within their reach; as may be gathered from the following heads, copied from their transactions: "On the proportion of artisans' wages in the thirteenth and fourteenth centuries; on the origin, the regulations, and revenue of the alms-house or hospitals of ——; the mines and melting-houses of Bohemia in the reign of Charles IV; on the life of the foresters and miners in the middle ages."—It will then appear, that the German antiquarians do not limit their exertions to mere stone, or brick and mortar—but extend them also to the *moral agencies*, which move and shape these things.

Beuth,—Peter Caspar William, Privy Councillor of his Majesty the King of Prussia; Director of the Board of Commerce, Trade, and Architecture; Member of the Council of State—was born at Cleve in 1782, the son of a physician. He soon became fond of the studies in which his father was engaged, who, besides his profession, occupied himself with natural and artistical science. Having completed his minor studies at Berlin, he went to the University of Halle, where he studied law and polytechnics, and entered, in 1801, the service of the state in the department of commercial and manufactural affairs. Prince Hardenberg first distinguished the talents and business-tact of young Beuth, and employed him in his ministerial department. When the minister received, subsequently, the orders to arrange the financial affairs of Prussia, and to frame, for that purpose, a new code of taxes and trades' regulations, he made Beuth a member of the commission, which enacted the famous Regeneration Laws of 1810. During the war of 1813, the ministerial *employé* did not stand aloof, and enrolled as a volunteer. After the peace, he was made Councillor of Finances in the department of commerce and trade. In 1821 he became a member of the council of state, and director of the board of these departments, as well as that of architecture. During his whole career, *Beuth* stood forth for the freedom of commerce and trade;* contending for the principle, that the state had no right of interfering with trade and commerce, except if a general inconvenience was to be apprehended from misapplied egotism and the adulteration of articles of food, &c.—Beuth was amongst those, who considered it wrong to protect any trade or occupation in preference to an other, be it by taxation or other infringement, by which, after all, only the great bulk of consumers is injured. He proclaimed, that it was the bounden duty of the state—to direct and lead the numerous class of tradespeople by improving, by all means possible, their technical, artistic, and scientific culture, and thereby enable them to compete with other nations in those articles, which lay most within their grasp (*landesthümlich*). The Prussian government encouraged and assisted him in every shape possible—and commissioned him with the execution of his *plans*, the list of which is really stupendous:—the foundation of the *Trades' Institute* at Berlin, and the provincial trades' schools; travels of distinguished pupils of the former to foreign parts, at the expense of the state; the publishing of costly and other useful works (hand-books)—especially patterns for tradespeople and manufacturers—examples for mechanics, masons, and carpenters; the execution of the great state buildings and other structures in the Prussian empire; the introduction of manufactural improvements from the United States, England, and France which Beuth had become acquainted with during his several travels to these countries; the distribution of costly, novel, approved instruments and implements, in numerous specimens, as patterns and prizes amongst the tradesmen of the provinces; the establishment of industrial exhibitions; the total reconstruction of the Berlin Academy of Building into a general building school of the empire. For the sake of stimulating the tradespeople and artisans to self-action (!), he founded, in 1821 the Association of Industry of Prussia (*Verein für Gewerbsfleiss in Preussen*), of which he acted as chairman. When King Frederic William IV. ascended the throne, his majesty's endeavours to *elevate* the social condition of the nation by every possible means, found an adequate instrument in Beuth, who was subsequently knighted by the king, and continued his useful exertions until a late period. His merits were acknowledged by diplomas and other distinctions at home and abroad—to which the vote of their medal by the Royal Institute of British Architects has been the last, but not the least honourable token bestowed on a really *practical* and useful citizen of the Prussian empire.

Regulation on the Bridges of Dresden and Prague.—If our modern travellers and tourists would, rather than expatiate on dinner-party anecdotes and the like, tell us the comparative anatomy of *public works*, and regulations relating thereto, abroad—the public would have, perhaps, less to read, but they would *know* more. Every inhabitant of this metropolis must have been shocked, more or less, by the great bustle and confusion which very often take place on our *free* bridges, like the London and Westminster—the more so, as persons carrying more or less bulky loads, beams, &c., are often obstructing the passage, tossing and *reflecting* at each other to the, at times, bodily lesion of children and others. The good folks of Dresden and Prague, where the two finest bridges in Europe have existed for the last 400 years, have rather cleverly guarded against such inconvenience—so far, at least, as it is *possible*. Either by regulation enacted to that effect, or a silent understanding amongst the bridge-goers—both, however beyond the memory of present generation, has been achieved, that persons passing in the *same* direction, keep the *same* side of the bridge. Thus, the flood moves on; still the same flood, but there is no tossing, no *reflecting* at each other—there is a circulation of moving elements, but no chaos. As the journal has, one amongst the first, taken up the huge matter of *metropolitan improvement*, we may be permitted, briefly, to state how this could be effected here, without even seeming encroaching on ideas of private liberty. Let a set of boards be put up, stating that such arrangement is *requested* to take place from a certain date. At that period, a few beadles might be stationed at the four approaches to the bridges—to direct people the way they have to go. Thus, the next morning, the thing would be in a fair train, and as soon as *we* (the swinish multitude) be once *led* the way—why, we should follow up the thing as *usual*.

The verbiage of "modernity."—A strange incongruity begins to dawn on our mind—

* We *copy* from the extensive German work: "Konversations Lexicon der Gegenwart. Leipzig, Brockhaus, 1839—1842, pp. 484.

we consider how much *we* have talked, and how little *done*. Our mountains of paper destined for eternity—tally but badly with our structures, which tumble down, even before they have been completed. We have hundreds of books on the elevation of mankind—but the dwellings of our humbler classes resemble rather styes than any thing else. We have minutely analyzed effluvia and every sort of waste and offal—still they are accumulated beneath and around our cities, to make experiments, as it were, *in anima vili*. Our legislatures have debated most profusely every position and principle of public and private law, in the abstract and concrete—save one, how to make mankind live and exist in the way of human beings. Well may one be inclined to repeat to all of them: "Be gone—make room for *practical* men." [Isis of Oken.]

The "Journal of Public Instruction" of Paris contains the following remarks on the late regulation of the "*university*" system in France: "One of the main objects for which men have combined into *society*—is education; nay, these terms may be considered, after all, as synonymous; as an imperfect system of public instruction implies a defect in the social condition of the nation, and, therefore, in the government. Aside the greatest freedom of private instruction, the duty of the state to afford one, *normal* and most extensive to the mass of citizens, stands paramount. Nay, most of the highest walks of science, literature, and art cannot be taught but in establishments belonging to the nation—the state. The surest control, however, as well as the surest corrective for any abuses or deficiences in the public schools (of any kind), are private institutions, as well primary as of a higher stamp; as a people well instructed even elementarily, will never allow that error should remain enthroned in the sanctuary of knowledge, or its public establishments perverted and made use of for sordid and private purposes. The Council of University, now called into renewed existence, as one taken from amongst the number of teachers of every grade, will be the surest constitutional check on the abuses or the faults of the whole educational system of France."

J. L——v.

THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

Dec. 17. The treasurer in the chair. Nearly twenty members were elected, among whom were Monsieur Guizot, the Viscount Santarem, Messieurs Ch. Lénormant, Letronne, Victor Hugo, Baron Taylor, &c.

Mr. Charles Warne exhibited some Celtic or Belgic weapons in bronze, discovered in levelling a huge barrow on the estate of the Hon. Col. G. D. Damer, at Carne, Dorset, and Major Sheppard a stone celt picked up near Cissbury, Sussex. Mr. Syer Cuming communicated an account illustrated by enlarged drawings of numerous pilgrims' signs, medalets and tokens in lead, collected during excavations for the foundations of new London bridge. Mr. Planché read a letter from Mr. Mark Anthony Lower, relative to further discoveries at Lewes, which will be described in detail at the next public meeting of the association. Mr. Burkitt exhibited some ancient deeds recently brought to light, relating to property in Sussex.

Mr. W. H. Brooke, of Hastings, who had been engaged on behalf of the association to prepare drawings of mural paintings lately discovered in Battel church, communicated his report thereon, and exhibited his coloured sketches, thirteen in number. The report gave an elaborate account of the discovery, which, but for the prompt exertions of the central committee would have been fruitless to the antiquarian world, as the remains were quickly re-plastered and re-whitewashed, and no efforts were made by local authorities to preserve a record of them. They comprise many subjects, such as the trial and condemnation of our Saviour, Michael conquering Satan, saints, martyrs, &c., executed in a good style of art, and so closely resembling in many points those discovered in Preston church, near Brighton (See Archæologia), that Mr. Brooke is inclined to ascribe them to the same artist.

Mr. Crofton Croker, the secretary, informed the meeting that he had received a polite and kind reply to his application to Lord Lincoln, respecting an inquiry made by him on behalf of the association, at the suggestion of Sir Samuel Meyrick, relative to the abstraction of the sword from the statue of Charles I., at Charing-cross. His lordship had ordered an investigation to be set on foot, and at the same time stated, that any representations made by the association, relative to the better conservation of ancient national monuments, would at all times meet his attention.

Mr. Jewitt exhibited drawings in illustration of a paper on the history and architectural peculiarities of St. Giles's church, Shrewsbury, which, by reason of its length, was postponed to the next meeting.

Mr. Price inquired whether the committee had received any intelligence of the threatened distruction of Bittorn manor-house and grounds, the site of the Roman Clausentum, near Southampton, by a proposed line of railway from London, Guildford, and Petersfield.

Mr. Roach Smith congratulated the association upon the great activity of its members, in anticipating the disastrous effects of the spirt of destructiveness, and in sounding an alarm in time. The committee had already received information respecting the subject of Mr. Price's inquiry, and were prepared to adopt measures which he had no doubt, would preserve the interesting and classic spot (the property of Mrs. Stuart Hall, an associate of the association), from violation.

The meetings were then adjourned to the 14th of January.

COMPLAINT AGAINST THE DISTRICT SURVEYOR OF LEWISHAM.

The following communication has been addressed to us by Mr. Badger.

Sir,—Having had my attention directed to the leading article of the last number of your publication (13th inst), containing strictures upon several of the metropolitan district surveyors, and in which also is inserted a letter with the signature of Nicholas Metherell, in reference to a certain transaction concerning myself, who therein gives a palpably incorrect and unfounded statement of particulars, I have to request that you will, as an act of justice, disabuse the public mind by finding a place in your columns for this communication, and the subjoined letter of Mr. Whitmarsh, of the Green Man Hotel, Blackheath, who has kindly furnished the facts to which he alone was privy as regards myself, and who also disclaims the honour of Mr. Metherell's acquaintance. Mr. Whitmarsh's letter is in my possession, and may be seen by any party desirous of further satisfaction on that point. I shall only instance, in proof of the accuracy of the facts particularized with such exemplary minuteness of detail by your correspondent, and upon whom you seem to have placed full reliance, Mr. M. gives the dimensions of the sign-board 5 feet by 3 feet; it actually is found to be 11 feet 8 inches by 3 feet 6 inches, and is fixed with eight holdfasts, and not four, as stated. These matters, however unimportant in themselves, yet I deem worthy of notice, as shewing the value of the testimony upon which the attempt has been made to affix a stigma upon my conduct.—I am, Sir, &c.,

Charles Robert Badger.

Holwell-place, Blackheath-road,
17th Dec., 1845.

Blackheath, Dec. 16th, 1845.

Dear Sir,—I beg to state that you did not desire to exact thirty shillings for the fixing of the sign-board against the stable wall which Mr. Tomlinson rents of me, but stated, that he was liable for that amount, not having given notice. You also stated, that you had to make up your monthly account, and that your charge was ten shillings, which I paid you for Mr. Tomlinson.—I remain, yours truly,

Thos. Whitmarsh.

To C. Badger, Esq., &c.

We feel it necessary first to remark, that previous to the receipt of these letters, we were ignorant of the name of the district surveyor complained of, not being aware that Mr. Badger's district included Blackheath.

We immediately sent to our informant requiring that he should substantiate his statement, or retract it, and the following is his reply:—

Sir,—On the 3rd of December Mr. Tomlinson solicited my opinion, after shewing me the sign-board, saying the district surveyor has made me pay 10s. for fixing it: he wanted 30s., and if I can I will *trounce* him for it (meaning *prosecute*). I told Mr. Tomlinson that I could not sufficiently inform him so as to guide him in any ulterior proceeding, but that The Builder would perhaps give an opinion if asked. He then requested me to write, and he repeated that he had paid 10s., and that the district surveyor wanted 30s., and he shewed me the receipt for 10s.

On the appearance of my statement in The Builder on the 13th instant, I went to him, and he again said what I had written was correct. On my receiving an intimation from The Builder that Mr. Badger had denied the truth of my statement, I again went to see Mr. Tomlinson, who wished me to go with him and see Mr. Whitmarsh on the subject (till now I was not aware Mr. Whitmarsh had any thing to do in the matter). Mr. Whitmarsh then told me that Mr. Badger had called, and in a very humble manner, supplicated him to enable him (Mr. Badger) to clear himself before his brother district surveyors, who were disposed to censure him for what appeared in The Builder. Mr. Whitmarsh said he did then write a statement for him, in some degree altering the appearance of the complaint against him. Mr. Whitmarsh did at the same time say that what I had written was correct, or very nearly, and that what he wrote for Mr. Badger was a mere act of kindness.

On Friday last I received from Mr. Badger a letter threatening legal proceedings, unless I would insert in The Builder a denial of the truth of my statement, and reading it to Mr. Whitmarsh and Mr. Tomlinson they appeared surprised. Mr. Tomlinson said, Mr. Badger did demand 30s., and Mr. Whitmarsh assured me that whatever he might have written on behalf of Mr. Badger was from the peculiar manner in which he was solicited, and on account of his situation as a public officer. Mr. Whitmarsh adds more, "if I am to give evidence in this matter in a court of justice and on oath, I shall be obliged to say that the demand was tantamount to a demand of 30s., and if what I wrote on his behalf, be held up against me, I shall be obliged to say, consideration for the individual was the inducement." I cannot come to Mr. Badger's terms, considering that I have only acted straightforwardly, and have kept to the truth; waiting the result.—I remain, your most obedient servant,

N. Metherell.

6, Bath-terrace, Horsemonger-lane.

We do not publish this letter willingly, as we have no desire to injure any man; but Mr. Badger having called on us to insert his denial, we feel bound to allow our correspondent to speak for himself. We trust sincerely that this and other circumstances will induce Mr. Badger to take a different view of his position, and administer the duties confided to him with more moderation and a less exacting spirit, than he has heretofore exhibited.

TO TAKE PAINT OFF OAK PANELLING.

Sir,—I beg to inform "F. R. L.," that the best and only method of removing paint from oak panelling, carving, &c., is as follows:—make a strong solution of *American potash* (which can be bought at any colour shop, and resembles burnt brick in appearance); mix this with sawdust, and make a sort of paste, and spread it all over the paint, which will become softened after a few hours, and is easily removed by washing with cold water. If, after the panelling, &c., is dry, it becomes cracked, apply a solution of hot size with a brush, which will bind it well together, and make it better for varnishing, as well as destroy the beetle which is often met with in old oak, and is erroneously called the *worm*. If "F. R. L." wishes to make old dark oak *pale in colour*, apply with a brush a little dilute nitric acid, *judiciously*; if he requires it to be *dark*, let him stain it with dregs of black ink and burnt umber mixed. As I have adopted all these methods very often, I can say that they answer most successfully, as my specimens of old oak furniture and carvings shew. "F. R. L." had better at first try these plans on oak not of much value, as to make a good job requires *care*, *practice*, and *attention*.—I am, Sir, &c.,

London, Dec. 20th, 1845. Amateur.

NOTES IN THE PROVINCES.

The re-opening of Market Weston church took place last week, after the successful result of drawing together the two walls of the nave, which had bulged outwards to a very considerable extent, and undergoing a complete renovation at the cost of about 2,000*l*. The church, standing on a gentle eminence, is a well-proportioned edifice in the perpendicular style, built, as the Suffolk churches generally are, of rubble and flint, with stone dressings. It consists of a square tower at the west-end; a nave with a porch on the south or village side; and a spacious chancel. The restoration necessarily involved a large quantity of new work, but whatever parts of the original structure were capable of being used again, the architects, Messrs. Cottingham and Son, were careful in replacing the same as they were in preserving the original tower of the building.——The ceremony of turning the first sod in the Manchester Public parks took place in the Endham Hall estate, Harpurhey, last week. They are expected to be opened in June next. ——The repairs and decorations now in progress at the Liverpool town hall, will cost about 5,000*l*. —— Very vigorous efforts are being made to obtain funds to erect churches in three of the new districts in the Potteries, recently constituted by her Majesty's Ecclesiastical Commissioners; one at Northwood, Hanley; another in the Hope district of Shelton; and the third in the Sneyd district of Burslem.——Among the improvements already completed in Howden church, to the restoration of which we have already adverted, may be mentioned a stained-glass window, which has been inserted at the east end, over the screen which originally separated the choir from the transepts. It was executed by Mr. Wailes, of Newcastle, and contains three full-sized figures; in the centre is a figure of Christ, surrounded by a halo of glory; on each side of our Lord are seen the figures of St. Peter and St. Cuthbert, the patron saints, to whom the church is dedicated.——The garden opposite the west end of the church at Ely, has been purchased as a site for a new museum, which is also to be the library of the literary society. The cost of the building is to be raised by shares of 25*l*. each, the greater part of which are already taken.——It appears from a statement just published by the Church Building Society, that since its incorporation, about thirty years since, it has expended the sum of 381,031*l*. in the erection or enlargement of 2,397 churches and chapels, and has provided 658,000 sittings, of which 477,000 are free and unappropriated.——The repairs of Christ Church, Coulville, Leicestershire, having been completed, it was re-opened on the 10th inst. A floor of encaustic tiles was presented by Mr. H. Minton.——The authorities at Jersey have adopted the plan of Capt. Charles Bisson for improving their harbour. It consists in the building of an out wall, water-tight outside, and parallel with the present North Pier. It is to commence at the Esplanade, nearly opposite Castle-street, and is to be carried out with a slight curve inwards, to meet the present new South Pier head, where the entrance will be. The parapet on the present old North Pier is to be removed, and the latter formed into a quay for loading and unloading vessels. This plan will have the advantage of being easily converted into a wet dock whenever it may be deemed expedient.—— Notice was given last week, at the Hull Town Council, by Mr. Richardson, of his intention to propose at the next meeting the establishing a public museum, in accordance with the provisions of Mr. Ewart's Act. The same council contemplate either enlarging and improving the existing market-place at Hull, or transferring the same to a more eligible site outside the docks.

Disappearance of the Caisson on the Godwin Sands. — The Deal correspondent of the *Shipping Gazette*, in a letter dated the 8th inst., says that Mr. Bush's lighthouse has completely disappeared; and further that "from the circumstance of their being a large fleet of vessels in the Downs, together with a thick atmosphere, I have not been able to see it since Friday last, and therefore cannot exactly say when it fell."

COLOURED DECORATIONS.

At a meeting of the Decorative Art Society, on Dec. 10th, a continuation of the paper "On Chromatic Decorations in England," reported p. 588, *ante*, was read by Mr. E. Cooper. He commenced by noticing the progressive regard for coloured decorations exhibited during the Norman and Gothic epochs; alluding to the simple effect produced by the polished purbeck marble shafts at Ely and the Temple Church, the rich grandeur of the earlier stained-glass windows at York and elsewhere, with the attendant painted decorations, on ceilings and walls, and the pavements of encaustic tiles. He attempted to elucidate the principles which predominate in the latter examples, by explaining the general application of the three primary colours, and the more usual construction of the designs. He then noticed the stained-glass windows at King's College Chapel, Cambridge, where the whole of the subject and detail are designed with a feeling of the renaissance (it is supposed by Guilio Romano). He said, from personal observation, that nearly all the coloured glass is what is technically termed pot-metal, and that where it is not so, as probably in the finest colours, it is enamelled glass, and he observed that drawing and shading were placed upon these, as is evident from their disappearance in many cases, leaving the pot-metal only. A disconsonance was alluded to, arising from the colours of background and foreground in pictorial subjects being of the same intensity, and a method of producing light and distance by removing more or less from the thickness of the enamel, was suggested as applicable to windows, and a specimen was exhibited. The lecturer then commented on the agreeable effect of stained-glass windows where the walls are of a simple or uniform colour, but urged careful consideration when the walls are decorated with pictures; he observed that the altar-piece by Raphael, at King's College Chapel, is entirely neutralized in effect by the overwhelming coloured rays of light entering in every direction upon it; the earlier examples of Gothic windows were said to allow the transmission of a greater proportion of pure light. The ancient coloured glass had no superiority over that now producible, and the prevalent opinion of inferiority had arisen from the greater use of painted glass instead of pot-metal, or enamelled glass. After some remarks on encaustic tiles (from specimens from Reading Abbey), and the peculiarities of Gothic drawing, colouring, and sculpture, he described some examples of transition or mixed Gothic and Italian characters, in the ceiling of the Chapel Royal, St. James's, and the chapel of Bishop West, in Ely Cathedral; and also the fine specimen of baronial decorations lately restored at Hampton Court. He then took occasion to censure the manner in which some of the coloured decorations in the spandrils below the windows of the aisles in Westminster Abbey have been destroyed or concealed, by the misplaced and absurd mythological monumental tablets, and he noticed some fine and well-known examples of "high tombs," richly ornamented with marbles, colour, and gilding. The decorations of the Elizabethan period were noticed, and a fine specimen of embossed silvered and coloured leather hangings from the manor house, Billingshurst, was exhibited.

The introduction of Italian architecture by Charles, led to the consideration of the ceiling of the Banqueting House, Whitehall, painted by Rubens; also of the works by Thornhill, Verrio, Sanguerre, and Charles de la Fosse, at Greenwich Hospital; St. Paul's, Chatsworth, and Montague House, now the British Museum. At present, he remarked, there appears to be a struggle for supremacy between the Gothic and Italian styles; and in his criticism on some recent decorations, expressed an opinion that the imitations have been unsuccessfully applied; instancing those in the Temple Church as partaking too freely of yellow ochreous tint; the Royal Exchange as being too *petite* for their purpose; the Conservative Club as presenting a bewildering profusion of trifling ornament, devoid of any important character or design, and materially diminishing any grand effect that the architects might have contemplated. After some remarks explanatory of his views on domestic decorations of the present day, Mr. Cooper submitted a question as to the applicability of Gothic decorations to modern purposes, with more especial reference to the New Palace of Westminster. He admitted that decorations should be in accordance with the style, and subservient to the architectural character of the edifice; but, he asked, must we therefore follow the earlier Gothic mannerisms? copy the attempts of an age of comparative barbarism in art? or are we to adopt all the improvement and knowledge of form of the present day? He contended, that the Gothic did not admit of pictorial decoration in proper keeping; and that the modern school of painting presented too many inconsistencies. He concluded by asserting, that the Italian style of the thirteenth and sixteenth centuries, as found in the designs of Palladio, Scamozzi, Sansovino, and others, admitted of the utmost degree of refinement, both in sculpture and painting, and afforded profitable materials for study for such a purpose. A discussion followed—in which some artists took part—and it was observed that, generally, too much regard was had for precedent rather than principle; that decorative art was somewhat like to a well-laden ship adrift; that much grace and sweetness of expression may be found in Gothic art, but a stand should be made against Gothic barbarities; that Mr. Ballantine's recently published remarks on stained glass, contending that it is capable of conveying high art, were questionable, as applied to windows, which have a variety of essential purposes at variance with pictorial representations on walls; and, moreover, never ought to attract or divide the attention with them; that kaleidiscopic and Byzantine arrangements of glass, as at York, were in better taste; that the richest designs would be found subordinate to colours, and that considerable analogy would be found between Persian carpets and Delhi shawls, and the best arrangements of coloured decorations from the eleventh to the fourteenth centuries.

The meeting adjourned to the 14th January next.

E. C. L.

ARCHITECTURE IN FRANCE.

In a letter from Paris on matters of art, published in a recent number of the *Athenæum*, the following remarks occur:—

"Among the three fine arts, painting, sculpture, and architecture, perhaps Great Britain can less compete with France in the second than either of the others. In the first, our brilliant colour may well be set off against French able draughtsmanship, because, though a secondary pictorial merit, we can produce better works by its means than our competitors can by those of their almost barren accomplishment. I call it barren as I do a desert, which nevertheless teems forth *prodigious births* every day. In the third fine art, France puts forward very ambitious claims, and the balance certainly hangs evener between her edile genius and ours than Libra's did between Satan and Gabriel. Yet of Pointed architecture she has little or none to shew—I mean new specimens. Of classic or pseudo-classic, she possesses three celebrated modern examples, which, however, appear to me (an amateur, recollect!) as striking from their faults as their beauties. The *Bourse* presents a grand quadrangular peristyle of three-score and six columns; but what does this multitudinous display of colossal legs sustain? A mere entablature, for the pile of slates within it has no pediment, character, or pretension! Thus the edifice suggests the idea of an elevated *cistern* roofed over, instead of an Exchange! There is an utter and palpable disproportion between the immense apparatus of support and the weight supported. It resembles a multipede statue with the body omitted, and the head placed upon the hips. I wish to give important defects alone, importance, and therefore shall concede the exterior of the *Madeleine* more immaculate than its presiding saint; though its pediment forms a very harsh outline, and the whole temple surface be cut up by the dark list-like joints of the masonry —that *bizarre* taste which our neighbours have for variegation peeping out in their architecture, as in their diapered and striated pantaloons. But the capital defect of the Madeleine is its comparative meanness within, despite the profusion of embellishments it has received at the hands of gilders, carvers, painters, and glaziers. I pass over its circular style, diametrically opposed to the rectangular ordonnance outside. A far worse discord

results from your entering a little, narrow, heavy-proportioned chapel of ease, where you expected a spacious church, commensurable with such a huge, high-columned, double porticoed, arrogant architectural inclosure which your eye almost tires to travel through the details of. As for the third celebrated example of modern French architecture, the *Hôtel de Ville*, it must be admitted beautiful exteriorly, and if the same or any homogenous ordonnance harmonize its courts, when finished, in the key of its frontage,—if they are not encumbered with oppressive decorations, nor broken up by obtrusive projections and impertinent attractions, till the whole *corps de bâtiment* resemble, like the Madeleine, a man who has "made too much fat within,"—it may prove the very handsomest edifice of modern French construction. Construction, mind; for, after all, it would be no more than the original Italian architect's old hotel-de-ville extended, and rather the production of Gallic quarries than of Gallic genius. Nevertheless, qualified as our admiration of these three works must become on analyzing their pretensions, there is, without question, a great deal of architectural power, skill, and talent manifested in both them and numerous other structures, private and public, which have lately arisen to adorn this much-improved metropolis. If Parisian architects would but expend a little of said power, skill, and talent on *sweetening* said metropolis! Its streets smell like open sewers—nay, are such! In subterranean architecture, British professors bear off the bell; their genius shews itself to best advantage under the ground; Paris cannot rival London's apparatus of latent aqueducts and gutter-ducts and dirt-aducts, however defective. *Lutetia quasi à luto!*"

Miscellanea.

Largest Factory Building in the World.—The central part of the Portsmouth (American) steam factory, which is 204 feet long, is now two-thirds up, and, should the weather continue favourable, will be covered before Christmas. The eastern wing, of 150 feet, will be built in the spring, and the western wing, of 150 feet, will probably be built in the course of next year. The centre part is to be six stories high, the wings five stories; height of the lower story 13 feet, of the other stories 12 feet; the length of the front will be 504 feet, or about a tenth of a mile. There will be about four acres of flooring in the Portsmouth factory. Number of spindles, 50,000; number of operatives 1,200 to 1,500. In the rear two parallel buildings, two stories high, will be extended 100 feet back from the junction of the main building with the wings; and between those buildings, 50 feet from the main structure, the boiler-house is to be erected. The foundation of the chimney, which is to be 140 feet high, is laid, and is in progress of erection. A gentleman who has been travelling the last year, in pursuit of information respecting manufacturing establishments, and who has visited more than a thousand factories, informs us that the largest building he has seen or heard of is at Manchester in this state, which is 440 feet in length. There is nothing in England to compare with it.—*Portsmouth Journal.*

Proposed Restoration of St. Michael's Church.—It gives us much pleasure to announce that at a dinner party lately given by the Rector of St. Mary de Crypt, at which a number of clergymen and earnest laymen were present, the wretched state of St. Michael's church in this city, was incidentally mentioned; when, in a few minutes, the munificent sum of about 150*l.* was subscribed towards its restoration. We trust that this good beginning will be warmly seconded. If the work be judiciously undertaken, St. Michael's church may be rendered an edifice of considerable beauty and interest. Its tower is now one of the finest examples of its class in this county.—*Gloucester Chronicle.*

A Noble Example.—We are glad to observe that the health of towns is being made an attractive subject in our lecture rooms, and the diffusion of sound knowledge connected therewith occupying the time and talents of some of our legislators during the recess. Last week, Viscount Ebrington delivered a lecture on the subject at the Plymouth Mechanics' Institution.

Paving of Towns.—Before the eleventh century none of the great cities of the present day were paved, except Rome and Cordova. Paris did not enjoy this advantage, according to Rigord, physician and historian to Philippe-Auguste, who relates that the king, being at the window of his palace, which commanded a view of the Seine, perceived that the carriages passing in the mire diffused a most offensive odour, which induced him to issue an order for the paving of the streets, notwithstanding the expense of it, the dread of incurring which, he was aware, had hitherto deterred his predecessors. Since that period the city took the name of Paris, instead of Lutetia, which originated in the number of its sloughs. Even London was not paved at that time, many of its principal streets were not thus improved till the 15th century. Holborn was done in 1417. Dajon commenced the paving of the streets in 1391. In 1285 an order from Philippe-le-Hardi commanded the citizens of Paris to pave and sweep the streets before their houses at their own expense; but this mandate was so badly executed that in 1309 the city was swept at the public cost, under the inspection of the police. Till the fourteenth century, the inhabitants of Paris were suffered to throw every nuisance from the windows, provided they cried out three times "*Take care!*" This license was interdicted in 1372, and still more strictly in 1395. An order was also issued to prevent pigs running through the streets, in consequence of the accident which happened to the young King Philippe. That prince, returning from Rheims where he went to be crowned, while passing Saint Gervais, a pig dashed between his horse's legs, and threw him down. The king fell backwards, and, in a few days, died of the injuries he had sustained in the fall.—*Sharpe's London Magazine.*

Church Architecture.—A work of some value, illustrating the various styles of woodwork in church architecture is at present in progress. The author, Mr. Bury, proposes to give perspective views and measured details of ancient pulpits, lecterns, stalls, screens, roofs, and other wooden fittings, engraved by himself from his own sketches and measurements. A good work on this subject has long been called for, and it is to be hoped, that Mr. Bury will be encouraged to persevere in his undertaking; and that one result may be the preservation of drawings of many valuable relics, which, in spite of all efforts, are from time to time disappearing. The first part is now very nearly completed, and we are able to say, that the execution of the work will be in accordance with the importance of the subject. The book will be 4to., and each part will contain about 21 plates.

Architectural Antiquities of Scotland.—We learn with much gratification, that the illustration of Scottish antiquities, with both pen and pencil, is at last about to be undertaken in a manner worthy of the subject. Fifteen years ago, Mr. Burn, the architect, mooted the subject, prompted solely by desire to see the antiquities of his country efficiently pourtrayed, but was unable to bring his project to bear. It is now, however, to be undertaken with his assistance by Mr. Billings, and promises to be a most important work. A limited edition will be issued, with copious details for the professional man. Messrs. Blackwood are the publishers.

Rouen.—Mr. Burford's panorama of this interesting city gives a faithful and wonderfully effective representation of it, and as a work of art, merits great commendation. Those who have not seen Rouen, and those who have, will alike derive pleasure from a visit to the gallery in Leicester-square.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the execution of the proposed branch railway from Pelaw to Washington, in connection with the Newcastle and Darlington Junction Railway, being a distance of 5 miles; also for an extension of about three-quarters of a mile in length.

For the supply of 150,000 sleepers, to consist either of sound Baltic timber or of sound well-grown larch, to the Midland Railway Company.

For the erection of a new church at Pensnett, near Dudley.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At Lorridge, near Berkeley, Gloucestershire; 198 maiden oaks, 122 maiden elms, and 1 maiden ash, of excellent quality, and many of them of large size. Also 495 pollards, chiefly oak.

At Coleshill, Warwickshire; a large and superior stock of oak, elm, ash, poplar, and Memel timber.

At Besford, near Pershore, Worcestershire; a considerable quantity of very capital elm, ash, and oak timber trees. They are of large dimensions, of superior quality, and very lengthy.

At Novar, Ross-shire; upwards of 10,000 trees, now standing, all fit for railway purposes.

At Clumber, a large quantity of very valuable oak, larch, elm, and beech timber trees, now standing in the woods and plantations adjoining Clumber and Worksop.

At Ryton-upon-Dunsmore, near Coventry; 194 fine oak, elm, ash, and other timber trees, many of large dimensions.

At the Barringham Tile Works, Hull; about 80,000 feet of pine board, 76 inches by ⅞ of an inch; several principal beams complete, 38 feet by 42 feet, &c.

TO CORRESPONDENTS.

"A. A."—*We cannot assist our correspondent in his views.*

"Stone Models."—*We have received Mr. Burgess's model of font from Fotheringhay Church, in limestone, and are much pleased with it. We recommend him warmly to our readers who need architectural models. His address is West-street, Oundle.*

"E. K." (Kensington).—*We will endeavour to call in Liverpool-street; and are obliged by the offer.*

"G. H. C." (Aylesbury).—*We shall gladly avail ourselves of his information.*

"J. C."—*We have already mentioned the material pointed out, as well adapted for stable floors.*

"Architect's Commission."—*A subscriber should send his name. The opinion is otherwise valueless.*

"Oak and Stone."—*Freemasons of the Church meet at No. 3, Newport-street. Write to the Secretary, 9, St. John's Square, Clerkenwell.*

"Novice."—*Shall appear.*

"Ventilation."—"A Working Carpenter," *with reference to communications on this subject from* "Working Bricklayer," *urges that fresh air should be admitted into rooms on a level with the face.*

"S. N."—*We believe the only* brick *pyramid near Saccara, is one at Dahshur, called Kloubeel-Meskich.*

"J. H. Thorpe."—*Roman cement (so misnamed) is manufactured in England, chiefly from Sheppy stone, and from the beach stones from Harwich.*

"L. S. W. T."—*It is not customary for architects to certify for payment of instalments on the value of materials brought on the premises. Except by special arrangement, the work that is fixed is alone taken into consideration.*

"Terra Cotta."—A *correspondent urges that this material, if properly handled, may be used with great effect. If* thoroughly *dried before burning, he maintains that it will neither twist nor crack.*

"T. D." (Paris).—*Gwilt's Encyclopædia of Architecture treats fully of all the subjects mentioned.*

"Colouring Bricks."—*A correspondent suggests, that Basford's patent process is well adapted to work any durable coloured material on the surface of bricks or tiles after they are made.*

"Payment of Sawyers."—*A builder says he has adopted the system of paying sawyers by the score of feet, instead of per cut, and finds it work well. The present prices he pays are, for 7-inch, 4d.; 9-inch, 5d.; and 11-inch, 6d. per score.*

"Circular Saw."—"J. E." *wishes information as to the possibility of cutting deals into boards of various thicknesses by means of a circular saw, worked by hand-power, with a fly-wheel. He is desirous of procuring machinery of that description; its construction must be efficient, though not expensive or difficult to manage.*

Books.—We are sorry that we have not time to reply to a dozen letters asking us to recommend books.

Received; "L.," "An Old Builder," "Carbon," "J. S.," "G. Brummitt," "Surveyor," "Q."

The occurrence of Christmas-day having led us to go to press earlier than usual, the consideration of several communications is unavoidably postponed.

NOTICE.

As a new volume will be commenced on Saturday next, this is a favourable opportunity to begin subscription to The Builder.

ADVERTISEMENTS.

Just published, a New Edition for 1846, price 4s.

LAXTON'S BUILDERS' PRICE BOOK, containing 11,000 Prices and Memoranda connected with Building, and the whole of the Metropolitan Building Act.

J. WEALE, High Holborn; SIMPKIN, MARSHAL, and Co., GROOMBRIDGE and SONS, and SHERWOOD and Co., Paternoster-row.

HEATING by WARM WATER.—An improved method of HEATING by the CIRCULATION of HOT WATER may be seen in operation daily at J. L. BENHAM and SONS, Stove Grate Manufactory, 19, Wigmore-street, Cavendish-square. Estimates given for warming churches and other public or private buildings in town or country. A great variety of warm-air stoves of every description, from fifteen shillings to twenty pounds.—19, Wigmore-street, Cavendish-square.

BIELEFELD'S PAPIER MACHE.—The superiority of the Papier Mâché for the purposes of ARCHITECTURAL DECORATIONS is now so generally admitted, that it is needless to argue it. The introduction of Papier Mâché into most of the public and private buildings in the country is the best proof of its merits. Ornaments may be had in almost every style, and pattern-books, containing more than a thousand executed designs. Price 1*l*.

PICTURE FRAMES and other Articles of Furniture, either gilt or in imitation of the finest carved oak. An illustrated Tariff forwarded on the receipt of eight post-office stamps.

PATENT QUAQUAVERSAL GLASS-STANDS for the toilet, on an entirely new principle, of great elegance, and free from all the practical inconvenience of ordinary Glass-stands.

At the works, 15, Wellington-street North, Strand.

CAEN STONE.

LUARD and BEEDHAM have a quantity of the above stone, of the best quality, direct from their Quarries at Allemange, which may be inspected at the Norway Sufferance Wharf, Greenwich.—Further particulars at MR. G. GATES', 18, SOUTHWARK-SQUARE, SOUTHWARK.

PIMLICO MARBLE AND STONE WORKS, BELGRAVE WHARF, PIMLICO-ROAD.

SAMUEL CUNDY begs to inform Architects, &c., that every description of Stone, Marble, and Granite work is executed at the cheapest possible rate.

Estimates given for Mason's Work in all its branches. Gothic Work, Tombs, Monuments, &c.

MARBLE WORK for Halls, Dairies, Tables, Columns, Vases, at most reasonable prices.

A large collection of Designs for Mural and other Monuments.

CHIMNEY PIECES from Twelve Shillings upwards.

Depôt for CAEN STONE, &c.

THE WESTMINSTER MARBLE COMPANY inform the Public that the great reduction they have made in the price of their VEIN MARBLE CHIMNEY-PIECES, they are supplying them at a lower price than the Slate Chimney-pieces made up to imitate marble. They also invite Architects and Builders to inspect their stock of elegant carved Chimney-pieces, executed in a style entirely unequalled in this country.

WESTMINSTER MARBLE WORKS, EARL-STREET, MILLBANK.

A Vacancy for a respectable person, who is well acquainted with the marble trade, to assist in the out-door department. Apply by letter only.

POLONCEAU'S BITUMEN PAVEMENT for paving Foot walks, Terraces, Garden walks, Stables, Coach Houses, Granaries, Corn Stores, and Salt Warehouses. For the exclusion of Damp and Vermin in Basements it is particularly adapted, and for Roofing Dwelling Houses, Porticos, Balconies, and Sheds.

Price 3s. 6d. per square yard.

BITUMEN for covering the Arches of Bridges, Culverts, &c. &c. on Railways and other places (with instructions for laying it down), may be had at the rate of 45s. per ton, by applying to JOHN PILKINGTON, 15, Wharf-road, City-road.

TO ARCHITECTS.

IN consequence of many complaints having been made to the Company, by Architects, of a spurious material having been used in the execution of Works where the SEYSSEL ASPHALTE had been specified for, the Directors, with a view to ensure the fulfilment of any such specification, have authorized CERTIFICATES to be granted to Builders where the

SEYSSEL ASPHALTE

has been used. For the purpose of securing the use of the Genuine Article, Architects and others are recommended to insert in their specifications the "Seyssel Alphalte, Claridge's Patent," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used, gas-tar and other worthless and offensive compositions have been introduced. F. FARRELL, Secretary.

Stangate, near Westminster Bridge, Jan., 1845. Seyssel Asphalte Company.

Books of Instructions for Use may be had at the Office of "The Builder," and of all Booksellers in Town and Country, price 1s.

*** In proof of the necessity of the above advertisement, it may be mentioned, that it has come to the knowledge of the Directors, that in certain works which have been executed by Messrs. CURTIS, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

Also in the case of a work at Lewisham executed by Messrs. ROBERTS and DANIEL YOUNG, of 10, Crown-row, Walworth-road, where Seyssel Asphalte was specified for, a spurious article was nevertheless laid down by them.

PROFESSOR KELLER'S POSES PLASTIQUES.

ROYAL ADELAIDE GALLERY.—This day, and during the week, Professor Keller will exhibit at the Adelaide Gallery his Grand Tableau Vivans from the Ancient Masters, which have received so largely the encomiums of the press. Every morning at half-past three, and in the evening at nine o'clock. Great efforts have been made to add to the effects of this exhibition. A variety of new subjects have been added to those already presented to the public The Concerts as usual. Also Pilbrow's Atmospheric Railway model, with explanatory lecture.

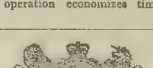
WESTBOURNE SAW MILLS.

50½, WESTBOURNE STREET, EATON SQUARE, PIMLICO.

J. NEWSON, having now completed his improved STEAM MACHINERY, begs to inform the Public that he is enabled to execute Sawing in all its branches with the greatest dispatch, and at such charges as he trusts will ensure to him a share of their patronage.



THE GENERAL WOOD CUTTING COMPANY, TIMBER and DEAL SAWING and PLANING MILLS, Belvedere-road, Lambeth, near Waterloo-bridge.—SAWING in all its branches executed with the greatest precision and despatch. PLANING by the most approved Machinery, reducing the Boards to a parallel width and thickness, and grooving or matching with undeviating accuracy. The operation economizes time, money, and material.

MUIR'S PATENT  PLANING MACHINERY.

SAW MILLS, GILLINGHAM-STREET, PIMLICO.

TIMBER of any Size, PLANK, DEALS, and BATTENS, &c. Sawn on the most approved principle. Boards, &c., Prepared, Matched, and Grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor-canal. Goods fetched from the docks and carted home free of charge.

Address to HENRY SOUTHAM, Saw Mills, Gillingham-street, Pimlico.

PAYNE'S PATENT PROCESS FOR THE PRESERVATION AND IMPROVEMENT OF TIMBER, &c.

PAYNE and LODER beg to invite the attention of Engineers, Railway Companies, Architects, and others to the above process, and to state that they are prepared to erect the necessary apparatus in any part of the United Kingdom where the quantity is sufficiently large to cover the outlay of its removal.

Further particulars can be obtained at Whitehall-Wharf Cannon-row, Westminster, or at their other stations, Fleetwood-on-Wyre, Lancashire; Wisbeach, Cambridgeshire; Union-Wharf, Southampton; and Guildford, Surrey.

SIR WILLIAM BURNETT'S PATENT for the Preservation of Timber, Canvas, Cordage, Cotton, Woollen, &c., from Decay.

TESTIMONIALS.

From THOMAS GRAHAM, Esq., M.A., F.R.S., L. and E., Professor of Chemistry, University College, London.

"After making several experiments on wood prepared by the solution of chloride of zinc for the purpose of preservation, and given the subject my best consideration, I have come to the following conclusions.

"The wood appears to be fully and deeply penetrated by the metallic salt; I have found it in the centre of a large prepared paving block.

"The salt, although very soluble, does not leave the wood easily when exposed to the weather, or buried in dry or damp earth. It does not come to the surface of the wood by efflorescence, like the crystallizable salts. I have no doubt, indeed, that the greater part of the salts will remain in the wood for years, when employed for railway sleepers or such purposes. This may be of material consequence when the wood is exposed to the attacks of insects, such as the white ant in India, which I believe would be repelled by the poisonous metallic salt.

"After being long macerated in cold water, or even boiled in water, thin chips of the prepared wood retain a sensible quantity of the oxide of zinc; which I confirmed by Mr. Toplis's test, and observing that the wood can be permanently dyed from being charged with a metallic mordant.

"I have no doubt, from repeated observations made during several years, of the valuable preservative qualities of the solution of chloride of zinc, as applied in Sir. W. Burnett's process; and would refer its beneficial action chiefly to the small quantity of the metallic salt which is permanently retained by the lignceus fibre in all circumstances of exposure. The oxide of zinc appears to alter and harden the FIBRE of wood, and destroy the solubility, and prevent the tendency to decomposition of the azotised principles it contains, by entering into chemical combination with them.

Signed, "THOMAS GRAHAM."

"University College, 25th October, 1845.

From Professors BRANDE and COOPER.

"SIR,—We have this day again examined the specimens of canvas and wood prepared according to the specification of your patent, and which, in the month of April, 1844, we placed in a damp cellar, where they have remained up to this date.

"We are now enabled satisfactorily to corroborate the favourable opinion expressed in our former report. The canvas remains amply protected from all fungous vegetation and rottenness, while a corresponding sample of the same piece, which had not been prepared by immersion in the solution of chloride of zinc, is entirely decayed, being mouldy, rotten, black, and in places resembles timber.

"We have also lately compared the strength of a fibre of a piece of canvas which we prepared according to your specification, in October, 1844, with that of the fibre of the same canvas, unprepared, and find that it has in that respect sustained no injury. We are therefore of opinion that your process will not, after any lapse of time, tend to deteriorate the strength of the fibres of the substances in question.

"In regard to the several samples of different species of wood above advertised, each of which was cut into two, one half being imbued according to the directions of your specification with the dilute solution of chloride of zinc, while the other half was left in its original condition, we have also to make a favourable report, and to repeat our opinion of the efficacy of your process as a preventive of dry rot, and similar sources of decay; the unprepared specimens are manifesting symptoms of decay and mildew, while those which have been protected by your preparation are clean and sound.—(Signed) "WILLIAM THOMAS BRANDE,

"JOHN THOMAS COOPER."

"To Sir William Burnett, K.C.H., F.R.S., &c. &c."

Testimonials from numerous other parties may be obtained on application, personally or by letter, to the Secretary, and Specimens may be seen at the Office, 53, King William-street, London-bridge.

AT REDUCED PRICES.

PREPARED FLOORING BOARDS.

ALWAYS ON SALE, a LARGE ASSORTMENT of DRY PREPARED FLOORING BOARDS and MATCHED BOARDING of all sorts, planed to a parallel width and thickness, from ⅞ inch to 1¼ inch thick. Rough Boarding for Flats.

TIMBER, DEALS, OAK PLANKS, SCANTLINGS, SASH SILLS, &c.

Apply at W. CLEAVE'S Timber Yard, Smith-street, Westminster.

PREPARED FLOORING BOARDS.

ALWAYS ON SALE at A. ROSLING'S, SOUTHWARK-BRIDGE-WHARF, BANKSIDE, and Old-Barge-Wharf, Upper Ground-street, Blackfriars, a very large stock of well-seasoned Floor Boards of every variety.

A. R., in calling the attention of builders and consumers, confidently presumes on his being able to supply them on such advantageous terms, as will ensure and merit their favours and approbation.

DRUCE'S No. 2, WHARF, late Paradise-wharf, Chelsea.

TO THE TRADE.—Parties desirous of delivering Timber Deals, Stone, Bricks, or any other goods, in the districts of Chelsea, Brompton, Fulham, Kensington, &c. &c., will find great facilities of Wharfage, Cranage, or Delivery, by applying as above.

N.B.—A weighbridge on the premises.

STEPHENS'S LIQUID OAK, MAHOGANY, ROSE, and SATIN WOOD STAINS, for Staining various sorts of Inferior Woods, so as to give them the appearance and character of the more costly and ornamental kinds; also for reviving the natural colour of Wood Carvings and Panellings, and other ornamental Wood Work, when such has become faded from age or other causes.

IN THE BUILDING AND DECORATING NEW CHURCHES, where it is desirable to give to the cheaper kind of Woods the appearance of Antique Oak, or to make Deal assume the character of Oak Panelling, whereby the effect of the more costly may be produced by the use of a cheaper material, these Stains will be found more effective than any means hitherto employed.

IN COMMONS AND HALLS, where the Wood Carvings and Panellings have faded, the application of these Stains will be found to revive and bring back the rich natural colour, and which colour may be varied from the lighter to the deeper shades of the most Antique Oak.

The BIRCH WOOD, which has a fine natural grain, with little colour, is particularly suited to the application of these Stains; and the appearance which it assumes after Staining is so near that of the natural wood, that is is only when the grain and colour of the latter is particularly fine that it is preferred. Beech, Birch, Elm, Ash, and other Woods, English and Foreign, receive the Stains and produce various imitations.

For the exposed Timbers of the inside of the ROOFS of CHURCHES, for which north country Timbers and Deals are generally used, by brushing them over with the Stain, which operation is very rapidly, and of course economically, effected, the appearance of an Oaken Roof will be produced. For colouring the backs of the Seats, Pews, the fronts of Galleries, the Pulpit, &c., it is equally advantageous.

Prepared by HENRY STEPHENS, and may be obtained at 54, Stamford-street; of Mrs. FOWLER, Painter and Glazier, 3, Broad-street, Golden-square; and at the Office of "THE BUILDER," 2, York-street, Covent-garden, at which places specimens of their application may be seen.

HOLBORN AND FINSBURY SEWERS. MIDDLESEX.

THE COMMISSIONERS of SEWERS for the LIMITS give NOTICE, that their Office, Hatton Garden, is open daily between the hours of Ten and Four, where information may be obtained (gratis) by persons about to Purchase or Rent Houses or Property, or take Land for Building purposes, of the situation and level of the public Sewers, capable of affording sufficient Drainage, and which they recommend all such Persons to apply for at the above Office.

By the Court,

STABLE and LUSH, Clerks.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. (chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, public way, or in any part intended to become a street, lane, or public way, or to carry or drain off water from any house, building, yard, or ground, into any sewer under their management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewer or sewers shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, upon application being made at this office previously to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, whenever the lower floors or pavements of buildings shall have been laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings must in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners will be cut off, and the parties making the same will subject themselves to a fine.

The Metropolitan Buildings Act (7 and 8 Victoria, c. 81) do not supersede the authority of the Commissioners of Sewers in the above respects, but their powers are expressly reserved, and their regulations made subservient to the purposes of that Act. The execution of such works, under the superintendence of the district surveyor alone, cannot therefore warrant the making of any sewers or drains within this commission, nor relieve the parties making them from the penalties above mentioned.

By order of the Court,

LEWIS C. HERTSLET, Clerk.

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